Exploring IT Applications for Qualitative Data Analysis in Marketing Research

Elena D. Bezborodova

Master of Business Studies (Research)

Supervisors: Mr. William Bennett

Mr. Thomas Dowling

Submitted to the Higher Education and Traning Awards Council

September 2003

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Abstract

The dissertation is aimed to investigate qualitative research techniques used in research projects and to evaluate software usage in qualitative data analysis. The study contains a review of academic literature on fundamental issues of qualitative methodology, problems of methodological divergence and integration, theoretical grounds for qualitative data analysis and computer usage in qualitative research. Primary research, designed in three phases used both qualitative and quantitative approaches in order to enhance credibility and richness of the final results. Both methodological and data source triangulation employed in the study helped to maximise the validity of the research findings and to eliminate any data source bias.

The findings provided for the profiling of qualitative research projects in terms of their typology, subject areas, data analysis and data collection techniques. Comparative analysis undertaken in the study revealed a greater degree of methodological convergence and data source triangulation in the projects undertaken with the aid of a computer. It was found that software for qualitative data analysis did not save time, but made the research process more systematic and transparent. Qualitative research and software experience were found to be of a high importance for successful usage of qualitative software. Revealed patterns in the projects undertaken by qualitative software were summarised in five models, showing three major areas of software application. It was noted that complexity and timing issues at the data transformation stage were the main barriers in the projects' computerisation.

The study revealed barriers to software utilisation, conflicts preventing the researcher from using software for qualitative data analysis and the main reasons for reluctance to use qualitative software. Some of them are on-going paradigm war and immersed nature of qualitative research; the lack of information and poor marketing of qualitative software (particularly for the commercial research niche); the nature of the commercial environment and the long/steep software learning curve. Recommendations outlined in the study referred to three main groups: software producers and sellers, research methodologists and trainers, and qualitative marketing researchers.

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List of Abbreviations

AQR	The Association for Qualitative Research
ASII	American Standard Code for Information Interchange
CAQDAS	Computer Assisted Qualitative Data Analysis
CSCW	Computer-Supported Cooperative Work
CRMS	Customer Relationship Management Systems
EJM	European Journal of Marketing
ESOMAR	European Society for Opinion Research
HBR	Harvard Business Review
HRM	Human Resources Management
IBM	International Business Machines Corporation
IMM	Industrial Marketing Management
IT	Information Technology
JA	Journal of Advertising
JAMS	Journal of the Academy of Marketing Science
JAR	Journal of Advertising Research
JB	Journal of Business
JBR	Journal of Business Research
JCR	Journal of Consumer Research
JM	Journal of Marketing
JME	Journal of Marketing Education
JMR	Journal of Marketing Research
JR	Journal of Retailing
KWIC	Key Words in Context
MBS	Master of Business Studies
MKS	Marketing Science
MR	Marketing Research
NI	Northern Ireland
NPD	New Product Development
NUD*IST	Non-Numerical Unstructured Data Indexing Searching and Theorising
N6	NUD*IST 6
QCA	Qualitative Comparative Analysis

QDA	Qualitative Data Analysis
QSR	Qualitative Solutions and Research
QUANT	Quantitative
QUAL	Qualitative
ROI	Republic of Ireland
SA	South Africa
SMR	Sloan Management Review
SPSS	Software Packages for Social Sciences
UK	United Kingdom
USA	United States of America

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Acknowledgements

I would like to thank William Bennett and Thomas Dowling, supervisors of my dissertation who were supportive and gave their time and invaluable help.

Many people greatly contributed to the ideas contained in this dissertation. They include: Des Byrne (Behaviour and Attitudes Limited, Ireland), Susan Coglan (Customer Relationship Management Systems (CRMS), Ireland), Dr. Miriam Catterall (School of Management and Economics, Queens University, Belfast), Dr. Silvana di Gregorio (Silvana di Gregorio (SdG) Associates, Research and Training Consultant, London, UK and Boston, USA), Dr. Linda Gilbert (University of Georgia, USA), Ann Levins (University of Surrey, UK), Ben Meehan (CRMS, Ireland), Ester Haumann (Researcher, South Africa). I appreciate their generosity and support.

Finally my dissertation could not have been completed without the aid of many people working in various departments of Letterkenny Institute of Technology, including Library, Research and Development office, Business Studies, Computing and Engineering departments, Registrar's and Human Resource offices. Thank you all for your help.

Introduction

The scope of this dissertation is determined by the focus on understanding qualitative data analysis methods and practices in marketing research, and exploring the issues of computer usage in qualitative analysis. The overall aim of the study is to examine research techniques used in qualitative marketing research and to evaluate software usage for qualitative data analysis. The research objectives were posed to understand the profiles of qualitative research projects and projects undertaken by qualitative software and to evaluate researcher's attitudes towards software usage, exploring the barriers and driving forces in qualitative data analysis (QDA) usage.

The dissertation begins with a review of knowledge which exists within academic literature. The first chapter of the literature review explores the fundamental issues of qualitative methodologies, outlining qualitative traditions in marketing research, the concept of triangulation and the methodological foundation of qualitative data analysis. It provides insights into core differences between qualitative and quantitative research approaches and the logic of their methodological integration. The main emphasis is on data analysis techniques used in qualitative software design (identified as editing style techniques).

The second chapter focuses on theoretical issues of software use in qualitative data analysis, highlighting the on-going discussions on the place of CAQDAS (Computer Assisted Qualitative Data Analysis Software) in qualitative data analysis and the capabilities of QDA software in research practice. It emphasises the importance of the grounded theory approach (based on constant data refinement through coding and retrieval processes) as a theoretical foundation of computerised data analysis and reveals software application of the grounded theory process.

In the third chapter, the methodology of this study is presented. The methodology chosen for primary research aims to achieve validity of findings and to produce richer results by means of triangulation of the research techniques and data sources used in

the research design. Three stages of primary research findings were obtained from a variety of sources, including analysis of secondary data on published qualitative projects, data collected through a quantitative survey, and qualitative interviews.

Chapter four and five offer a presentation and analysis of the findings of the research. The research provided for an investigation into both academic and commercial marketing research practices. Noting the differences which exist between academic and commercial market research practices, the dissertation aimed to explore common issues and patterns in qualitative data analysis in order to enhance awareness and understanding of these practices. Highlighting different aspects of computerised qualitative data analysis, the investigation emphasises major problems surrounding effective software usage in qualitative marketing research.

Qualitative data analysis practices, while characterised as highly sophisticated, lack the articulation and understanding of analytical processes. On the other hand, the awareness of relevant knowledge and frameworks is of a great importance for the effective research practice. This investigation attempted to articulate key methods employed in qualitative analysis, focusing on CAQDAS appropriateness and effective usage in dealing with qualitative data. By making the key principles used in qualitative practice explicit, marketing research specialists can then make more informed choices about methodology and help better train future generations of market researchers.

Chapter One

Fundamentals of Qualitative Research Design and Analysis

Content

1.1 Introduction

This chapter aims to explore the fundamental issues associated with qualitative methodology, providing insights into the nature of the main analytical approaches and research traditions. Understanding the fundamental theoretical background of the various research approaches is crucial for sound research design. Methodologies through which the research process can be designed, understood and characterised are significant in providing firm ground for the process of research design and analysis.

The chapter consists of three main sections. It begins with a description of the main research traditions, their divergence and integration, focusing on fundamental differences existing between qualitative and quantitative approaches and providing insights into the basics of methodological triangulation. In the next section the theoretical background for qualitative research traditions has been explored in detail narrowing into the further exploration of the nature of qualitative data analysis. Finally, the main analytical techniques in qualitative data analysis represented by grounded theory, qualitative comparative analysis, content analysis and case studies have been considered and discussed. It should be noted, that the main emphasis is on exploration of the grounded theory approach which plays a leading role in qualitative software design and analysis, considered in the next chapter.

The significance of the first chapter for this study is in the identification of the main analytical techniques and types of research projects fundamental for the constructs and variables of the three-phase primary research undertaken. The literature review attempts to highlight the main issues in qualitative data analysis and forms the basis for the primary research objectives. Moreover, it provids valuable insights into key problems discussed in literature and the nature of on-going debates which helped in understanding the study outcomes and research findings.

1.2 Basic Research Traditions: Methodological Divergence

Understanding the sources and theoretical background of research methodologies is fundamental to the research design process. According to Crotty (1998, p.41) there are four basic elements of a research process: methods, methodology, theoretical perspective or paradigm and epistemology. Methods are represented by techniques and procedures used for data collection and analysis. They are grounded on the methodology, which provides for a strategy or a plan of action. Theoretical perspective is a philosophical stance informing the methodology and providing a background for its logic and criteria. Epistemology is termed as a theory of knowledge embedded in the methodology (Byrne, 2000).

There are certain subordinate relationships between the elements. Epistemology, which deals with 'the nature of knowledge' (Crotty, 1998, p. 42), creates a basis for the theoretical perspective. The theoretical perspective is characterised by the theoretical assumptions reflected in the employed methodology, which provides concrete techniques and methods. The main theoretical perspectives from Crotty's (1998) point of view are positivism and phenomenology. He noted the different epistemological background to the theoretical perspectives, which provided for using different methodological approaches: quantitative and qualitative. In contrast, Creswell (1994, p. 5) considers the differences between the paradigms as not only epistemological in nature. In Table 1.1 the paradigms are summarised on a number of key dimensions: ontological, epistemological, axiological, rhetorical, methodological and casual linkage.

Table 1.1: Paradigms and Assumptions

Assumption	Question	Paradigms and Approaches			
		Positivism/ Quantitative	**Constructivism/ Qualitative**	**Postpositivism/ primary quantitative**	**Pragmatism/ Quantitative and Qualitative**
Ontological assumption	What is the nature of reality?	Reality is objective and singular, apart from the researcher naïve realism	Reality is subjective and multiple as seen by participants in a study Realism	Critical or transcendental realism	Accept external reality. Choose explanations that best produce desired outcomes
pistemological ssumption	What is the relationship of the researcher to the research?	Researcher is independent from that being researched Objective point of view Knower and known are dualism	Researcher interacts with that being researched Subjective point of view Knower and known are inseparable	Modified dualism Findings probably objectively true	Both objective and subjective points of view
Axiological Assumption	What is the role of values?	Value-free and unbiased inquiry	Value-laden and biased inquiry	Inquiry involves values, but they may be controlled	Values play a large role in interpreting results
Rhetorical Assumption	What is the language of the research?	Formal Based on set definitions Impersonal voice Use of accepted quantitative words	Informal Evolving decisions Personal voice Accepted qualitative words	Primarily formal	Formal and informal
Methodological Assumption	What is the process of research	Deductive process Cause and effect Static design; categories isolated before study Context free Generalisations leading to prediction, explanation, and understanding	Inductive process Mutual simultaneous shaping of factors Emerging design – categories identified during research process Context-bound Patterns, theories developed for understanding	Primarily deductive	Deductive and inductive
Assumption of casual linkage	What are relationships among social phenomena?	Real causes temporally precedent to or simultaneous with effects	All entities simultaneously shaping each other. It is impossible to distinguish causes from effects	Causes are identifiable since changes happen over time	There may be many casual relationships, but we will never be able to pin them down

Sources: Combination of Creswell (1994), Firestone (1987), Guba and Lincoln (1988), Denzin and Lincoln (1994), House (1994), Tashakkori and Teddlie (1998) and McCracken (1988).

1.2.1 Overview of the Quantitative Approach

The quantitative approach is termed a traditional, positivist, experimental or empiricist paradigm. It provides for considering reality as objective, singular and independent from the researcher. The quantitative methodological process is deductive. It tests theories and hypotheses in a cause-and effect order. Quantitative research design is static, which means that concepts, variables and hypotheses are chosen beforehand and remain fixed throughout the research. The aim of a quantitative study is to test theory and to provide for generalisation, which allows a phenomenon to be better understood and predicted. 'Quantitative methods have developed largely to confirm or verify theory, whereas qualitative methods have been developed to discover theory' (Mullen and Iverson, 1986, p. 150).

Accurate research results are reached by means of valid and reliable research instruments and methods. The theoretical constructs have precise meaning and common acceptance in a quantitative study. Theory is defined as:

> A set of interrelated constructs (variables), definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining natural phenomena (Kerlinger, 1979, p. 64).

Creswell (1994, p. 83) added that the relationships are specified in terms of their type (positive, negative or unknown) and magnitude (high or low). He used the metaphor of a rainbow to explain Kerlinger's (1979) meaning of theory.

> This rainbow, then, ties together the variables and provides an overarching explanation for how and why one would expect the independent variable to explain or predict the dependent variable (Creswell, 1994, p. 82).

Quantitative theory may be expressed as a series of hypotheses (Hopkins, 1964, p.15), 'if ... then' statements (Homans, 1950, pp.112 - 120) or a visual model (Megel et al,

1988, pp. 45-54). Since the aim of a quantitative study is to test theory, the results of the research reflect whether the theory was confirmed or not. The deductive model of quantitative analysis provides for theory testing through hypotheses or research questions derived from the theory. The variables defining hypotheses are measured by means of specific instruments (Creswell, 1994, p. 88). Quantitative study is described as a process of manipulation of one or more independent variables to identify whether such a manipulation can cause an outcome (McMillan and Schumacher, 1989).

Quantitative data analysis is called statistics. Textbooks on statistical data analysis provide for the explanation of standardised statistical techniques and differ from each other only in terms of ease of understanding. Tesch (1990, p. 3) viewed such a divergence among statistical authors as a response to the challenge of introducing statistical procedures, which is difficult for learning and understanding.

> The quantitative researcher can pretty confidently plug his or her data into any statistical formula taken from any book, and will not be challenged by anyone about procedure itself, as long as it suits the type of data and the research question asked (p. 3).

The quantitative methodology includes experimental research (Keppel, 1991) used for testing cause and effect relationships, and survey research (Babbie, 1990) providing for numeric description of a sample, which is generalised to the whole population. Generalisation demands that particular attention be paid to sampling procedure and design in the study. Such issues as population description, sampling frame, stage of sampling, procedure selection, stratification and sample size should be clearly identified to enhance validity and reliability of the research.

Flick (1998, p. 2) suggested that quantitative research has been used for isolating 'causes and effects ... operationalising theoretical relations ... [and] measuring and quantifying phenomena ... allowing generalisation of findings'. However he doubted the usefulness of such projects, because:

> Rapid social change and the resulting diversification of life worlds are increasingly confirming social researchers with new social contexts and perspectives. Traditional deductive methodologies are failing ... thus research is increasingly forced to make use of inductive strategies instead of starting from strategies and testing them ... knowledge and practice are studied as local knowledge and practice (p. 2).

In the last decade there have been significant shifts in methodological understanding, resulting in the replacement of the 'pre-eminence and predominance of quantitative methodology' by a qualitative one (Bryman and Burgess, 2000, p. 1).

1.2.2 Overview of the Qualitative Approach

The qualitative approach is termed as a constructivist, naturalistic, phenomenological or interpretive one. The term 'qualitative research' means different things for different people. To Strauss and Corbin (1990, p. 17) it means 'any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification'. Other terms associated with this approach are 'field research' (Singleton and Straits, 1999), 'case study' (Feagin et al., 1991) or ' ethnographies' (Spradley, 1980). By prolonged and intensive contact with people, a qualitative researcher studies their experiences, perceptions, and the meaning they place on events and processes. Miles and Huberman (1994) added that this approach gives a holistic view, via the participant's own words and perceptions of how they understand, account for and act within a given situation.

Alternatively, a qualitative approach is based on the naturalistic, interpretative or phenomenological paradigm.

> Here rigid controls of the "artificial" experimental setting are rejected in favor of inspecting "natural" settings, and such investigation is done in a different attitude, one of "appreciation" rather than neutrality and social distance (Fielding and Fielding, 1986, p. 18).

According to this approach, reality is subjective and multiple. Subjectivity means that reality is something that is constructed by people involved in the research process.

> Social world cannot be understood in terms of casual relationships or by the subsumption of social events under universal laws because human actions are based upon, or infused by, social meanings: intentions, motives, attitudes and beliefs (p. 18).

The Qualitative research methodology is chracterised as being inductive in nature. Research categories and hypotheses are not predetermined and appear throughout the study. The research is aimed at theoretical development through the discovery of patterns, which are common for all studied cases.

Grounded on American sociology (Kirk and Miller, 1986), the qualitative research paradigm has been adopted by educational and business studies researchers quite recently (Fielding, 2000). It is a process of investigation of social phenomena by contrasting, comparing, replicating, cataloguing and classifying the data (Miles and Huberman, 1984). In contrast to a quantitative study, qualitative theory is not established beforehand. It is grounded on information gained from participants in the form of interview transcripts, video-audio material and field notes. Theory emerges through an inductive analytical model of thinking. The researcher builds abstractions, concepts, hypotheses, and theories from details (Merriam, 1988, pp.19-20). Based on a series of iterations, a researcher creates theoretical categories that shape a conceptual framework.

> A conceptual framework explains, either graphically or in narrative form, the main dimensions to be studied – the key factors, or variables – and the presumed relationships between them. Frameworks come in several shapes or sizes. They can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal (Miles and Huberman, 1984, p. 28).

Qualitative research design is not as well defined as quantitative research design. The design is not standardised; there are, hence, quite a few widely accepted procedures that can be used in qualitative research. Robson and Foster (1989) described the qualitative research process as highly creative and heavily based on the researcher's analytical ability. May (1993) viewed its creative nature in having 'eureka moments' and 'magic' in the analysis.

The qualitative researcher is more focused on the process than on the outcome. The researcher is a primary instrument of data collection (Fraenkel and Wallen, 1990). The focus of qualitative research is on the participants' perceptions and experiences, which help to understand a multiple reality and how things occur. Merriam (1988,

pp.19-20) added that qualitative research is descriptive in nature. The researcher is interested in the process, meaning, and understanding gained through words and pictures. The traditional reliance of the researcher on intuitive knowledge is the subject of criticism from both research approaches, pointing out insufficient emphasis on credibility and validity in the research methodology. It is noted however, that qualitative research builds credibility and trustworthiness through the process of continuous verification rather than through traditional (statistical) measures (Eisner, 1991; Ereaut, 2002).

Qualitative research is exploratory by nature and is usually characterised as being subjective, interpretive and having small sample sizes. McDaniel and Gates described it as cheaper research in comparison to quantitative (1998, pp. 125-126). Singleton and Straits (1999, p. 323) suggest that 'research can be costly' and 'all research strategies require time, space, money, and personnel'. It can be used in addition to quantitative research for improving the efficiency of quantitative research and assisting an understanding of in-depth motivations and feelings (McDaniel and Gates, 1998, pp. 125-126). The complementary character of qualitative research is also emphasised by Singleton and Straits (1999, p. 322), who suggest that qualitative research may provide 'leads for exploratory research' as well as adding 'depth and meaning to survey and experimental design' (p. 322).

Amongst the research limitations mentioned in the literature (McDaniel and Gates, 1998, p. 126; Malhotra, 1999, p. 148) is small sample size, which limits the usage of qualitative study for generalisation. Singleton and Straits (1999) advise using the qualitative approach in certain situations such as:

> (1) when one wishes to study a fleeting or dynamic situation; (2) when it is essential to preserve the interrelatedness of the person and situation; (3) when methodological problems, resources, or ethics preclude the adoption of other research strategies; and (4) when very little is known about the topic under investigation' (1999, p. 353).

Miles and Huberman (1994, p. 5) summarised the main features of qualitative research as follows: it is conducted through an intense contact with the life situation;

the researcher tends to get a systematic, encompassing and integrated overview; data are captured 'from the inside'; the purpose of the study is to reveal how people understand, take action and manage the situation; the researcher is the main instrument in the study; and finally, data are in the majority of the cases, in text forms.

Tesch (1990, p. 55) emphasised the specific character and significance of qualitative data by stating that 'there is no such thing as qualitative research. There is only qualitative data'. Qualitative data are usually defined as data, which are not suitable for quantification (Malhotra, 1999, p. 148). However, debates on what constitutes qualitative data are still going on. Thus, Berg (1989) noted that all data are basically qualitative. On the other hand, Kerlinger argued: 'there is no such thing as qualitative data. Everything is either 1 or 0' (cited by Miles and Huberman, 1994, p. 40).

Data collected by qualitative research are not standardised and predetermined. It 'focuses on natural occurring, ordinary events in natural settings' (Miles and Huberman, 1994, p. 10). Qualitative data are normally in the form of spoken and written words (interview transcript or tape-recorded interview), symbols or pictures (photograph, slides, other visual objects), and body language (gestures). Data can capture the way in which things are said (emphasis, pauses, intonation), or represent any other instance, which can be coded and regarded as relevant for research. Text is the most widely used input data in qualitative research. Sometimes, however, semantic context or what is not said can be as important as what is said (Sampson and Bahaduri, 1987). Collected data (such as hours of video, tape-recorded material or pages of interview transcript) are usually voluminous and lacking an obvious and an identifiable structure. Being rich in context it can present a formidable problem for the analyst (Miles, 1979).

The main strengths of qualitative data are described by such features as focus on real life, collection of data in proximity to a specific situation, emphasis on a specific case, flexibility, richness and suitability for discovery (Miles and Huberman, 1994, p.10). Qualitative data might be treated as quantitative (for example the variable

gender has two attributes 'male' and 'female' that can be coded like one and two and manipulated statistically). These types of data are named 'categorical' or 'nominal'. Although the researcher can use numbers for the analysis, it is commonly agreed that the research 'predominantly or exclusively uses words as data' (Tesch, 1990, p. 56).

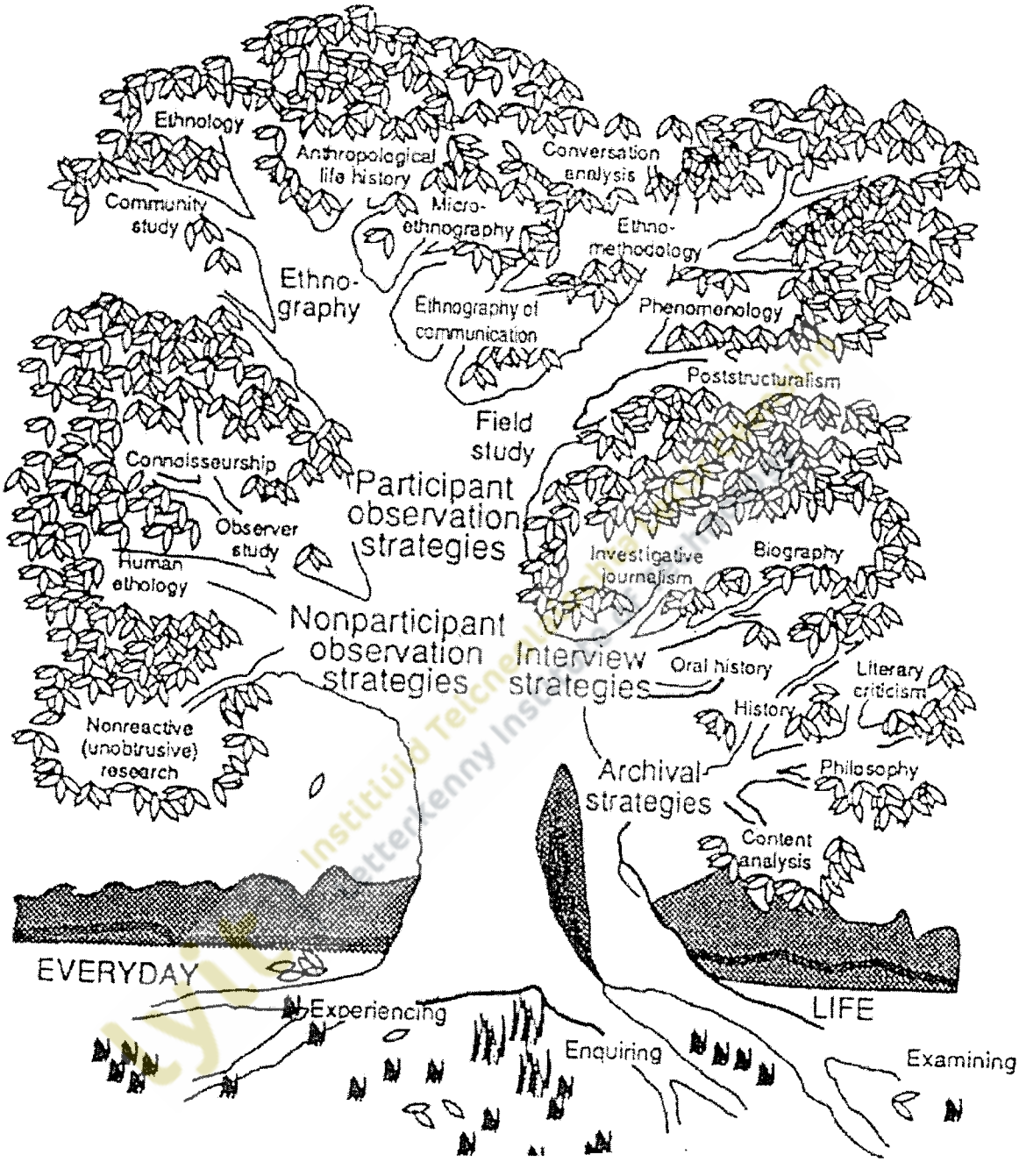
Qualitative data analysis, conducted between the end of fieldwork and presentation of a final report, is relatively invisible within qualitative research. It could be characterised as an intensive interpretive work on collected data, which is 'too delicate, or complex to explain' (Ereaut, 2002, p. 4). The complexity of the interpretive work provokes acquiring a 'guru like' status by some qualitative researchers, who magically transfer insightful material into useful conclusions.

There are two types of analytical styles, distinguished by Spiggle (1994, p. 500). The editing style of analysis involves a focus on categories and exploration of patterns linking the categories. In crystallisation/immersion style 'researchers alternatively immerse themselves in and reflect on the text until they intuitively grasp its meaning' (Spiggle, 1994, p. 500). Qualitative researchers often use both styles, employing intuitive skills to grasp a meaning through the holistic view on the collected data as well as performing detailed analysis by working on codes and categories. Moreover, the immersion style is one, which is regarded by researchers as more important and useful. Without it, the possibility of bogging down in the mechanics of the task and losing insights is quite high (Hedges and Duncan, 2000). It should be noted, however, that qualitative software available at this point in time could primarily facilitate the editing style of analysis.

There are various classifications of the methods of data collection and analysis associated with qualitative research. Strauss and Corbin (1990, p. 21) identified some of them (such as grounded theory, ethnography, the phenomenological approach, life histories, and conversational analysis). Smith (1987) offered the following categories of qualitative research: interpretive approach, artistic approach, systematic approach, and theory-driven approach. Alternatively, Creswell (1994, p. 11) described the following types of research design: ethnographies, grounded theory, case study and

phenomenological study. There are some other classifications similar to Creswell's. Thus, Alasuutari (1995) proposed a 'cultural studies' classification, which involved such approaches as: narrative analysis, ethnography, interpretivism/hermeneutic analysis, critical theories, collaborative or action research, and phenomenological study. Jacob (1987) suggested using three dimensions in order to identify the research types: 'assumptions about human nature and society', the 'focus', and the 'methodology'. He identified five major qualitative research traditions: ecological psychology, holistic ethnography, ethnography of communications, cognitive anthropology, and symbolic interactionism. Figure 1.1 illustrates a graphical representation of qualitative research traditions proposed by Wolcott (1992), who viewed the qualitative traditions as being grounded on experiencing, examining and enquiring everyday life.

Figure 1.1: Qualitative Research Traditions



Source: Wolcott (1992, p. 14)

The classification presented by Tesch (1990, p. 58) is probably the most commonly cited in social sciences literature (Fielding and Lee, 1998). She found twenty six types of research addressing the characteristics of language, the discovery of regularities, the comprehension of meaning, and reflection. She pointed out that some

of the types 'overlap with, or are synonyms for others, and not all terms are on the same conceptual level' (Tesch, 1990, p. 58). Some of the terms refer to the theoretical perspectives or traditions adopted by the researcher (for example 'experimental', 'clinical', 'interpretive', 'phenomenology', 'ethnography' and so on), whereas others identify the method or type of data used ('case study', 'field research', 'oral history'). Therefore Tesch (p. 58) deemed it impossible to sort all the terms 'neatly into categories according to "types" of qualitative research'.

Examination of the literature reveals a wide variety of publications devoted to the different qualitative approaches. A brief description of each approach follows. Narrative studies focus on narrative, sequence and chronology and tend to discover a 'basic story' across the cases (Abbott, 1992; Josselson and Lieblich, 1993). Ethnography produces patterns and behavioural instances in social and cultural settings by examining multiple data over a long time (Agar, 1986; Wolcott, 1980). Interpretivism is an in-depth analysis of text meanings by interpretation of the respondent and the researcher (Fischer and Wertz, 1975; Denzin, 1989, p. 19; Noblit, 1988). Critical theory focuses on the discovery of invisible aspects in social life (Popkewitz, 1990; Carspecken and Apple, 1992). Collaborative (or action research) aims not only to study, but also to improve the social settings and work on social problems (Watkins, 1991). The case study method provides for 'an in-depth study of the cases under consideration' (Hamel et al., 1993, p. 1). The main aim of the approach is concentration on a single case by means of 'direct observation' and 'systematic interviewing' (Yin, 1984, p.19). Qualitative studies employing mixed methodological approaches are represented by content analysis (Weber, 1985) and qualitative comparative analysis (Ragin, 1987), which will be considered in more detail in the following sections.

1.2.3 Qualitative Versus Quantitative Approach

Traditionally, qualitative methodology is associated with phenomenology and quantitative with positivism. However the history of qualitative research shows that

this has not always been the case. Originating in the nineteen twenties from the Chicago school, which had strong phenomenological traditions, qualitative research experienced a breakdown of the fundamental paradigm in the nineteen sixties. Some qualitative researchers such as Becker et al., (1961) attempted to do positivist research by employing quasi-statistics.

The postmodern period in social science (after 1990) launched a new division in qualitative research, which locates itself between postpositivism and poststructuralism. This division is characterised by using 'any and all of the research strategies (case study, ethnography, phenomenology, grounded theory...)' (Denzin and Lincoln, 2000, p. 13). Postpositivists named themselves as 'interpretive bricoleurs' and 'relies on multiple methods as a way of capturing as much reality as possible' (Denzin and Lincoln, 2000, p. 9). One of the best-known attempts of postpositivist application in qualitative research is the recent modification of the grounded theory approach by Strauss and Corbin (1998).

It is noted that although qualitative researchers in the postpositivist tradition can use statistical techniques 'they will seldom report their findings in terms of the kinds of complex statistical measures and methods to which quantitative researchers are drawn' (Denzin and Lincoln, 2000, p. 9). The use of quantitative methods in qualitative research is considered totally unacceptable by researchers attached to another new tradition in social science, that is, poststuctural and/or postmodern sensibilities (Vidich and Lyman, 2000, p. 37). It should be noted, however, that it is hard to find researchers who place themselves in a fixed position and advocate pure postpositivism, relativism or any other orientation.

> Now scores of postpositivists are using naturalistic and phenomenological approaches. At the same time, an increasing number of interpretively oriented ethnographers are using predesigned conceptual frames (Miles and Huberman, 1994, p. 4).

Miles and Huberman (1994, p. 5) pointed out that the traditional paradigms were 'shifting beneath our feet' and researchers tend to be more pragmatic. They provided for the idea of the possibility of developing a standardised methodology, which could be 'workable across different perspectives'.

Traditionally, the division between qualitative and quantitative approaches was firmly established in the core disciplines of social science. In terms of analytical technique it is a division between analytic induction (for example grounded theory) and hypothetico-deduction (Hyde, 2000). The differences in logic of generalisation are also apparent. Generalisation could be achieved either by examining data, which determine the axiom fitting all cases in qualitative study, or by verifying hypotheses, in testing them against data in order to identify how many cases they explain in the quantitative study (Fielding and Fielding, 1986, p.17). Polarity between 'objective and rigorous' quantitative research and 'subjective and speculative' qualitative research is certain and commonly recognised.

Qualitative study is usually portrayed as 'soft' whereas quantitative is described as 'hard'. 'Qualitative researchers call quantitative researchers "number-crunchers", and the riposte of the latter is that the former are mere "navel-gazers" (Fielding and Fielding, 1986, p. 10). Qualitative data 'are derived from a new paradigmatic, post-positivist approach, while in contrast quantitative data are derived from traditional positivistic paradigm' (Coffey and Atkinson, 1996, p. 5).

Another traditional view on the fundamental analytical division in social research is the division on variable-oriented and case-oriented approaches. Case-oriented analysis is traditionally associated with the usage of qualitative data and variable-oriented analysis and tends to employ quantitative data. Ragin (1987, p. 9) stated that variable-oriented (quantitative) differs from case-oriented (qualitative) 'in terms of their different orientation toward the analysis and interpretation of data'. Miles and Weitzman (1995) argued that the distinction between qualitative and quantitative approaches is different to the division between the case-oriented and variable-oriented approaches. They pointed out that there are a number of examples of using qualitative data for variable-oriented analysis and quantitative data for case-oriented analysis. Although cases may be analysed in terms of variables in qualitative research, they are considered as wholes and evaluated as a unique configuration.

A variable-oriented approach is pragmatic and deals with relations among well defined concepts and theories.

> The variable-oriented approach is theory-centered. It is less concerned with understanding specific outcomes or categories of outcomes and more concerned with assessing the correspondence between relationships discernible across many societies or countries, on the other hand, and broad theoretically based images of macrosocial phenomena, on the other (Ragin, 1987, p. 53).

The logic of variable-oriented analysis centres on theory testing. It begins by specifying a theory in terms of variables and relations. Moreover, an alternative theory must be presented and explained in terms of variables and relations. Then the preferred theory is tested against the competing one by means of statistical analysis. In the variable-oriented approach it is important to employ appropriate measures to enhance the validity and reliability of the analysis. Variable-oriented analysis is appropriate for finding probabilistic relations among the variables in a large population. However, it is not able to manage the complexity of social phenomena where multiple causes affect each other and the final effect.

Ragin (1987, p. 54) noted that it is difficult to achieve generality and complexity in one study since 'an appreciation of complexity sacrifices generality; and an emphasis on generality encourages a neglect of complexity'. In the case-oriented approach priority is given to complexity over generality. The case-oriented approach is holistic; it studies the whole case, which means that the significance of events depends on the case's context. It views cases as entities rather than a collection of parts; it considers causes and effects, associations and configurations, and specific patterns in a small population. The case-oriented approach deals with a small number of cases and is characterised as systematic and process oriented (Abbott, 1992; Maxwell, 1992; Mohr, 1982). Notions of sampling and frequencies are less relevant than the variety of significant patterns and interrelations. Ragin (1987, p. 53) called the case-oriented strategy 'evidence-oriented' as it provides for interaction between evidence and ideas.

1.2.4 Commercial Versus Academic Marketing Research

Marketing research provides scope for most social science qualitative research methods and increasingly qualitative methods are employed in project design in both commercial and academic research (Winn and Keller, 2001, p. 12; Hill and McGowan, 1999; Fielding, 2000). There are some fundamental differences between academic and commercial research, which are best explored by Ereaut (2002), who outlined the differences with regard to the nature of projects, research environment and objectives.

Commercial market research is carried out for a fee and is undertaken by researchers who act as agents of the profit-orientated client. Commercial researchers, while striving to be impartial in their analysis, always represent the client's side and focus on maximising the usefulness of the outcomes for the client. Alternatively, academic researchers work rather independently and feel relatively free in exercising their research interests. Research methods vary significantly in academic projects, which represent a wide spectrum of scientific interests.

Differences in the nature of projects can be characterised in terms of scope, size and duration. Academic projects are normally undertaken over several years and conducted in multiple stages with a number of emerging hypotheses. In contrast, commercial projects are usually short-term and small-scale. They are conducted over a few weeks under a fixed time-scale and well-formulated objectives.

Methodological transparency requirements are quite low in commercial projects due to the project's short-term nature and the lack of client's interest in recording the analysis process itself. The commercial market research industry is viewed as an experience-based business, in which skills are acquired through apprenticeship and long practice. Skilled qualitative analysts excel in achieving as much open-mindedness towards the data as possible within the established framework. Commercial researchers usually possess accumulated tacit knowledge of specific

business areas or products, which is highly valued by a client. 'With this tacit and explicit knowledge, commercial qualitative researchers can arrive at robust conclusions faster and through less overtly formal processes than may be seen in an academic environment' (Ereaut, 2002, p. 23).

While there are fundamental differences between commercial and academic market research, certain things are common such as, requirements for methodological and theoretical accountability, credibility, creativity and open-mindedness.

1.2.5 Integration of Different Research Traditions as a Basis for Methodological Triangulation

The theoretical logic of methodological convergence can be described by Levins's declaration that 'our truth is the intersection of independent lies' (Levins, 1966, p. 423). The idea of linking paradigms, combining methods and using mixed research design was widely discussed in the past (Campbell and Fiske, 1959; Webb et al, 1966; Fielding and Fielding, 1986). In the on-going process of the 'paradigm war' there is still a lack of understanding of the role and methodological suitability of converged methods in research designs (Fielding and Fielding, 1986).

Miles and Huberman (1994) as well as Miller and Fredericks (1994) believe that the 'qualitative-quantitative argument is unproductive' and do not see any reason 'to tie the distinction to epistemological preference' (Miles and Huberman, 1994, p. 41). They state that the question 'is not whether the two sorts of data and associated methods can be linked during study design, but whether it should be done, how it should be done, how it will, and for what purposes' (p. 41).

Ragin (1987, p. 69) suggested that using combined strategies in research design is fruitful and provides a way of integrating 'several features of case-oriented and variable-oriented approaches'. He stressed that the 'ideal synthetic strategy should integrate the best features of the case-oriented approach with the best features of the variable-oriented approach'. From his point of view, each approach has limitations; a

variable-oriented analysis examines relations between parts in isolation from the whole; and a case-oriented analysis focuses on the whole, ignoring the parts. By contrast, 'a synthetic strategy should allow analysis of parts in a way that does not obscure wholes' (p. 83). He described both methods as complementary and their combination as not a totally new strategy, but simply one, which employs both approaches:

> Quantitative cross-sectional and time-series analysis, for example, are sometimes used to buttress primary interpretive, case-oriented investigation, and interpretive case studies are sometimes used to support the findings of quantitative cross-national investigations (p. 71).

The advantages of combining qualitative and quantitative techniques are advocated by Mathison (1988) and Swanson (1992). Strauss and Corbin (1990, p. 18) are also positive towards the idea of combining qualitative and quantitative methods. They suggested that 'one might use qualitative data to illustrate or clarify quantitatively derived findings; or to quantify demographic findings' (p. 19). On the other hand, Reichardt and Cook (1979) tried to convince researchers to choose between the methods rather than to combine them.

The paradigm debate formed several schools of thinking such as purists, situationalists and pragmatists (Guba, 1992; Patton, 1988). From the purists point of view paradigms and methods should not be mixed. They emphasise the different philosophic premises of the paradigms, their different purposes and epistemic roots. Purists insist on such differences being understood, respected, and maintained for sound research results. They criticise the researchers using combined methods in practice since 'they do not seem to understand the philosophic basis for each paradigm' (Leininger, 1994, p. 103).

Situationalists argue that paradigms could be combined in certain circumstances. They draw attention to the fact that combining qualitative and quantitative methods may not always be suitable and such a combination might not necessarily provide for the best from both methods (Fielding and Schreier, 2001, p. 3). It is noted that 'while combining them [qualitative and quantitative methods] can add range and depth, it

does not necessarily add accuracy' (p. 17). Three different outcomes might be expected in combining these methods: the outcomes may converge or bring to equal conclusions; they may be complementary or supplement each other; or they can be contradictory (Kelle, 2001, p. 6).

Alternatively, pragmatists express the opinion that there is a false dichotomy between quantitative and qualitative study and the researcher should 'take whatever seems adequate from each paradigm or methodology for your research questions and leave the rest' (Kelle, 2001, p. 2). They suggest that both paradigms should be employed for more efficient use and better understanding of the phenomena (Hyde, 2000). From the pragmatists' standpoint 'qualitative research is not as different from quantitative work as one may imagine' (Fielding and Fielding, 1986, p. 44). They cannot ignore each other any longer; they both deal with real phenomena and social process, and both aim to uncover the meaning of their data (Fielding and Schreier, 2001, p. 3). A pragmatic perspective on the paradigms is adopted by a growing number of researchers and methodologists who criticise purists for their preoccupation with methodological and epistemological arguments instead of concentrating on the theoretical concepts (Kervin, 2000).

The idea of using different methods to enhance the validity of findings was pioneered by Campbell and Fiske (1959) who suggested usage of 'multitrait-multidementional matrices' for 'conformation by independent measurement procedure' (Campbell and Fiske, 1959, p. 81). In 1978 Denzin introduced the term 'triangulation' borrowed from navigation and military strategy. It reflects the idea of the usage of 'multiple reference points to locate an object's exact position' (Jick, 1979, p. 602). Fielding and Fielding (1986) described triangulation as 'an interrelation of qualitative (micro-sociological) and quantitative (macro-sociological) research findings... [for] building macro-theory upon a micro-basis' (Fielding and Fielding 1986, p. 16).

According to Denzin, methodological triangulation mitigates weaknesses and aggregates the strength of each method and consists of the 'complex process of playing each method off against the other so as to maximise the validity of field

efforts' (Denzin, 1978, p. 304). Jick (1979) noted that the concept of triangulation refers to the idea of using complementary methods, by which the inherent bias of data sources or investigators may be eliminated. Merriam (1988) suggests that internal validity (accuracy of the information, which determines whether it matches reality) could be provided by the convergence of sources of information, using different data collection techniques or different investigators.

The idea of using triangulation for validating results has been criticised by Fielding and Fielding (1986, p. 33). 'Multiple theories and multiple methods are indeed worth pursuing, but not for reasons Denzin cites or ways he suggests' (p. 35). They argue that the strength of triangulation is in adding 'breadth or depth' to the analysis (p. 33). Flick supported this viewpoint and concludes:

> Triangulation is less a strategy for validating results and procedures that an alternative to validation which increases scope, depth and consistency in methodological proceedings (Flick, 1998, p. 230).

Greene et al. (1989) also suggest that triangulation allows for convergence of results; it facilitates the emergence of different facets of the phenomenon, contradictions and fresh perspectives; and helps to develop a research design by using additional methods, additional scope and breadth in study. Fielding and Schreier (2001, p. 15) view the value of triangulation 'more in its effects on "quality control" than its guarantee of validity'.

The two main meanings of triangulation (as a means of validation and as a tool for producing richer results) represent an indefinite and unclear meaning of the term. This is a reason why the term 'triangulation' is treated more as a metaphor rather than a precise concept (Kelle, 2001, p. 3). As an alternative to those two meanings, Kelle came up with the idea of trigonometric model of triangulation, which means that 'qualitative and quantitative methods have to be combined in order to produce sound sociological explanation' (p. 5). However he points out that 'none of these three concepts may serve as a general methodological model of the integration of qualitative and quantitative research' (p. 1).

Apart from such benefits as being an instrument of validation and means for increasing completeness of outcomes, triangulation has been seen to have other advantages (Fielding and Schreirer, 2001, p. 16). One of them is the promotion of more complex designs, which obliges researchers to be clear with regard to their research. Triangulation helps to overcome the 'elite bias' or over-concentration on particular respondents, suffered throughout the field methods. It allows for correction of the 'holistic fallacy' and demonstrates a generality of a single case (Fielding and Fielding, 1986, p. 27).

Wilson (1992) identified three purposes for combining qualitative and quantitative methods as follows: to enable confirmation of each other through corroboration; to elaborate or develop analysis; and to initiate new lines of thinking.

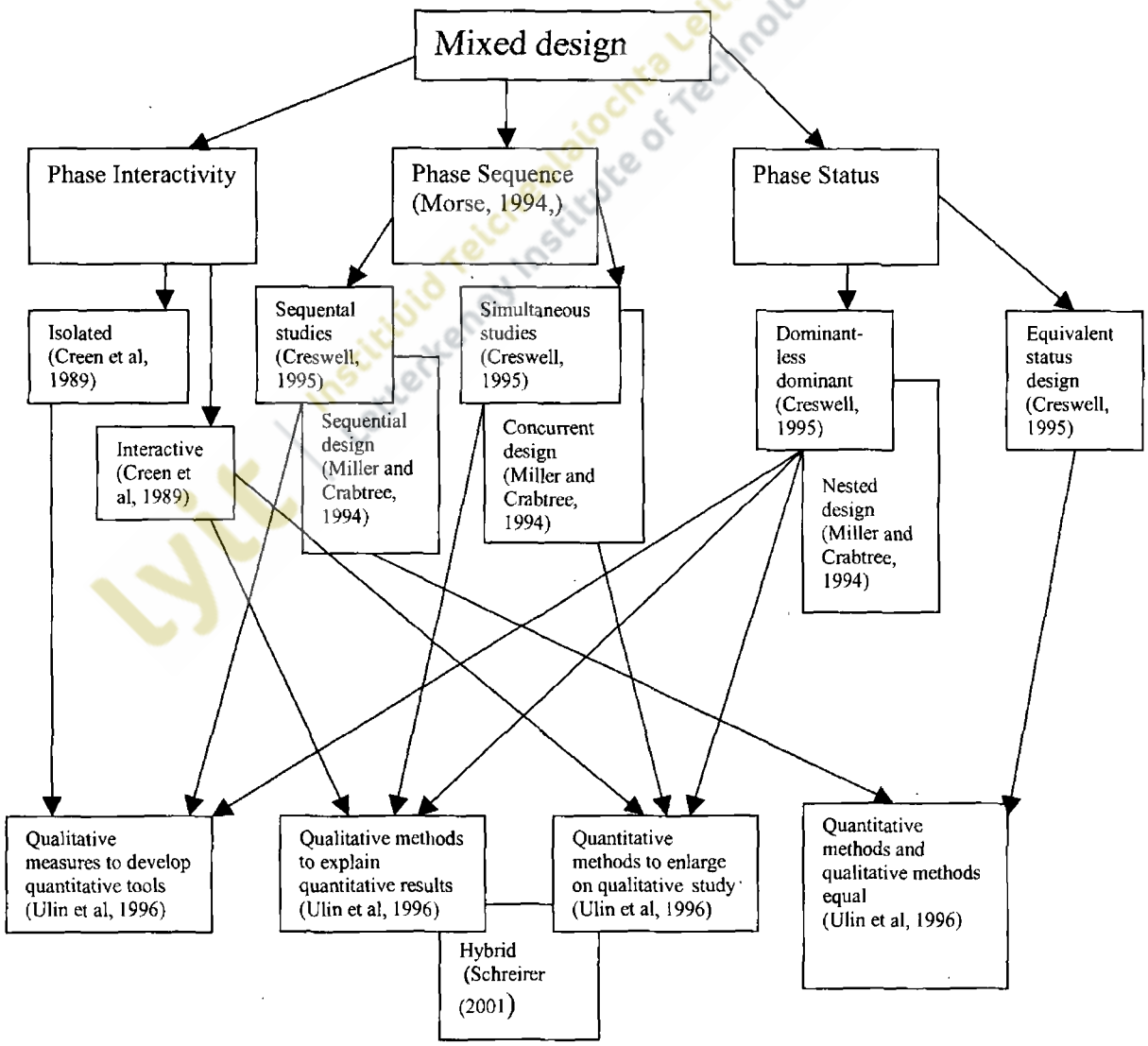
Traditionally, triangulation focuses on the combination of methods. Methods might be employed within one methodology, (for example, by employing different qualitative data collection methods such as in-depth interviews and focus groups) or between methods, designed on the basis of qualitative and quantitative data collection methods (focus groups and structured interviews). There are also other types of combinations including triangulation of data sources, accounts, events and even researchers (Fielding and Fielding, 1986, p. 24). Denzin (1970) identifies four types of triangulation. The first is data triangulation, which might include time triangulation, space triangulation, and person triangulation. The second type is investigator triangulation, where more than one researcher is dealing with the data. Thirdly there is theory triangulation, which allows for a research project to be designed from the position of competing theories. Finally, methodological triangulation provides for the usage of different paradigms in research design.

Figure 1.2 represents an illustration of different scenarios for combining qualitative and quantitative methods, offered by various authors. It summarises the main viewpoints on classification of mixed method studies, indicating three major criteria for combinations of methods: degree of interactivity between phases, phase sequence, and phase status. Authors' terminology while meaning the same things often differs.

Thus simultaneous studies were also called concurrent design, whereas dominant-less dominant design is termed nested design.

An interesting approach is suggested by Ulin et al. (1996) and supported by Tashakkoi and Teddlie (1998). They note that since each mixed design project should be characterised in terms of phase sequence, status and interactivity, classification should be based on the combination of those factors. This approach is represented by the lower part of Figure 1.2 and regarded as methodologically valuable for the first two stages of this primary research.

Figure 1.2: Scenarios for Mixed Method Designs



A study by Greene et al. (1989, p. 263) (called by Creswell (1994, p. 176) the 'most substantive contribution in this area') reviewed 57 research projects conducted between 1980 and 1988 and described the purposes of mixing methods in research design. The study examined selected project methods in terms of their similarity, status, interactivity, assumptions, strengths, limitations and biases. Greene et al. (1989) also investigated paradigms used for the studies, questions they responded to and implementation issues such as interactivity, independence, concurrence and sequence. It is suggested that the purpose of a mixed design study is assisting in sampling (the outcome from one method may serve as the second's method of sampling), and expanding the scope and breadth of the study. To benefit from using mixed design research, they propose considering some key issues: 'Are both methods of equal status? Are they interactive or isolated? What is a sequence in the mixed design?'(p. 263)

Morse (1994, p. 121) suggests that triangulation could be presented in simultaneous or sequential forms. Simultaneous triangulation allows for the combination of qualitative and quantitative methods at the same time. In sequential triangulation the researcher performs a two-phase study. Alternatively, Schreirer and Fielding (2001, p. 11) considered sequencing as different to triangulation and identified two other approaches to the combination of methods: sequencing and hybrid. An example of sequencing can be presented by using a qualitative data collection stage, followed by quantitative data analysis. It gives an extension to qualitative research and allows for the researcher going beyond a single case.

From Fielding and Schreier's (p. 11) point of view 'sequencing may even be said to constitute an inherent characteristic of many typical "qualitative" approaches, such as grounded theory'. The hybrid approach provides for 'packing' elements of both approaches into a single study so 'as to be indistinguishable' (Fielding and Schreirer, 2001, p. 11). According to this approach, qualitative and quantitative methods are equally important for research purposes and there is only one specific combination of phases. Examples of the hybrid method are qualitative comparison analysis (QCA), numerically aided phenomenology, or qualitative experiment. The highest degree of

mixing paradigms is presented in simultaneous design projects, in which the researcher combines paradigms in different phases and methodological steps. The research process is known as complex; it combines inductive and deductive theoretical models and requires considerable knowledge of both paradigms for sound methodological justification.

Creswell's (1995) classification of mixed methods consists of four models: sequential studies (two-phase design), simultaneous studies, dominant-less dominant design and equivalent status design. In the two-phase design study the researcher conducts the qualitative phase of the study and then the autonomous quantitative phase of the study, or vice versa. The advantage of this design is in the separate presenting of both paradigms, enabling the researcher to develop assumptions for each phase of the study. Its limitation might lie in the weak connection between the phases of the research (Creswell, 1995).

In the dominant complemented by less-dominant approach, the researcher deals with a dominant paradigm, which presents consistently in the study and complements it with a small component of an alternative paradigm. The most common example of this design is quantitative study complemented by small in-depth interviews in the data collection phase. The advantage of using a preliminary qualitative phase is in the concentration on one paradigm only, which allows for thorough investigation. The disadvantage of this design is in the possible misuse of a complementary paradigm and possible mismatch with the dominant one.

It should be noted, however, that there is still a lack of methodological understanding in the usage of combined methods. Green et al (1989, p. 255) pointed out that 'mixed method designs remain largely uncharted'. At the same time, a growing number of researchers are challenged by integrating or combining different methods to obtain 'a powerful mix'. The powerful mix allows for 'careful measurement, generalisable samples, experimental control, and statistical tools of a good quantitative study' and the 'in-close, deep, credible understanding of complex real world contexts' of a good quantitative study (Miles and Huberman, 1994, p. 42). Richards and Richards (1994),

who created a well known computer program for qualitative research (NUD*IST), suggested that increasing use of software might break down many of the conventional dichotomies, such as the qualitative and quantitative one.

1.3 Theoretical Background of Qualitative Research Techniques

As it has been noted, qualitative research takes many forms and meanings. Researchers have different epistemological orientations and work in diverged methodological traditions. 'There have never been so many paradigms, strategies of inquiry, or methods of analysis to draw upon and utilise' (Denzin and Lincoln, 1994, p. 11). Qualitative research uses multiple methods for collecting, describing and analysing data to understand human experience or relationships within a system (Silverman, 1999). This complexity makes it almost impossible to define precisely qualitative methods, to describe their main characteristics, or to achieve a comprehensive account of the research methodologies.

Data collection is the first stage of any research process. Data collection normally takes place 'in the field – natural social setting familiar to the subject' (Singleton and Straits 1999, p. 321). Qualitative research data collection is traditionally conducted by means of interviews, which are carried out for the purpose of gathering a rich, in-depth experimental account of a particular event or life episode. These interviews are conducted more like conversations between equal participants. The conversation is supplemented by questions induced for further elaboration and clarification (Wilson, 1992). Qualitative interview is:

> not a neutral tool of data gathering but active interaction between two (or more) people leading to negotiated, contextually based results. Thus the focus of interviews is moving to encompass the hows of people's lives (the constructive work involved in producing order in everyday life) as well as traditional whats (the activity of everyday life) (Fontana and Frey, 2000, p. 646).

Qualitative data collection methods are traditionally described in a continuum between semi-structured interviews at one end and non-structured techniques at the other. In contrast, quantitative data collection is traditionally characterised by

structured interviews. Semi-structured interviews offer 'purposive topical steering' (Flick, 1998, p. 106) and allow the interviewer to focus on key issues of the interview. It is hardly possible to access interviewees' experience by means of semi-structured interview as they normally reflect the interviewer's focus (Flick, 1998, p. 98). The interviewer tends to be more formal, takes directive and controlling posture, guides discussion more strictly, and may not allow for variation from the topic of discussion.

Alternatively, unstructured or in-depth interviews are designed for tracking subjective experiences of individuals (Denzin, 1989). Participants themselves create the form and content of the interview by responses on a broad initial inquiry of the interviewer. Here the focus is on the participants' stories, the manner of telling them and the interviewee as a prime 'knower' of self (Seidel, 1991). The less structured or non-directive approach is more likely to be adopted in naturally established field settings. The researcher's purpose is to uncover a wide range of meanings and interpretations of the topic, and to establish a familiarity with it.

Qualitative interviews may involve individual face-to-face verbal interchange, face-to-face group interchange, mailed or self-administered questionnaires, telephone and, Internet interviews. Qualitative interviews may be made individually or be conducted in a group. The latter are known as focus groups or group interviews. Unlike individual interviews, focus groups are designed to be consensus making. Throughout a group discussion, the agreement or disagreement with the topic under investigation is discovered. A focus group interview must be distinguished from the group interview. Although both involve an interviewing of a group of people, the focus group interview relies more on the 'interaction within the group based on topics that are supplied by the researcher' (Morgan, 1997, p. 12).

Powel et al. (1996, p. 499) define a focus group as 'a group of individuals selected and assembled by a researcher to discuss and comment on, from personal experience, the topic that is the subject of the research'. The main purpose of a focus group is to draw upon the attitudes, feelings, beliefs, experiences and reactions of the group of

participating people. It focuses on obtaining a multiplicity of views and on emotional processes within a group context. Morgan and Krueger (1993) add that focus groups are particularly useful when everyday language is a subject of researchers' interest, when they want to examine a degree of consensus in a group, and when there are power differences between the interviewees and the decision-makers.

A focus group's ability to handle the process of opinion formation makes it one of the most popular qualitative techniques. It is noted that focus groups are a 'compromise between the strengths found in other qualitative methods' (Morgan and Spanish, 1984, p. 260). Focus groups permit access to the interactive process in the same way as participant observation, while at the same time, like in-depth interviews, they can provide ready access to the content.

Krueger (1988, p. 103) suggests that the main element of focus groups are open-ended questions, which, although arranged in sequence, still have scope for flexibility. A successful focus group is characterised by spontaneity and freedom, it should be similar to brainstorming and stimulate participants' activity. Morgan (1988, p. 9) added that focus groups are 'interaction focused', which means that the researcher can gain information regarding what participants think about the topic as well as why they think this way.

> Focus groups provide a special type of information. They tap into the real life interactions of people and allow the researcher to get in touch with participants' perceptions, attitudes, and opinions in a way that other procedures do not allow (p.177)

It is also suggested that by means of focus groups large amounts of data can be obtained in a short time period, providing a cost-effective tool for collecting rich in context and detailed data (Krueger, 1988).

Amongst the frequently mentioned disadvantages of focus groups, is the nature of the discussion. While being interactive, it can sometimes be disparate in focus and generate irrelevant information. In qualitative data collection the interviewer is a 'human instrument' of the research process. The role of the interviewer is challenged in situations when some interviewees are domineering while other are quiet, when the

discussion gets out of control and digresses, and when differences of participants' opinions become extreme or too petty. It is also noted that focus group participants are not always experts in the topic being discussed and tend to talk about subjects they are more interested in (Malhotra, 1999, p. 148). An additional challenge may be to gather participants of a focus group in a certain place and time, as well as to create a suitable environment for the discussion.

Literature appears to suggest that qualitative research publications are pre-occupied with data collection matters. In some publications, analysis issues are completely ignored whereas the major focus is on field relations, ethical issues, and other data collection problems (Miles, 1979). Other authors use the term 'field research', emphasising the priority of the data collection stage in qualitative research (Singleton and Straits, 1999). They believe that, in qualitative research 'unlike the other research approaches, data analysis occurs throughout the period of data collection' (p. 349). It is also frequently suggested that analysis and data collection are held simultaneously in a continuous qualitative process (Bryman and Burgess, 2000, p. 216). There is a viewpoint that qualitative data should not be a subject for analysis.

> The researcher's task is to gather the data and present them in such a manner that 'the informants speak for themselves'. The aim is to give an honest account with little or no interpretation (Strauss and Corbin, 1990, p. 21).

In recent years, analytical issues have been increasingly debated (Bryman and Burgess, 1994; Coffey and Atkinson, 1996). The interest in analytical procedures was provoked by the appearance of software packages for qualitative research, which put established analytical approaches and procedures to the forefront of concern.

1.4 The Nature of Qualitative Data Analysis

Examination of the literature revealed that there is not a consensus among authors about what the term 'analysis' means. For some, qualitative analysis is associated with data management, which refers to procedures of coding, retrieving, sorting, and indexing (Fielding and Lee, 1998; Miles and Huberman, 1994; Tesch, 1990). They emphasise the

systematic character of the analysis and try to make it more standardised. Others view the analysis in terms of imaginative and interpretive tasks and consider the data handling procedure as a preliminary to qualitative analysis. Thus, Coffey and Atkinson (1996, p. 10) viewed analysis as 'imaginative, artful, flexible, [...], methodical, scholarly, and intellectually rigouros'. Tesch (1990) described the difference between structural and interpretational analysis as following:

> The interpretational researcher "overlays" a structure of his/her own making on the data, as a device for rendering the phenomenon under study easier to grasp; while structural analysts assume that the structure is actually inherent or contained in the data and the researcher's job is to uncover it (Tesch, 1990, p. 103).

Dey (1993) backs up structured analytical procedures and considers qualitative analysis as a process of resolving data into components in order to discover its features and patterns. According to Dey, the analysis should be divided into three stages: describing, classifying, and connecting. Wolcott's (1994) understanding of analysis presents a different way of thinking. He argues that qualitative data can be analysed in different ways and brought to different outcomes. Three analytical stages presented by Wolcott are: description, analysis and interpretation. Since a human observer influences the description, Wolcott (1994, p. 36) suggests collecting the data in the descriptive way as much as possible. According to Wolcott, the analytical nature of the process is in the search for the themes and pattern from the data. Interpretation is a stage, during which 'a researcher transcends factual data and cautious analysis and begins to probe into what is to be made of them' (p. 36).

However, with either method of analysis, its purpose is to find some regularity in the phenomena under investigation (or in other words to discover a structure). The term structure means the interrelation of parts as dominated by the general character of the whole. Tesch (1990, pp. 103-113) suggests that there are no common features to all types of analysis, yet there are some regular characteristics. She emphasises the cyclical nature of the analysis. According to Tesch (p. 103) it is a flexible, comprehensive, and systematic (but not rigid) process. Qualitative data are divided into meaningful units, which connect to the whole and are organised according to the

system derived from the data itself. Tesch (p. 105) pointed out that while the analysis implies being artful and playful it does not mean that it should be structureless.

Tesch (p. 105) views the aim of any analysis as uncovering parts and identifying the interrelations between them. In qualitative research, the process that allows for data fragmentation and establishing links between different fragments is known as coding. The coding procedure is often regarded as a basis for qualitative analysis. However, there is a call for caution expressed by Coffey and Atkinson (1996, p. 12) that coding may be treated as synonymous with analysis. Although coding is a major part of qualitative analysis, it 'should not be seen as a substitute of the analysis' (p. 26).

One of the best explorations of qualitative data analysis available to date is presented by Miles and Huberman (1994). They emphasised that qualitative research design should be developed with regard to the problem. It is a matter for modification and continuous theoretical development. The researcher has a choice of selecting specific settings, problems or a conceptual framework as a form of 'an anticipatory data reduction' (p. 430) to give a focus or particular direction to the research. There is another characteristic of qualitative research, which Miles and Huberman called 'interim' quality. Since qualitative research has a 'peculiar life cycle' (p. 431), different stages of the research (such as data collection and data analysis) could have different relative weightings during the research process. As the researcher achieves a better understanding, further data collection may be necessary.

> Unlike experimental studies, changes in observational protocols or interview schedules in a field study usually reflect a better understanding of the settings, thereby heightening the interval validity of the study (p. 431).

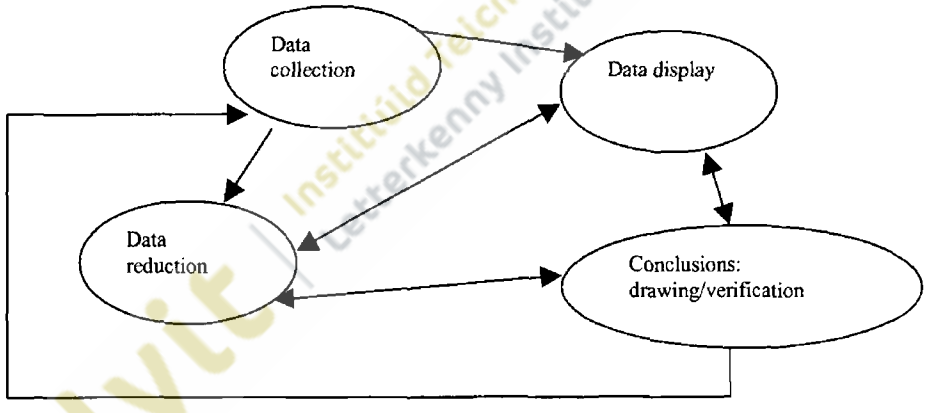
The disadvantage of the process is in its inflationary nature: the more the researcher understands about a problem the more they realise how much should be known.

Finally, the third characteristic of qualitative research is its interactivity, which means a wide variety of tactics emerge cyclically through the process of continuous interactions with data. Inductive and deductive tactics can change each other at

different phases of the research. Thus, themes, patterns and hypotheses are discovered by means of inductive strategy, but their verification may be done deductively. This can be followed by further inductive insights.

Miles and Huberman (1994) considered qualitative analysis as a process influenced by anticipatory, interim and iterative research characteristics. In other words, these are 'data reduction, data display and conclusion drawing/verification' (Figure 1.3). Data selection is considered as an initial process, which involved three main strategies: the use of various types of summaries, coding and memoing, and review procedures. Summaries are produced soon after receiving a document or making contact. They could help to render work into a compact form of fieldnotes associated with the contact and serve to refresh the main issues of contact in a researcher's memory.

Figure 1.3: Components of Data Analysis: Interactive Model



Source: Miles and Huberman, 1994, p. 12

Miles and Huberman (1994) considered coding as a fundamental part of data reduction. It can be divided into first and second level coding. At the first level of coding the working set of codes, which are primarily descriptive is produced. The researcher is 'attributing a class of phenomena to a segment of text' (p. 57). The second level codes reflect regularity in the data and combines in 'pattern codes' or type of 'meta-code' (p. 69). Pattern codes, as an explanatory in nature, 'usually turn around four often interrelated, summarisers: themes, causes/explanations,

relationships between people and more theoretical constructs' (p. 70). Pattern codes can be written up in a memo form or can graphically describe the relationships between the different patterns. In their guideline to coding, Miles and Huberman pointed out the necessity of creating the code's list prior to the fieldwork in order to help the researcher focus on the conceptual purposes of the study:

> The risk is not that of "imposing" a self-blinding framework, but that an incoherent, bulky, irrelevant, meaningless set of observations might be produced, which no one can (or ever wants to) make sense of (p. 70).

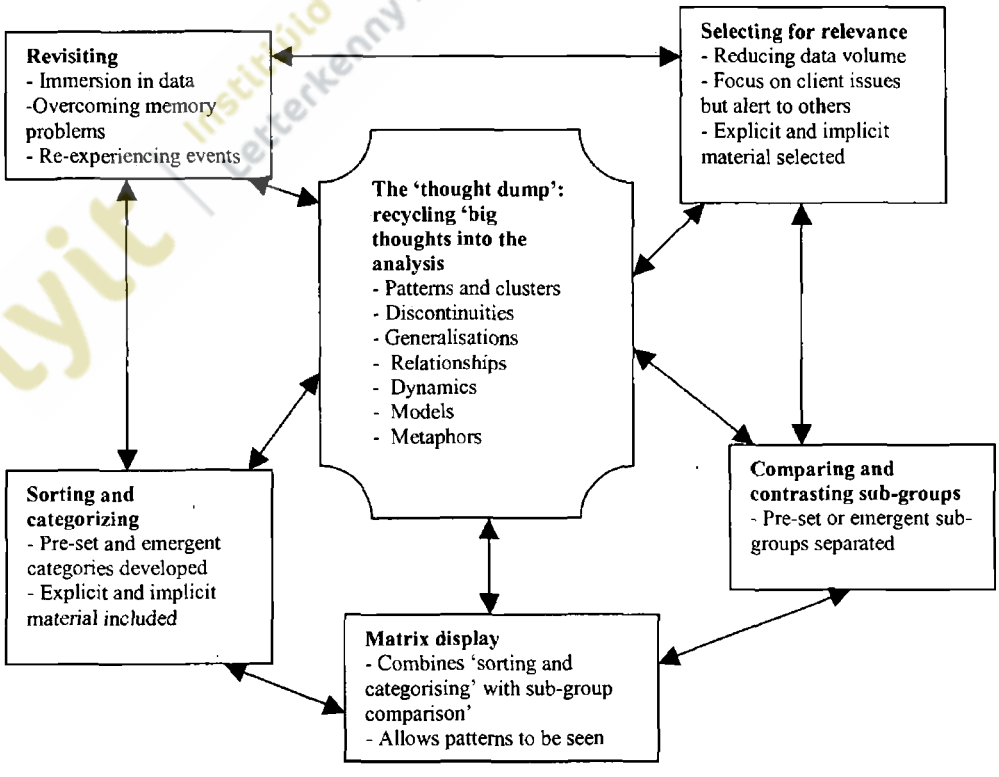
Miles and Huberman (1994) pointed out that the code list is a conceptual structure, which could be revised. Another suggestion is to produce not too many, or too few codes. Too few codes could cause lack of analytical richness, whereas too many could create difficulties in remembering them. Memos are seen as an important tool for data reduction in qualitative analysis. Memos serve as a commentator of ideas and facilitate the process of working out concepts and communications.

Data display is described as the 'organised, compressed assembly of information' (p. 11). In other words, the data are arranged in order to facilitate the process of identification, focusing and selecting the potential findings in the data. The objectives of data display are as follows: to make the process of data management easy, to ensure that the analysis is firmly based on data collected and to check whether all relevant issues are included. Miles and Huberman (1994) identified a matrix display, in which data are arranged in rows and columns and a network display, which allows for the graphical representation of data. It is noted that the one-shot case study, as a mode of qualitative research, should be avoided. The recommended complex multi-method (or cross case studies) enables the researcher to enhance external validity, since each case could provide a potential site for the replication of findings. The matrix display, being interactive, plays an essential role in the process of cross case analysis. Conclusion drawing is described as a process of creating a broad interpretation from the displayed data. Verification deals with examining biases, which may result from focusing too much on dramatic incidents or mistaking co-occurrence of the casual relationships. Tactics for handling biases include data

examination by finding the relevant contrasts in it, comparisons of extreme cases, and the replication of key concepts in order to look for negative evidence.

Ereaut (2002, p. 67) also views analysis as having a number of general functions. In contrast to Miles and Huberman (1994), she considers the qualitative process as highly interpretive and holistic, focusing on the immersion style of analysis. Figure 1.4 represents Ereaut's (2002) analytical components, including revisiting, selecting for relevance, sorting and categorising, comparison and contrasting sub-groups, and matrix display. The first four operations of the analysis may be considered as the data reduction component, proposed by Miles and Huberman (1994). However, Ereaut (2002) does not view coding as a central element of the qualitative analysis and data reduction process, suggesting the categorisation process to be a holistic 'grasp of meaning' rather than data codification.

Figure 1.4: Processes in Analysis: Functional Operations



Source: Ereaut, 2002, p. 6

According to Ereaut (2002, p. 66), revisiting could be achieved by reading through the whole transcript, watching video or listening to tape in order to obtain a holistic view of raw data. Selection for relevance is considered as a process of highlighting relevant and interesting thoughts through the data. It is both mechanical selection and interpretive analysis, since the researcher should be able to see 'what is there' in the data. Sorting and categorising normally involves pre-set and emergent categories, which are compared between each other in the next stage of analysis. Finally, data are displayed in matrix format in order to see patterns and generalities.

Alternatively, Tesch (1990, p. 95) stated that there are no features common for all types of analysis. However, some principles could be applied for all types of qualitative data analysis 'from ethnomethodology to phenomenology'. She identified the following principles suitable for all types of qualitative analysis:

1) Analysis is not a final stage in the research process, it is a simultaneous process with the data collection stage;
2) Process of analysis is systematic, but not rigid;
3) A set of analytical notes – 'memos' guide the process and is a result of reflective activity;
4) Data should be segmented or broken down into relevant and meaningful units;
5) Data categorising should be carried out according to an organised system, derived from data themselves;
6) Comparison is the key intellectual instrument of the analysis;
7) Categories for sorting should be flexible;
8) There is no one rigid way of manipulating the data;
9) Analytical process is neither 'scientific', nor 'mechanistic';
10) The analytical outcome is a sort of 'high-level synthesis' (pp. 96 – 97).

1.5 Analytical Techniques in Qualitative Data Analysis

1.5.1 Fundamentals of Grounded Theory

Grounded theory is a qualitative technique, which represents an editing style in qualitative analysis and focuses (in contrast to the immersion style) on exploration of categories and patterns (Spriggle, 1994).

Glaser and Strauss (1967) introduced grounded theory in their work "The Discovery of Grounded Theory". The monograph is regarded as a 'critical point in social science history' (Charmaz, 2000, p. 509). The significance of the event for the social sciences is highlighted by Denzin and Lincoln (1994, p. 9), who termed the discovery the 'qualitative revolution'. Charmaz (2000, p. 509) pointed out that Glaser and Strauss helped to legitimise qualitative research by providing 'the only form of systematic social science inquiry'. The discovery of grounded theory is treated as highly important because:

> It challenges a) arbitrary division between theory and research, b) views of qualitative research as a primary precursor to more "rigorous" quantitative methods, c) claims that the quest for rigor made qualitative research illegitimate, d) beliefs that qualitative methods are impressionistic and unsystematic, e) separation of data collection and data analysis, and f) assumption that qualitative research could produce only descriptive case studies rather than theory development (p. 511).

Glaser and Strauss (1967) in their developments were driven by the desire to refute the existing trends in qualitative analysis. Those trends in qualitative research produced microscopic theoretical schemes more concerned with empirical research or quantitatively proven and deductively modest hypotheses. The aim of the study was to legitimise careful qualitative research (Strauss and Corbin, 1994, p. 275) and to provide the researcher with a guide to methods by which theoretically verified and grounded analysis could be conducted. They defined the grounded theory approach as ' a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon' (1990, p. 24). They emphasised that the method satisfies the criteria as a scientific one: 'significance,

theory-observation compatibility, generalisability, reproducibility, precision, rigor, and verification' (1990, p. 27).

The main strategies of grounded theory include the following: simultaneous data collection and data analysis, two-phase coding procedure, constant comparative method, memoing and concepts construction, theoretical sampling, and theory building.

The core of grounded theory is the 'constant comparative method' (Glaser and Strauss, 1967, pp. 101 – 116). Comparison is central to empirical social science. Swanson (1971, p. 145) states that 'thinking without comparison is unthinkable'. In grounded theory the comparative method is used to compare and examine 'incidents' found in collected data. Incidents, which are defined by Becker and Geer (1960, p. 281) as a 'complete verbal expression of an attitude or complete acts by an individual or group', should be coded into as many theoretical categories as possible. There are two types of categories: 'sociological constructs' and 'in vivo codes' (Glaser, 1978, p. 70). In vivo codes are based on words taken from research participants' vocabulary. The researcher, before further coding, should recall or return back and look at incidents that have been already coded. Proceeding from incident to incident, the theoretical properties of a category can be explored. Properties of a category are defined as 'attributes or characteristics of a phenomenon (category)' (Strauss and Corbin, 1990, p. 70). They could be further dimentionalised; which means determining a particular location of a property along a continuum.

Using the constant comparative method, the researcher starts to think of different types of categories or understand their conditions and consequences. Conceptual awareness appears when the nature of a particular category and its properties are clarified. Glaser and Strauss (1990, p. 110) noted that the coding process should be periodically interrupted to record a memo for the category, which provides an understanding of the present state of its theoretical development. Unlike the quantitative coding procedure, which requires the data to match preconceived

standardised codes, in grounded theory codes emerge from the researcher's interpretation of the data.

The process of collecting, coding and analysing is viewed as simultaneous and guided by 'theoretical sampling'. Unlike statistical sampling, where an analyst must determine a population and create a proper procedure for random selection, theoretical sampling is a process of data selection, which allows for the further development of theory. It is informed by the ongoing inclusion of groups or situations perceived to be relevant for the generation or clarification of the conceptual categories (Glaser and Strauss, 1967). The main aim of theoretical sampling is to refine ideas and to identify the conceptual boundaries rather than to increase the original sample. The necessity of employing theoretical sampling is determined by the main purpose of qualitative research, such as theoretical development. Theory cannot be produced by one-shot interviewing in one data collection phase:

> Instead, theoretical sampling demands that we have completed the work of comparing data with data and have developed a provisional set of relevant categories for explaining our data. Theoretical sampling helps us to define the properties of our categories; to identify the contexts in which they are relevant; to specify the conditions under which they arise; and to discover their consequences (Charmaz, 2000, p. 519).

A further stage of constant comparison is known as integrating categories and their properties. At this stage categories are compared to those that have been created at an initial stage of a process, in order to develop the theory. The categories and their properties are further clarified and relationships between them are identified. Also at this point Glaser and Strauss (1967) stated that the nature of theory progressively changes towards clarification, simplification and reduction.

> By reduction we mean that the analyst may discover underlying uniformities in the original set of categories or their properties, and can then formulate with a smaller set of higher level concepts (p. 110).

Reduction is viewed as an instrument for expressing categories at a high level of abstraction and generality allowing for the movement from substantive to formal theory. Glaser and Strauss (1967, p. 111) suggested that the researcher could achieve

two aims in theorising: to attain good explanatory power on the basis of a limited number of variables and to achieve wide scope through its applicability to a range of situations. As categories become theoretically saturated, an analyst realises that further analysis will subsequently impact on an existing concept.

It is emphasised, that memos are essential for qualitative analysis. 'Memos contain the notes, and give direction for sampling' (Strauss and Corbin, 1990, p. 223). They can provide an effective tool for categorising, demensionalising, hypothesizing, integrating and developing theoretical ideas. According to grounded theory, the coding process should always be combined with the recording of memos, which provide a context for the emerging theory. The memos should be kept separately but nearby. After the appearance of "The Discovery of Grounded Theory" the coding process became known as 'open coding'.

> Open coding in the grounded theory method is the analytic process by which concepts are identified and developed in terms of their properties and dimensions (Strauss and Corbin, 1990, p. 74).

Guidelines to open coding given by Glaser (1978) and Strauss (1987) include the following. First of all, the analyst has to constantly examine data in terms of the focusing topic, generating theoretical categories and problems, which confront the study. Secondly, data should be examined thoroughly, coded line by line, sentence-by-sentence and even word-by-word. The coding process should always break off for recording memos. Thirdly, coding should demonstrate the analytical importance of a category. Open coding has a provisional character, which is a tool for generation of initial formulations, which can be further modified by research progression.

> So at very step you are asking about opposites, variations and continua. Sometimes in actual research you don't follow all of these leads – sometimes it is just too exhaustive and sometimes a phenomenon just forces itself on you from the nature of what you are seeing or hearing, day in and day out. But at every step this is what you are doing. That is why you don't want to rush out and get a lot of data, because you would get submerged. You get a little data, then you stop and think! At every point in your initial fieldnotes or interviews, you must do this kind of thing (Strauss, 1987, p. 45).

Strauss and Corbin (1990, p. 77) presented a range of open coding strategies. One of these techniques breaks down the data by asking simple questions: Who? What? Why? Where? When? and How much? They introduced a new term 'axial coding', which formed from open coding (p. 96). It was assumed that an analyst could relate together categories, properties and dimensions by determining the conditions generating the phenomena, context and conditions supplemented, their interactions, and outcomes that result from them. Thus axial coding forms data 'in new ways by making connection between a category and its subcategories' (p. 97). Selective coding is shown to be different from axial coding as it allows for a higher level of abstraction and for establishing a 'story line' (p. 116). The process of selective coding is based on the establishment of core categories, around which all other categories are constructed.

1.5.2 Grounded Theory: Critique and Modifications

Strauss and Corbin (1990) presented an accessible introduction to grounded theory and manual detailing of the method according to many authors (Tesch, 1990; Fielding and Lee, 1998). Another viewpoint is that although they made grounded theory more accessible, it became 'more theoretically diffuse than the earlier methods would suggest' (Charmaz, 2000, p. 512). Stern (1994, p. 221) considers Strauss and Corbin's method fundamentally different from Strauss and Glaser's (1967) grounded theory. Glaser (1992, pp. 33-43) states that Strauss and Corbin substituted a series of procedures by forcing the meaning from the data and this can cause 'full conceptual description' rather than grounded theory. He pointed out that instead of letting the theory emerge from the data, they constrain the data into various predetermined templates (pp. 96-100). The paradigm model in which the researcher tries to find causes, consequences, interaction strategies, and intervening conditions is, from Glaser's point of view, an example of setting data into a predetermined pattern. He emphasised that the purpose of grounded theory is not to verify theory but to generate it.

Critics of grounded theory state that there is still scope for maintaining 'commitment to outmoded conceptions of validity, truth and generalisability' (Denzin, 1992, p. 20). He concluded that Strauss's (1990) grounded theory:

> Although it attempts to articulate everyday concepts and their meanings, may move too quickly to theory, which become disconnected from the very worlds of problematic experience (p. 432).

Kelle (1997) also noted that grounded theory is often presented as the only approach which can meet the requirements of the concrete and applicable methodology of qualitative analysis. However:

> A closer look at the concepts and procedures of grounded theory makes clear that Glaser, Strauss and Corbin provide the researcher with a variety of useful heuristics, rules of thumb and a methodological terminology rather than with a set of precise methodological rules' (p. 7)

Lonkila (1995, p. 44) criticises Strauss and Corbin (1990) for the lack of clear definition of the relationships between some of the basic concepts of grounded theory (categories, properties, dimensions). Lonkila points out that although grounded theory is hypothetico-deductive research, sometimes a different meaning is given to its terms (for example the term 'generalisation' is described in more positivistic traditions). Another claim relates to the lack of a clear technical explanation of grounded theory:

> Did Strauss use index cards to store the codes? Did he use Boolean searches? [...] How could he technically manage the huge amount of cross-references between different instances of the data, between data and concepts, and between concepts themselves? How could he ever be sure he did not miss anything because of the sheer quantity of these connections? (Lonkila, 1995, p. 45).

Lonkila (1995) expressed the idea that it is almost impossible to conduct grounded theory research without a computer. At the same time there is no reference to computer-assisted techniques in Strauss and Corbin's work (1990).

1.5.3 Qualitative Comparative Analysis

Qualitative Comparative Analysis (QCA) employs logically based manipulation of numerous cases. QCA is introduced by Ragin (1987), who viewed QCA as a synthetic strategy that combines the best features of the variable-oriented and the case-oriented approaches:

> The key of a proper synthetic strategy is the idea of qualitative comparison analysis – the notion of comparing wholes as configurations of parts (p. 84).

Based on Boolean algebra, QCA is qualitatively different from statistical techniques. It works with relevant instances of phenomena rather than with samples or populations. Conceived for examining the different combinations of conditions associated with a particular effect, it does not operate in probabilistic terms. QCA, which is also known as qualitative configuration analysis, allows for the creation of data matrices similar to those in quantitative research. Unlike the quantitative configuration, the QCA matrix displays variables in rows. Analysis provides for the examination of each row in terms of the configuration of causes associated with the presence or absence of the effects for that case (Ragin, 1994, p. 114). There are several implications of this analysis: different variables can generate different effects; the possibility of contradictory patterns; and the possibility of the elimination of contradictory patterns. The procedure of analysis called Boolean minimisation is used in a number of computer programs such as QCA and AQUAD (Drass, 1992, Huber and Gracia, 1991).

The QCA approach has been labeled as 'tremendous' and 'deceptively simple' (Amenta and Poulsen, 1994, p. 43; Griffin et al., 1991). It is suggested that it has affinities with neo-analytic induction. Neo analytic induction extends classical analytic induction, which involves the interplay of definition, hypothesis and data. Similar to analytic induction, neo-analytic induction looks not only on the cases where the phenomenon is presented, but also on those where there is a negative

outcome. It allows for multiple case comparisons. The aim of neo-analytic induction is the development of theory rather than theory testing (Hicks, 1994).

1.5.4 Content Analysis

One of the most rapidly developing areas in qualitative research is content analysis. It is based on listing, counting and categorising words within the text. Content analysis allows for omitting words on the basis of their frequency. Words, which do not appear frequently in the text, are normally treated as not essential. The main focus is put on the words identified as significant for the analysis (Weber, 1985, p. 53).

Another basic tool of analysis is in showing the position of words found in the text and the supplemented context. Key-words-in-context (KWIC) format means that a word appears surrounded by the words before and after it. The limitation of this analysis is in its appropriateness, primarily for the analysis of political speeches or articles (p. 53). As words normally have different meanings within the interview transcript, it is regarded as not suitable to use content analysis for interview data. Conversely, synonyms and the other substituted words could be used for extraction. However, by doing that, content analysis could transfer into 'data expanding, rather than data reducing techniques' (p. 48). Nevertheless, due to its ability to focus on a range of key words quickly and with surrounded context, content analysis might be essential for the researcher in a particular case (for example to find out how a particular interview topic has been covered, to give the researcher ideas about further steps, and so on).

1.5.5 Case Studies

The case study methodology allows for holistic and in-depth investigation. It was developed by Yin (1994) and Stake (1995) and allows for uncovering details from the viewpoint of participants by using multiple sources of data. Employing multiple sources of data as a triangulated research strategy provides for confirmation of the validity of the research. Sources of data could be presented by secondary

documentation, archival records, interviews, direct observation, participant observation, and physical artifacts (Yin, 1994).

Yin (1993) identified three types of case studies: exploratory, explanatory, and descriptive. Stake (1995) added three others: intrinsic, instrumental, and collective. The main purpose of the exploratory case study is to serve as a prelude in the qualitative research process. The explanatory case study may be used for doing causal investigation while the descriptive case study provides for developing a descriptive theory before starting the project. Intrinsic cases are described as those of the researchers' interest. Instrumental cases may be used to understand more than what is obvious for the observer. Collective case studies investigate a group of cases.

Yin (1993), Stake (1995) and Feagin et al. (1991) noted that case studies are not a sampling technique. Responding to a criticism that case study results are not subject to generalisation, Yin proposed to distinguish between analytic and statistical generalisation. He argued that analytic generalisation could be achieved by means of case studies. 'In analytic generalisation, previously developed theory is used as a template against which to compare the empirical results of the case study' (Yin, 1984). In contrast, Stake (1995) views the case study methodology as centered on the more intuitive empirically grounded gereralisation termed 'naturalistic'. His argument is that data produced by case studies would resonate with a broad cross section of readers.

Among the applications for the case study method Yin (1994) suggested the following: to explain complex causal links in real-life interventions; to describe the real life context in which the intervention has occurred; to describe the intervention itself; and to explore those situations in which the intervention being evaluated has no clear set of results.

Yin (1994, p. 25) distinguished between single-case and multiple-case studies. The single case design is usually used for confirming or challenging a theory as well as for presenting unique or extreme cases. In a single case using multiple sources of

data one can ensure internal validity, while external validity is considered almost unachievable. On the other hand, multiple case studies are designed for replication purposes and can be used for external validation of the results.

Data analysis in case studies is described as the least developed aspect of the case study methodology. It is expected that the researcher would rely on their experience for the interpretation of results. Yin (p. 25) suggested that 'data analysis consists of examining, categorising, tabulating, or otherwise recombining the evidence to address the initial proposition of study'. He presented three analytical techniques: pattern matching, explanation building, and time-series analysis. The pattern-matching technique is designed to compare an empirically based pattern with a predicted one. The explanation-building analytical strategy is an iterative process carried out by building an explanation of the case. It is useful in the hypothesis generating process. Finally time-series analysis is a well-developed technique in experimental and quasi-experimental analysis.

Conclusion

The qualitative approach which was portrayed in this chapter as naturalistic and interpretive, giving a holistic view of people's perceptions and understanding. Methodological convergence, as a valuable instrument of data validation and enrichment, was described as being implemented in various forms with regard to the phases' sequence, dominance and interactivity. Two alternative styles of qualitative data analysis, namely editing and immerse represent respectively detailed and holistic approaches to the analytical process. Only the first one, however, could be facilitated by qualitative data analysis software available so far. The main analytical techniques used in qualitative research, including grounded theory, case studies, and qualitative comparative analysis were identified and evaluated. The emphasis was put on analytical techniques representing the editing style of qualitative data analysis and grounded qualitative software design.

Chapter 2

Computer Aided Qualitative Data Analysis and Software

Content

2.1 Introduction

This chapter outlines the main issues associated with computer-aided qualitative data analysis, including methodological aspects of computerised data analysis and the note of CAQDAS in the qualitative research process. Understanding the methodological grounds for computerised data analysis is significant for the successful use of computer in qualitative studies. Traditionally, usage of computer packages was associated with the quantitative approach where well-structured and measured data are subjected to statistical analysis. Technical and methodological aspects of computerised data analysis started evolving since the arrival of word processing, whose text retrieval and handling capacities were fundamental for developing specialised qualitative packages. The main developments since that time involve the exploration of computerised data analysis performed in editing style, where the coding process is a core element of the analysis.

Chapter two consists of four main sections. Exploration of the main methodological aspects of computerised qualitative data analysis in section two is followed by an overview of the main features, functions and capabilities of CAQDAS. The scope of sections four and five relates to issues of CAQDAS limitations and advantages as well as further developments in computerised data analysis. The chapter focuses on the evaluation of qualitative data analysis software; it explores the problems of computerised analysis of qualitative data and shows on-going debates regarding computer applications for qualitative data analysis.

The significance of this chapter for primary research is in using the identified advantages and limitations of CAQDAS in the combination of variables for the second phase of the research design. Moreover, the issues highlighted in the chapter were further explored in the third phase of the primary research and helped in understanding the study findings.

2.1 Computer Aided Qualitative Data Analysis

2.2.1 Key Features of Computer Aided Qualitative Data Analysis

Before the nineteen eighties the only computerised analysis dealing with textual data was quantitative content analysis of text (Conrad and Reinharz, 1984; Drass, 1989; Shelly and Sibert, 1985). The process of qualitative analysis at that time included typing handwritten field-notes, using coloured pens for marking, cutting photocopies of field-notes, sorting them, pasting on to file cards and typing the analysis. At the early stages in the development of software packages, qualitative research literature enthusiastically suggested computer usage for qualitative data analysis. Researchers, however, were rather reluctant to use computers. They showed limited enthusiasm for changing the immediately available scissors, glue and multi-coloured pen for computer programs (since the programs had to be understood first). Later, software packages became the subject of a long discussion as to whether or not they could affect the creative process of qualitative analysis (Agar, 1991). Many researchers had a fear that computers might be harmful to qualitative investigation. However, Tesch (1990, p. 168) noted that this opinion was derived from myth. 'These researchers expect "all purpose machine" to have a purpose and nature of its own [...]. Where do these frustrations come from? Probably from misguided expectations' (p. 168).

Since then, more constructive attitudes to computer analysis have begun to emerge. This represents a shift away from speculation towards healthy discussion based on empirical use of the packages (Weaver and Atkinson, 1995; Mangaberia, 1995). The main impetus came from academic seminars including social researchers and computing enthusiasts during the early nineteen eighties (Fielding and Lee, 1991, Tesch, 1990). Thus, Miles and Huberman (1994, pp. 43-44) stated that 'computing can move studies beyond the "handcraft production" that has characterised much qualitative research'.

Computer-aided software packages for qualitative data analysis are now widespread and their production is a fast developing area. While attracting both practitioners and

academics, who pragmatically used computers to automate qualitative analysis (Fielding and Lee, 2000), computer-aided qualitative research appeared to be more popular amongst academics (Ereaut, 2002, p. 23). Rapid developments in this area gave rise to concerns that the emerging software programs might be uncritically accepted by users with limited knowledge of social science methods:

> At least for a novice researcher or a student, there is a danger that the choice of technically available computer programs like Atlas/ti and NUD*IST may also suggest the choice of method (grounded theory). Consequently, there is a danger that "computer-assisted dominance" of one method – even a sophisticated one - could do great harm to the qualitative researcher (Lonkila, 1995, p. 50).

2.2.2 Computerised Qualitative Data Analysis and Grounded Theory

The grounded theory approach has been the main influence in developing qualitative analysis software and has had a leading role in the area of computer assisted qualitative data analysis (Lonkila, 1995, p. 41). Advanced software packages such as ATLAS/ti (Murh, 1991), NUD*IST (Richards and Richards, 1995) as well as less known programs are designed in accordance with the grounded theory model. Tesch (1990, p. 4) found that five out of nine software authors referred to grounded theory. Bryman and Burgess (1994) show that Richards and Richards' view the influence of grounded theory as being twofold:

> First it has alerted qualitative researchers to the desirability of extracting concepts and theory out of data. Second, grounded theory has informed, in general terms, aspects of analysis of qualitative data, including coding, and the use of different types of codes and their role in concept creation (p. 220).

Lonkila (1995) and Coffey et al. (1996) suggest that 'aspects of grounded theory have been over-emphasised in the development and use of qualitative data analysis software while other approaches have been neglected in comparison (Coffey et al, 1996, p. 8). They express worry that researchers can uncritically adopt 'a particular set of strategies as a consequence of adopting computer-aided analysis' (Coffey et al., 1996, p. 8). Charmaz (2000) supports this viewpoint and expressed a fear that in such programs:

> a) Grounded theory methods are poorly understood; b) these methods have long been used to legitimate, rather than to conduct, studies; c) these software packages appear more suited for objectivist [Strauss and Corbin's interpretation] grounded theory rather than for constructivist [Glaser's interpretation] approaches; and d) the programs may unintentionally foster an illusion that interpretive work can be reduced to set of procedures (p. 520).

Charmaz (2000, p. 520) noted, however, that such concerns had not been proved in an empirical study conducted by Fielding and Lee (1998).

As was illustrated in the preceding chapter, coding is the key element of grounded theory. Charmaz (1983, p. 111) described coding as 'simply the process of categorising and sorting data'. 'Initial coding' according to an earlier version of grounded theory provides the link between data and conceptualisation (Glaser and Strauss, 1967). Later, Strauss and Corbin (1990, p. 61), who described coding as a 'process of breaking down, examining, comparing, conceptualising, and categorising', viewed the coding process as gradual building up of categories out of data.

Coding has had the greatest influence on computer assisted qualitative data analysis. Lonkila (1995, pp. 48-49) noted that 'nearly all of the programs developed specifically for qualitative data analysis tell us: if you want to do qualitative research with the computer, you have to code your data'. It is noted, however, that the grounded theory coding process is understood differently in computer-aided data analysis software (p. 46). Bryman and Burgess (1994, p. 5) noted that Richards and Richards (1994), the pioneers of qualitative analysis software, applied the term coding in more than one way:

> To the task of fitting data and concepts together in such a way that conceptualisation is under constant revision (as a grounded theory); to a process that is more or less identical to the coding of open-ended questions in survey research, where the aim is to quantify different categories of a variable (p. 5).

Reitchie and Spencer (1994, p. 218) noted that Richards and Richards dislike the term 'coding' as it means different things for both qualitative and quantitative research. They viewed coding as being suitable for retrieval segments and open coding for the

generation of theory. Coffey et al. (1996) viewed the coding process differently. They defined the purpose of qualitative analysis software as being twofold: 'it facilitates the attachment of these codes to the strips of data', and 'it allows the researcher to retrieve all instances in the data that share a code' (p. 7).

Lonkila (1995) criticises qualitative research software for overemphasising the process of coding and notes that 'a large part of qualitative research consists of interpretation and fine-grained hermeneutic analysis' (p. 49). Coffey et al. (1996, p. 8) add that the point is not to reduce the value of grounded theory, or the significance of coding. The essence of the expressed danger is in 'unnecessarily close equation of grounded theory, coding, and software' (p. 8). They state that as grounded theory is more than coding, therefore qualitative analysis software should not only be used for the purposes of code and retrieve textual data.

Commenting on Coffey et al. (1995), Fielding and Lee (1996, p. 3) noted that 'we should be careful not to mythologise the status of grounded theory'. The variety of approaches in grounded theory results in different meaning of the label for each researcher. Moreover, researchers often refer to grounded theory for the purpose of legitimising their qualitative work. Based on an empirical study, Fielding and Lee (1996, p. 5) concluded that although grounded theory has a strong influence on computer-aided qualitative analysis, there are numerous computer-aided qualitative studies, which are not associated with grounded theory. They also found that researchers had little doubts about abandoning software use when it fails to meet the analysts' requirements.

Responding to Coffey et al. (1996) and Lonkila's (1995) critique, Kelle (1997) points out that a closer look at the methodological background of computer programs 'gives the clear impression that different programs have been developed on the basis of differing conception' (p. 6).

The practical aspects of computer-aided qualitative data analysis are described by Fielding and Lee (1991, 1995, 1998). They carried out an empirical study of users'

experiences of qualitative data analysis software. The research covered the following topics: how users heard about programs they use; how they use them; the nature of the research and research environment; how they had gone about analysing their data and how much they use software to facilitate the analytical process.

Participants of the focus groups, conducted throughout the United Kindom (UK), are represented by contract researchers (half of the group), lecturers (a quarter of the group) and postgraduates (a quarter of the group). Fielding and Lee (1996, p. 29) note that their choice of data collection method (focus groups) was determined by the fact that 'individual users [are] surprisingly unclear about precisely how they use a program'. They found that sharing experiences in a group leads to fruitful discussion of the issues. All participants of the study were early adopters of software. However, they differ from each other in terms of computer and qualitative research experience, their attitudes toward use of computers, type of projects they carried out and so on. The majority of the respondents worked on interview-based projects and multiple qualitative projects whereas the rest of the group was involved in mixed methods projects, observation and document based projects. It is suggested that 'these proportions reflect the broad pattern of use of the particular method generally, rather than an affinity between CAQDAS and any given method' (Fielding and Lee, 1998, p. 3).

2.2.3 Coding as a Part of Qualitative Data Analysis

Coding is of critical importance for computer aided qualitative data analysis. The coding procedure in qualitative data analysis differs from quantitative coding. As Charmaz (1983) points out:

> The term itself provides a case in point in which the language may obscure meaning and method. Quantitative coding requires preconceived, logically deduced codes into which the data are placed. Qualitative coding, in contrast, means creating categories from interpretation of the data. Rather than relying on preconceived categories and standardised procedures, qualitative coding has its own distinctive structure, logic and purpose. (p. 111)

Until recently coding was regarded as something mysterious, which could be only learned from long experience. The coding process was regarded as a complex and problematic one. Computer technology brought changes in the coding process and made it more comprehensive and transparent. However, even in computer-aided analysis, the researcher still has to code the data themselves. The main benefit of software is in making all further operations, which follow on from coding, much easer. Software users may find that 'mechanical aspects of coding were laborious and tedious', however the ability to 'search and retrieve once the data were coded was a major compensation for the time spent doing the coding' (Fielding and Lee, 1995, p. 34).

Fielding and Lee (1998) note that the problems of coding would arise independently of software use. Using computers, the analyst must control and resolve coding problems, which might escape without resolution otherwise. Therefore 'if one is prepared to rest with non-systematic and shallow analysis, then there is little doubt that manual methods are quicker and easier' (p. 126).

Coding is an analytical procedure that brings homogeneity to qualitative analysis by identifying analytical themes, organising the data for determining and illustrating those themes, and facilitating data reduction through eliminating irrelevant data (Fielding and Lee, 1998). It helps to systematise the data in a form which is appropriate for data retrieval. The first steps of coding induce the researcher to determine codes by reading and rereading the data and to combine them into themes, which can be bound by some logic or chronological order (Hammersley and Atkinson, 1983). An analytical theme represents a group of ideas, which are identified as codes for analysis and can be generated by means of brainstorming (Lofland and Lofland, 1984).

In the early stages of qualitative analysis, familiarisation with data can take place by data entry and organising the database. The computer can facilitate the researcher in getting acquainted with data via searching for key words and examining whether or not chosen themes are supported by data. It should be noted that prior interpretation

of the text is essential in order to understand what the respondent is saying. To do that, researchers are advised to think themselves into the circumstances of the respondents and understand the real meaning of the words (Rosen, 1978).

Using software in the initial stage of analysis can be helpful as it provides the researcher with good control over the text so that the original version might be recovered quickly. It also facilitates annotation features by keeping records of one's thinking and applied themes. Computer use at this stage helps the researcher to apply to the same data set with new analytical purposes and ideas. Qualitative research software allows for a tentative and emergent approach to analysis through making the process more flexible. This encourages consequent development of codes and analytical thoughts rather than rigidifying the early ideas.

The number of codes which should be identified is treated as an essential issue for analysis. Computer programs can manage large volumes of codes, but it should also be determined by the analyst's capacity to conceptualise. In the early stage of coding, the researcher tends to identify a large number of codes. Then, based on the first 'trawl' the researcher can produce smaller amounts of codes identified as core themes. It is suggested that too small an initial number of codes can lead to over-generalised analysis and does not allow for finding further details. At the same time, large numbers of codes can be 'messy' and undesirable also (Bryman and Burgess, 1994, p. 218). To cope with a large number of initial codes computer programs can assist in determining instances of codes, organising code assignment, and making changes easier.

Since the great strength of qualitative research is in in-depth discovery of new ideas and details, the process of codes' refinement has an obvious significance for analytical processes. The process of codes' proliferation may be in the form of building a hierarchy of codes and creating meta-codes, or finding relationships between codes. Because of continual oscillation between data collection and data analysis, qualitative analysis is called 'sequential' (Becker, 1986). This implies that the researcher is involved in an endless analytical process with no final 'right' answer

available. Changes and refinements of codes is a natural process in qualitative research resulting in clarifying ideas and developing general concepts. Computer programs can play an essential role in this process in being able to keep track of the development of the codes' definitions. Some packages allow for evolutionary emergence of codes by means of automatically dating them and supporting audit trials. Creating high-level codes is described by users as moving from 'great descriptive codes to more theoretical codes' and this movement in not linear (Fielding and Lee, 1998, p. 97).

The codebook in a computer program enables users to define criteria for the fundamental categorical units and to record the frequency of codes that emerge. The difference between codebooks in survey research and codebooks in qualitative research is in the codes' flexibility (survey research codes or variables do not change greatly, while qualitative codes are more flexible). In quantitative analysis, the codebook, which is created at the preliminary stage of analysis, is a definitive document of the one-shot analytical process. In contrast to survey research, the qualitative codebook reflects the iterative character of the analysis; changes in qualitative codes might impose further data collection and new levels of analysis (p. 98).

The coding process can be assisted by writing notes to facilitate discussions about the codes' meaning. Glaser and Strauss (1967), who called the notes 'analytic memo', emphasised their great value. They noted the iterative character of qualitative research, where every further stage of research calls for further interrogation of the data. The analysis is characterised by continuing oscillation between the data and appearance of the conceptual theoretical constructs. It is emphasised that the researcher should not over-extend data collection relative to data analysis. Moreover, special care should be given to the analysis, providing for creativity and interactivity. Code definitions, written as analytical memos, play an essential role in the process of theoretical development. Memoing features are also useful for negotiating changes in codes, auditing somebody's thinking, and keeping track of building the conceptual framework. The memoing feature can contribute to analytical validity by stimulating

collective discussion and making the analytical process more available for third parties and assessment.

Coding in teams is treated as a complex process, because people with different backgrounds, interests and experiences should negotiate codes and their definitions. Some packages are directly oriented towards team working and take into account computer/software and human compatibility for computer-supported co-operative work (CSCW).

According to grounded theory, the researcher has to develop conceptual schemata through repeated stages of iteration and refinement. However, in practice the researcher (being under time or data management constrains) may decide the degree of accuracy in the analysis. Furthermore,

> without the computer the procedures for systematic retrieval in the service of refining one's conceptualisation are so unreasonably demanding that only the stubborn or acknowledged experts are likely to preserve (Fielding and Lee, 1998, p. 130).

It is recognised that the main benefit of programs like NUD*IST and Ethnograph is their capability for cutting, pasting and retrieving of interview transcripts (Bryman and Burgess, 1994, p. 221). Miles and Weitzman (1995) note that computer programs are quite sophisticated in the area of data retrieval and that most of them offer a variety of features for artful retrieval strategies. Fielding and Lee (1998, p. 133) add that the sophisticated code retrieval process may encourage creative thinking and support efforts at triangulation.

Among retrieval strategies are the following: retrieve all data in the category, retrieval of supported numerical counts, hypothesis testing retrieval, retrieval based on respondents characteristics, retrieval for establishing formal relationships, retrieval for exploring substantive relationships, retrieval using Boolean operators and retrievals employing set logic. Based on empirical investigation, Fielding and Lee (1998) note that the first retrieval strategy (retrieving data in category) is the dominant one in qualitative research practice.

2.3 Computer Assisted Qualitative Data Analysis Software (CAQDAS)

2.3.1 Overview of Main CAQDAS Types and Capabilities

Qualitative research software applications known as CAQDAS are represented by a number of programs developed over the past 20 years. Some of the better known programs include ATLAS/ti, NUD*IST, ETHNOGRAPH, HyperRESEARCH, INSPIRATION, KWALITAN, and Code-A-Text. A more detailed list of programs together with their features is available in Appendix (i).

As has been noted, traditionally data analysis software was focused on quantitative research needs. Brent and Anderson (1990) suggest that the first statistical packages started to emerge in the mid nineteen sixties (Table 2.1). Experiments with using word processors, content analysis programs and databases for qualitative analysis as well as rudimentary code-and-retrieve programs (such as the first versions of ETHNOGRAPH, Quapro and TAP) appeared in the early nineteen eighties (Tesch, 1988). Since the mid nineteen eighties, the development of programs has been concentrated on desktop computers. The technical and methodological aspects of CAQDAS have been steadily developing since that time, facilitated by regular conferences, growing literature on the topic and electronic bulletin boards. Although at the early stages of their development there was high resistance toward using CAQDAS (through misunderstanding of how computers might be effectively used for qualitative analysis), now there is an indication of an increasing usage of CAQDAS in applied research (Fielding, 2000).

Table 2.1: Historical Development of Data Analysis Software in the Social Sciences

1960	Manual methods
1964	Mainframe programs for content analysis of textual data
1965	Statistical program libraries
1970	Batch integrated language-oriented statistical systems
1975	Interactive mainframe statistical systems
1980	Microcomputer statistical programs with limited capabilities
1982	Rudimentary mainframe CAQDAS programs
1983	Microcomputer CAQDAS programs for descriptive-interpretive research
1984	Fully featured microcomputer statistical programs
1987	Microcomputer CAQDAS programs for theory building

Source: Brent and Anderson (1990)

It is estimated that 40 percent of all qualitative UK researchers are aware of CAQDAS, which gives an approximate figure of 2000 CAQDAS aware researchers in the UK (Fielding and Lee, 1998, p. 16). These people are divided into three broad groups. The first group consists of 40-50 people who possess wide knowledge of a number of programs and are involved in methodological debates about software usage. The second group is represented by professional CAQDAS users employed on a particular package (or packages) for research purposes. The last group consists of

people who are aware of CAQDAS, might attend special workshops and try some packages but still remain uncommitted to computer-based qualitative analysis (p. 14). Among the most popular qualitative programs in the UK are ETHNOGRAPH, NUD*IST and Atlas/ti. ETHNOGRAPH was for a long time the most popular; however NUD*IST appears to be the best-known package now (p. 15).

The purpose of CAQDAS is to help the researcher in the analysis of qualitative data. CAQDAS assists researchers in performing operations they usually do manually (divide data up into subjects or topics, annotate text and compare different parts of text to determine patterns or links between them and so on). For these purposes, CAQDAS's role is considered similar to the role of the filing cabinet, clerk and junior research assistant.

The principles of grounded theory described in chapter one provide a theoretical background for the majority of software applications. According to qualitative research literature, CAQDAS is usually divided into two types, namely, generic and dedicated qualitative analysis packages (Miles and Weitzman, 1995; Richards and Richards, 1995; Fielding and Lee, 1998). Generic packages are usually produced for a wide range of tasks and can be adapted for qualitative analysis. Among generic programs are word processors, text retrievers and text-based managers. Dedicated packages, which were created for qualitative research purposes, include code-and-retrieve programs, code-based theory builders and conceptual network builder programs (Miles and Weitzman, 1995).

Using word processors for qualitative analysis is addressed by Bernard (1994), Fischer (1995) and Tesch (1990). They point out that qualitative data can be analysed by using ordinary word processors. To do so, the analyst should include mnemonic codes into the text for the purpose of further retrieval of all code instances in text. By using macros, the analyst can also retrieve and write to a particular file the necessary text segment (Ryan, 1993).

Text retrievers are commercial programs with extended searching facilities. They perform the process of searching all instances of words and phrases in data files. Text retrievers can be divided into those using an internal files approach and those using an external files approach (Miles and Weitzman, 1995). They differ in terms of where the built index is stored. The external approach suggests storing the index on the user's hard disk, which allows for quick search. However, the process of creating the index might be rather long and needs to be adjusted every time new data are introduced. In contrast, the internal approach does not require building the index and its adjustments.

According to Fisher (1995), text retrievers are appropriate for 'aerial reconnaissance' of the data. In other words, they are suitable for defining themes and topics in a large volume of text and identifying their locations. The problem of how to define the search request is widely discussed in the available literature. Since words and phrases have different meanings within the text, or different words might have similar meanings, it is emphasised that defining a search criteria is of particular importance. Pfaffenberg (1988) points out that defining the search terms too broadly can result in producing irrelevant data, whereas too narrow a definition might result in excluding important data.

Text-based managers are tools for sistematising, organising, sorting and making sub-sets by means of search and retrieval (Rubinstein, 1991; Miles and Weitzman, 1995). They combine features of dedicated text retrieval packages and database software applications. There are three forms of database applications described in the literature: rectangular, hierarchical and relational databases (Burnard, 1987, p. 63; Bagg, 1992, p. 2; Wilson, 1992, p. 77). A rectangular database is a collection of cases. It can be set up easily, but retrieved information is limited. A hierarchical database is similar to rectangular, and accomplished by sub-case structure without inter-case referencing. A relational database is a case-based database, which allows for referencing between cases.

Data in the packages are usually in forms of text divided into fields. Each field is defined by names that can be associated with the text. Wellmann (1990, pp. 1-5) points out that text-based managers deal with structured, semi-structured and unstructured data. Although text-based managers tend to be structured, they permit for varying lengths of text and are suitable for unstructured data. Fisher (1994, p. 34) presents another classification of data used in software packages: data with fixed or regular structure, data with irregular structure, and data which contains both. The implication of fixed data is that each record has identical categories of data and the same data format. It facilitates complex search and filtering procedures. The main advantages of the packages are their speed, flexibility, filtering device for complex data, ability to handle large volumes of combined qualitative and quantitative data and suitability for researchers with modest computer expertise.

Code and retrieve programs are defined as dedicated qualitative analysis packages, which can facilitate the process by breaking down the text into segments by theme or category and codifying them. Text segments with identical codes can be retrieved for examination and comparison. Before computer technology became available, social researchers performed coding and retrieval processes by coding relevant passages into index cards, marking up a transcript with coloured pens, stickers and paper clips, cutting the text segments and pasting them onto a larger sheet of paper (Knafl and Webster, 1988).

The arrival of software packages allowed for automation of the analytical process. Data (fieldnotes, memos, transcripts and so on) are coded and codes are assigned to particular segments of the data. The researcher can request or retrieve segments assigned to the particular codes, or to their combinations. The size of segments and codes attached to the data are decided by the researcher. At different stages of analysis, codes might have different functions and volume, reflecting the degree of theoretical understanding of the data. The advantage of software programs is their ability to provide for quick changes in codes as new insights emerge. 'Code-and-retrieve programs – even the weakest of them – are a quantum leap forward from the

old scissors-and-paper approach: they are more flexible, and much, much faster' (Miles and Weitzman, 1995, p. 18).

Code-based theory builders are described as programs that allow for the extension of analytical procedures towards theoretical development. They allow for building graphic networks, testing of sophisticated semantic links between codes and hypothesised relationships between different data categories. Treated as conceptual categories, codes become building blocks for theoretical development. Ways of building theory vary from 'traditional' methods, based on Boolean retrievals, to more formalistic approaches using rule-based methods, where emerging hypotheses are tested case-by-case (Richards and Richards, 1994).

The conceptual network builder is represented by commercial visualisation software and additional features to code-based theory builders (Jonassen et al., 1993, p. 11). High level codes are treated as elements of the theory and connected to each other by lines, which indicate relationships between them in the form of 'causes', 'consequences', 'part of' and so on. For such purposes, textual mapping and graphical features are usually used in the software packages. The conceptual network builder is not widely used, nevertheless there are a number of packages which excel in network building features and allow for representation of elaborate interrelations between elements in the form of a flow diagram (Griffin, 1993).

Weitzman (2000, p. 809) emphasises that all of the above mentioned family of software types often cross each other's boundaries. The implication of this is to use functions rather than family types for deciding the software to use.

2.3.2 Functions and Features of CAQDAS

The literature reviewing CAQDAS features has a very short shelf life. The best available reviews undertaken by Tesch (1990) and Miles and Weitzman (1995), both have become quickly out of date as a result of rapid developments in this area.

Tesch (p. 150) divides all CAQDAS functions into four main groups: main function, enhancement functions, preparatory functions, and housekeeping functions. She points out that there are only two main functions of qualitative analysis software, namely, attaching codes to segments of text and searching for text segments according to codes and assembling them. Attaching codes to segments of text is a coding procedure, which is described by Tesch (1990) as a twofold operation involving, firstly, an indication of the beginning and the end of the segment, and secondly, attaching a code to the segment. This procedure might be carried out directly on screen or in a two-step process, using paper and printout of the text. Searching for text segments according to codes is a process of re-contextualisation, which provides for bringing all segments with the same code together. All analytical programs perform these main functions; they are the core of any computer program. However, they can be carried out differently in different packages.

Miles and Weitzman (1995) presented a categorisation scheme of the main CAQDAS features, which is referred to in qualitative research literature quite often (see Appendix (i)). They identify the following CAQDAS features: data entry/database structure, chunking and coding, memoing/annotation, data linking/hypertext, search and retrieval, conceptual/theory development, data display, graphics editing, network and team use, flexibility and user friendliness (Fielding and Lee, 1998; Miles and Weitzman, 1995). There are expanded below.

Data Entry

Data entry facilities vary considerably in the different packages. In some programs a researcher has to type the data directly into the program, whereas in others it is required that the data be typed in a different package, normally a word processor. They have different requirements for the data to be typed, such as strict formatting rules, limited amount of characters, predetermined spacing and so on. Meeting those requirements might be time consuming; therefore a researcher performing a small short-term project might find the use of such programs unreasonable. CAQDAS also differs in the means of storing and organising data. In some packages original data are

stored internally. The internal-files approach allows for making a copy of the original data and converting the copy into proprietary format (for working with), thus leaving the original unchanged. However, when the original data are left in the original file and programs work with ASCII files (American Standard Code for Information Interchange), the external file approach takes place (Miles and Weitzman, 1995).

Chunking and Coding

Chunking and coding features allow segmentation of the data into separate words, phrases and sentences as well as attaching codes to the segments. Programs differ in the ways codes are attached to one or more segments, or on nested or overlapping segments. Some programs give a choice of code attachment procedure and some can facilitate multi-level coding. There is also support in some programs for easily finding codes in text as well as for renaming or replacing them. The majority of programs have features that help to see where the segment comes from in the original text (source tag).

Memoing/Annotation

Memoing/annotation features are not presented in all packages and reflect the grounded theory approach. Some of the features only allow for underlining and highlighting certain words, whereas others allow for writing inserted remarks. The annotation is usually a few sentences in length and is applied to a particular point in the text. The memo might be some pages in length and is applied to the whole file. Memos and annotations may be located in separate files, or be linked to some parts of the original text (Miles and Weitzman, 1995).

Data Linking/Hypertext

Data linking/hypertext features allow for making and recording links within such parts as field-note text, annotation, and memos. Some can also build links between

them. Links differ from references; they provide links not only conceptually but also operationally. There are a variety of linkages available in CAQDAS: linkages between memos and text segments; between memos and codes; between codes themselves, and so on (Kelle, 1995, p. 12). Links allow for quick jumping from one file to another by using a little icon in a toolbar or by another type of request. By contrast, references allow for searching in different files, but the researcher has to move between them.

By using a pointing device, the hypertext system allows the researcher to navigate easily around the data. There are two approaches to hypertext: hypertext using fixed, permanent links between the database's parts, and hypertext employing dynamic links, which are activated every time the researcher highlights a particular text or makes another query (McAleese, 1993). In all cases hypertext facilitates the organisation and linkage of the data in a non-liner way. 'It allows the reader to follow, and indeed to create a diverse pathway through a collection of textual materials' (Coffey et al., 1996, p. 10). It provides for linking segments without having to attach codes to them (Kelle, 1995, p. 12). Some authors view hypertext as an instrument for overcoming the limitations of the coding process 'with its contingent loss of contextual information'. They express the opinion that hypertext 'retains more holism, yields a richer description, is more amenable to the creative process, is more flexible and dynamic and encourages reflexive modes of thinking' (Barry, 1998, p. 5).

Fisher (1994, p. 104) notes that 'little about hypertext is automatic. Hypertexts are "authored", and the authoring process must be done by someone who is familiar with the material included in hypertext'. Fielding and Lee (1995, p. 1) suggest that 'without good knowledge of primary text, hypertext moves may simply disorient the researcher'. Amongst the limitations of hypertext, the are possibilities of encouraging over-complexity (Cordingley, 1991, p. 175) and being 'lost in hyperspace', disoriented and scared off. (Barry, 1998, p. 5)

Based on a study of users' experiences, Fielding and Lee (1995, p. 2) concluded that users employ hypertext features when 'they are pursuing and refining the precise

meaning of a particular code'. They may also use this feature in order 'to read in quick succession a number of instances of the application of the code to different text segments and traverse periodically to memos about the code' (p. 2).

Search and Retrieve

Search and retrieve features may include such searching facilities as 'wildcard' searching, 'Boolean' requests, set logic, relational searching, fuzzy, sequence, proximity, phonetic, and synonyms. The 'wildcard' approach allows for searching instances, which can substitute for each other. For example, using an asterisk as a wildcard can assist in searching instances by determining only some letters in a word ('us*' can be used to find 'use', 'using', 'used', and so on). Boolean searches provide for a combination of searches, based on the operators AND, OR, NOT. Proximity searches can facilitate a search of one instance in a determined proximity from another. Pattern searchers can help to search for patterns of words, which appear in the text (for example, words starting with capital letters, words ending with 'ing' and so on) (Fielding and Lee, 1998). Relational searches can facilitate a search of items, which link in some way (such as codes and sub-codes). By employing a fuzzy search, all items which are spelled approximately the same way as a requested word, can be displayed. Phonetic search helps to find all instances, which sound as a requested word. Synonyms search shows all words with similar meaning.

Programs also differ on the basis of how they display retrieved data. They can show a whole document with highlighted segments, they can display segments only, or they can display segments and show where they come from. Some programs have features that allow for recording all performed searches.

Conceptual Theory Development

The conceptual theory development feature supports the researcher in their theory building efforts. The feature operates via rule-based or logical approaches. The

researcher specifies the rules and program tests as well as identifying whether they apply to the cases or not. It can also work through true/false variables and produce a list with combinations associated with the variables (Ragin, 1993; Richards and Richards, 1994). Another approach used within the feature is creating visual networks with relationships specified graphically. Kelle (1995, p. 4) notes that for qualitative theory building, the hypertext may be of specific use.

Fielding and Lee (1998) discovered that there are signs of relatively limited awareness of conceptualisation facilities in software. The most frequent way of elaborating a category system used by researchers is adding new codes. Alongside limited awareness of conceptualisation and theory building features of CAQDAS there is considerable resistance toward those features among researchers. An average user of CAQDAS values most the clerical or file management feature and under-values the theory building one. For many of them, analysis is the 'derivation of broad themes based on main codes' (p. 121). Users perceive CAQDAS as an instrument that can increase the importance of codes' definition and allow for more flexibility and handling of a large amount of data.

Data Display

The display feature permits showing results on screen or printing them. A few programs can produce output, which can be viewed in matrix form or in the form of a network. Some of them can export quantitative data into statistical software such as SPSS, BMDP and so on. Graphics editing features help a researcher to create networks, composed of nodes and links with a range of different styles.

Network and Team Use

Network and team use facilities are not always available in programs. Some of them allow only for loading onto a network hard drive and for use by separate users. Others can support multiple users at multiple workstations working with the same documents

at the same time. Team use features provide controls of access levels to the data, recording team members' operations and facilitates, and merging outcomes of team members (Ford et al., 2000).

Flexibility

Flexibility, as one of the most useful features of software applications, allows for customisation of the software for users' particular needs and preferences and is concerned with the ability to work in different platforms (DOS, Windows, Macintosh, Unix), and even transport data across platforms. It is also characterised by the presence of macros, which could be written to facilitate automatic running of certain settings.

User Friendliness

User friendliness is regarded as an essential feature. The process of qualitative analysis is hard enough of itself without being complicated by the necessity to learn software. The degree of user friendliness is determined by the amount of time and learning effort a program requires, quality of tutorials, on-screen help, quality of manuals, articles and so on. Some programs have user groups for information exchange and some supply newsletters and phone lines. The attitude to program support expressed by a software developer is that 'the best support is, when it is not needed' (Miles and Weitzman, 1995, p. 314). Some programs are rather difficult to learn but turn out to be easy to use, while others might be quickly learned but rather complex in usage.

According to a study carried out by Miles and Weitzman (1995), 14 packages out of 24 are recognised as 'strongly user friendly' and only four packages as 'weak'. At the same time, participants of Fielding and Lee's (1998) study mention the time necessary for obtaining a good working knowledge of a program and poor support service às the main barriers to computer use. They concluded that the participants

had to pay a penalty for being early adopters as later versions of programs are more user-friendly than their predecessors. Participants of the research also expressed worry about their ability to use the full potential of the software (p. 73).

The features of a particular program depend on the qualitative approach it is grounded on. For example, grounded theory influenced the development of certain theory-building programs (ATLAS/ti and NUD*IST), which employ a range of provisions for coding, annotation and memoing (Richards and Richards, 1994). Programs based on the grounded theory approach include text underlining for codes and wide margins for restating them more generally, powerful code revision, ability to create multilevel codes, and an automatically updated code list in hierarchical outline or network form. Programs adopting a narrative approach are able to retrieve segments by chronological sequence. Ethnography based programs have expanded off-line facilities, which permit retrieval and analysis of photos, audiotapes and so on. Interpretivism or hermeneutic computer analysis requires easy annotation and even multilevel annotation. In collaborative or action research a type of common network database is necessary (Muhr, 1996).

2.4 Evaluation of the Use of Computers in Qualitative Data Analysis

The nature of qualitative research, the complexity of data input, the lack of a definite and well-developed structure for a research process, and the high degree of art in the analysis are the main reasons for ongoing debates about the use of computers in qualitative research. CAQDAS usage started to be discussed in the early nineteen eighties by software developers and computer enthusiasts (Dey, 1993; Muhr, 1991; Fielding and Lee, 1991) and then continued on in the social sciences and business literature (Catterall and Maclaran, 1998; Coffey et. al, 1996; Denzin and Lincoln, 2000).

2.4.1 Limitations of QDA Software Usage

It should be noted, that negative attitudes to the usage of software applications in qualitative data analysis appears in the literature rather frequently (Robson and Hedges, 1993). The main argument against CAQDAS use is that 'no computer software has yet, or ever will, replace the brain of skilled qualitative practitioner' (Gordon and Langmaid, 1998, p. 138). Many researchers continue to believe that qualitative analysis software performs data analysis. However, rather than do data analysis 'software provides tools that help you to do these things; it does not do them for you' (Wietzman 2000, p. 806). This standpoint is shared by many authors (Kelle, 1997; Fielding and Lee, 1998; Miles and Huberman, 1994). Barry (1998) summarised it as follows:

> CAQDAS does some tasks for the researcher: data administration and data archiving, but only provides assistance in the theoretical thinking and analysis itself, which is as it has always been, the job of the researchers themselves (p. 4).

Some authors express fears, that using computer programs can affect the process of qualitative research. Agar (1991) suggests that programs can drive the research process rather than assist it and believes that by using computer applications, the researcher designs the research process according to the functions which a program can perform. However, based on a study conducted among qualitative researchers, it was found that researchers would rather reject using programs and work manually than change their own research procedure and methods (Fielding and Lee, 1995).

Concern that the researcher might adapt their research to the program they use was discussed in the previous section. Coffey et al. (1996) and Lonkila (1995) pointed out that methodological assumptions of the developers, which are reflected in their products, which impact on qualitative analysis. It is noted, however, that each program may 'encourage different ways of thinking about your data' (Weitzman, 2000, p. 817). Furthermore, 'a clever user will be able to bend each of these flexible packages to a wide variety of different tasks, overcoming many of the differences between them' (p. 817). Fielding and Lee (1998, p. 175) suggest that the trends in

software development are directed primarily by users as a result of a 'willingness of developers to incorporate features desired by users even if these do not always accord with the epistemological preferences of the developer'.

Another fear expressed in the literature is a danger of fracturing data and loss of process. Text coding and retrieval are the main functions of CAQDAS, which encourage the researcher by using cross-case comparison (between different focus groups). This comparison results from fracturing data by topic and combining together the texts from different focus groups with common search criteria. The argument is that the real value of focus groups is in the interactions of group participants, which can be revealed only by single group data analysis (Albrech et al., 1993). Fielding and Lee (1998) discovered that CAQDAS users perceive programs to be more appropriate for analysing interview transcripts rather than group discussion data. It is pointed out that codes developed for one group might not be suitable for another.

Robson and Foster (1989) viewed the danger of using CAQDAS as encouraging superficial analysis. As CAQDAS is used for counting instances occurring in the text, it is stressed that wrong or overwhelmed meaning can be attributed to those counts.

Fear that computer usage may distance researchers from their data was raised by Seidel (1991). It was supported by Agar (1991, p. 185) who compared computerised and manual analysis describing them respectively as 'a loosely performed computer analysis and a beautiful analysis done by hand'. It 'has been one of the big concerns raised by qualitative researchers over the years' (Weitzman, 2000, p. 816). Being close to the data usually means being 'able to recover sights, sounds and experience of being in the field' (Fielding and Lee, 1998, p. 74). Since every segment of text has particular conceptual relationships to others, code-and-retrieve procedures result in separation of the segment from its original context, which facilitates understanding of data (Dey, 1995). To overcome the problem of distancing the researcher from the data, more complex code-and-retrieve procedure could be developed (Reissman, 1993). Software developers provide different solutions such as creating proximity

searching (Drass, 1989) for recovery of the coded text sequence and using hyperlink techniques (Dey, 1995).

Weitzman (2000, p. 816) argues that software does not affect the issue of closeness to the researcher's data; it 'neither makes it better nor worse, it simply changes it'. Before using a computer, the researcher had to spend hours 'sitting on the floor surrounded by piles and piles of paper to gain familiarity with the data. Facilitated by a computer, the researcher can keep data onscreen all the time, build hypertext links between different points of data, display coding and memoing, and keep track of all movements in the database. All those features help a researcher to 'get even closer to the data' (p. 815).

Fielding and Lee (1991, p. 8) note that computers may tempt a researcher to skip over the process of the study and to do 'quick and dirty' research. 'Untutored use of analysis programs can certainly produce banal, undefined and off-target analysis' (p. 8). A remedy they see is in teaching the use of programs as well as qualitative analytical techniques.

Some authors express concern that a computer might encourage the researcher to imitate survey research rather than study a social phenomenon in depth, or in other words 'trade resolution for scope'. Researchers 'end up missing interesting and important things in the data' (Siedel, 1991, p. 109). Mason (1996) cautions researchers about being seduced by the capabilities of software into conducting quantitative analysis. As a response to these worries, Barry (1998, p. 3) notes that 'this was also a danger before computerisation'. Caracelli and Green (1993) found that in multi-method research qualitative and quantitative techniques are not integrated and there is no evidence of analysing qualitative data quantitatively. Fielding and Lee also (1998, p. 82) provide evidence, that in the case of multiple data analysis respondents' approaches are based primarily on identifying differences between two data types, rather than looking for points for connection and using two different packages (a quantitative one and CAQDAS).

Another worry concerns the illusion that computers could manage a large amount of data properly. At the same time, the idea of increasing sample sizes by means of a computer can sound attractive on (both qualitative and quantitative) methodological grounds, in spite of the fact that qualitative researchers do not treat large sample sizes as an advantage. Kelle (1995, p. 23) stated that although ' an increase in sample size [may] add greater breadth to the scope of analysis while maintaining the depth of interpretation', it does not necessarily result in an increase in validity. He cautions that the 'potential benefit of a larger sample size may be outweighed by the extra costs in time and effort required for data preparation and data entry' (Kelle, 1995, p. 24). It should be noted, that evidence given by Fielding and Lee (1998), who studied sample sizes of qualitative projects, suggests that there is no sample size inflation for the examined period (from 1977 to 1993).

2.4.2 Advantages of CAQDAS

Barry (1998, p. 4) argues that using software in qualitative research brings more benefits than limitations. He expresses the opinion that some of the 'fears about CAQDAS do originate from those who have not worked with it very much if at all'.

The main advantage of CAQDAS is its ability to facilitate data management and handle complex qualitative data. CAQDAS is valuable from Catterall and Maclaran's (1998) point of view in operating with a large volume of data under time constraints particularly during the early stages of analysis (that is data search and retrieval). A study conducted by Fielding and Lee (1998, p. 59) among qualitative researchers showed that users started employing CAQDAS to cope with large volumes of qualitative data and their variety. Among reasons for using CAQDAS is the desire to make the analytical process more systematic, creative and transparent. There are also expectations of time-consuming effects; however not all of them are justified.

Tesch (1989) points out that computer aided analysis can reduce time, cut out much drudgery, make a procedure more systematic and explicit, ensure completeness and refinement, and allow for flexibility and revisions. It should be noted that time issues

are a controversial point in the literature. Based on Fielding and Lee's opinion (1998), it might be of benefit only for experienced users. Moreover, the coding process normally has to be done with special care including determining and negotiating codes' definition, which usually takes extra time. Miles and Weitzman (1995) also argue that computers do not save time because of the learning time needed as well as the necessity to perform new, more complex tasks. They add that researchers have to perform more efficient and accurate analysis with the aid of a computer, which leads to higher quality for the same time investment.

Capabilities of qualitative research performed by CAQDAS can be seen in easy replication of the analysis by another person and in encouraging team-work (Conrad and Reinharz, 1984). CAQDAS can become a basis for team working in qualitative research, which is traditionally considered as individual work. Team-work gives new opportunities for research design involving more than one agency as well as international research (Catterall and Maclaran, 1998).

CAQDAS can be used as a 'gateway' for quantitative analysis through exporting data to statistical packages. Ragin and Becker (1989) suggest that computer usage might facilitate the process of methodological convergence between variable-oriented (quantitative) and case-oriented (qualitative) analysis. Computers encourage an intensive and an interactive analysis. The qualitative researcher might employ a cross-case analysis for testing comparative categories while a quantitative researcher might be encouraged to perform more detailed analysis of sub-populations (Ragin and Becker, 1989). However a caution that 'methodological eclectism needs to keep in view problems relating to the validity and comparison' is expressed toward methodological integration (Fielding and Lee, 1998, p. 83).

CAQDAS allows for more sophisticated analysis, which helps to enhance acceptability and creditability by making the analytical process more scientific. Transparency means the ability to produce an explicit, systematic and well-documented analysis, which can be published for a variety of audiences (Miles and Huberman, 1994, p. 280). Transparency can facilitate secondary use of data and

analytic reassessment of research. CAQDAS can be helpful for demystifying analysis by making the research process more public. It can be a sophisticated means for learning and developing research skills for junior researchers who can start studying the process of interpretation of the data at an early stage of their careers (Catterall and Maclaran, 1998). CAQDAS is useful from Catterall and Maclaran's (1998) point of view when the researcher has to handle a large number of groups and interviews. They pointed out that the identified topics could be used for searching through other transcripts.

Using cross-group analysis, testing relationships and patterns by means of CAQDAS can also encourage more sophisticated trials with the data and more creative analysis (Catterall and Maclaran, 1998). It is suggested that programs can be useful for reworking the data for new insights. After completion of a project the researcher might return to the collected and analysed data for further comparison or revision (Wolcott, 1994).

CAQDAS can be used to discourage 'ghost writing' (data analysis by a third party). This practice is widespread in the USA where over 50 per cent of moderators use 'ghosts' for writing reports for clients (Greenbaum, 1993, p. 25). As a research assistant, CAQDAS leaves the researcher to focus on the intellectual work and interpretation and discourage the usage of a third party.

Weitzman (2000, p. 806) considers four advantages of the use of computers: consistency, speed, representation, and consolidation. Software consistency facilitates the researcher in searching all instances or combination of codes in the given text. It is helpful in checking their own work and providing feedback. Speed is a controversial issue in software use since firstly, program learning is a time-consuming process and secondly, time is required for data preparation for use of computers. Nevertheless, computer speed is of great importance, especially when the researcher re-sorts the database, redefines codes and makes all other changes. The representation issue relates to 'real-time representation of the researcher's thinking' and 'can be a substantial aid to theorising' (Weitzman, 2000, p. 806). Finally the researcher can

benefit from consolidation, which allows for recording field notes, transcripts, and all other types of data.

2.5 Further Development of CAQDAS

Programs are being revised regularly; new software (or software versions) emerges once or twice a year. New features normally appear as a result of a 'close relationship between users and developers' and represent a response to users' needs (Fielding and Lee, 1998, p. 175). Weitzman (2000, p. 818) distinguished between the two current trends in computer-aided qualitative data analysis: scholarship development and software development. Regarding scholarship development, he emphasises the necessity of regular revision of software reviews in books and journals, debates on methodological questions, and more empirical work.

Empirical work, which has been pioneered, by Fielding and Lee (1998) should be continued. It is noted, that there is a need for investigation of opinions about the appropriateness and the impact of software as well as the necessity 'to continue to subject our hypotheses to empirical research' (Weitzman, 2000, p. 818). Kelle (1995, p. 10) also notes that 'until now there has been no serious and intensive investigations of the relationships between single methodological approaches and computer-aided methods'.

Software users dictate further software developments needed in order to meet their needs, which 'are not yet met' (Weitzman, 2000, p. 818). It is necessary to build programs with a strong case-oriented structure; to develop display building, especially of matrices; to improve tools for narrative and discourse analysis; and 'to create the possibility for importing and exporting marked-up, coded, annotated data from one program to another' (p. 818). The latter feature will allow the researcher employ the strengths of different programs in one piece of research, since 'no one program will ever do it all best' (p. 818). Development of CAQDAS, according to Miles and Weitzman (1995, p. 334) should be in the following directions:

Multitasking, closeness to data, improving coding and chunking, search and retrieval, logging and system closure, information beyond the text, co-occurrence, sequence and causality, research team use, automation and a standard floor.

Multitasking means managing qualitative and quantitative data from the same cases. Many authors hope that computer involvement in the research process may lead 'to the long-standing dichotomy between qualitative and quantitative data analysis being overcome' (Kelle, 1995, p. 15). Such approaches 'try to combine hermeneutic methods of Verstehen with the statistical analysis of standardised, numerical information derived from unstructured textual data' (p. 15). However, 'the question of how quantitative analysis of formal structures can be linked to the hermeneutic analysis of semantic content seems to be a methodologically difficult one' (Prein and Kuckartz, 1995, p. 154).

Some authors believe that the development of computer technology will lead to the emergence of new methodologies (Richards and Richards, 1995). Others, like Fielding and Lee (1998) argue that the computer allows for doing things better rather than differently and cannot lead to an emerging of converged methodology. Although logic based manipulation in QCA as well as hypertext navigation cannot be performed without a computer 'it is not that new procedures have been made available but that procedures whose logical foundation is long-established are newly practical' (Fielding and Lee, 1996, p. 185).

Miles and Weitzman (1995) pointed out the importance of further development of qualitative analysis software in order to achieve closeness to the original data, which is valued by users. The implication may be in flexible on-screen coding, ability to see the original text with code-names attached, and in using different margins, interline presentation, and colours. Closeness to the original data can be achieved by means of hypertext and hyperlinks, which can also facilitate the links between qualitative and quantitative data in a single study (Brannen, 1992; Green et al., 1989; Howe, 1985; Miles and Huberman, 1994; Rossman and Wilson, 1984).

Improving coding and chunking can be by achieved by making those procedures easier and more automated as well as by developing multilevel coding facilities. Search and retrieval procedures are seen to be more flexible in specifying the scope, range, or context of search. They might include a wide variety of available synonym searches and set logic searches. Software should be more suitable for team use as more studies are carried out by research teams (Miles and Huberman, 1994). It means that different users should be permitted to edit and update text; copies of text should be easily customised, annotated, edited and coded by different team members; and complete data sets should be easily transferred to another computer. Finally, it is suggested that a good qualitative research program is one, which includes the following:

> Facilities for managing files in the database; simple, natural on-screen coding; easy, rich searching for both codes and strings (including Boolean, proximity, and sequence operators); search hits displayed in full, controllable context; provision for annotating and memoing, with such products searchable and linked to each other; some form of logging; some method of display of conceptual schemes (outlines, networks). (Miles and Weitzman, 1995, p. 337).

New technological developments such as using voice recognition software (for converting speech to text) and 'direct transcription software' (where speech is recorded on a CD-ROM) are considered to be highly important (Fielding and Lee, 1998, p. 188). Internet usage is another innovation in qualitative research practice, which enables one to obtain advanced facilities for research. However, major improvements have to be achieved in methodological and theoretical areas in order to develop better understanding of the place and role of computer technology in the qualitative research process (p. 189).

Qualitative data analysis software, which is mostly used in academic, government, and social research, has quite limited commercial use. Although, it is acknowledged that the software is not well developed for the needs of commercial researchers, the developers are convinced that researchers could benefit from the software:

> There are not really two different worlds. We need to re-present the software in terms of what commercial users would use. While the tools may be designed for someone doing a PhD, we have to recognise that commercial work is different. We have a lot to learn from people working under the constraint of market research. (Richards, 2002, p. 2).

To resolve the problem it is proposed to write a new manual for market research users and to make some software changes in accord with the commercial users' requirements (p. 3).

Conclusion

In this chapter the theoretical foundation of computerised data analysis is shown to be heavily influenced by the grounded theory approach, based on constant data refinement through coding and retrieval procedures. Emphasis was placed on the coding process as a fundamental part of computerised data analysis performed in editing style. The main CAQDAS types, capabilities, functions and features described in this chapter are summarised in Appendix (i).

Debates surrounding the usage of software in qualitative data analysis are outlined with the focus on its perceptual advantages and limitations. Among the main limitations are: a danger of distancing the researcher from the data; a danger of skipping over the process and performing poor quality analysis; and a fear that software may affect the research process. The main advantages outlined in this chapter are the ability to facilitate data management processes, to handle complex qualitative data and to systematise the process. Finally, further developments of CAQDAS are outlined including increasing multitasking, closeness to the original data, and adaptation to the needs of commercial market researchers.

Chapter Three

Research Methodology

3.1 Introduction

3.2 Phase One: Examination of Published Marketing Research Projects

3.2.1 Research objectives

3.2.2 Sampling

3.2.3 Data Collection

3.2.4 Analytical Approach

3.2.5 Measurement

3.3 Phase Two: CAQDAS in the Marketing Research Industry

3.3.1 Research Objectives

3.3.2 Measurement

3.3.3 Sampling

3.3.4 Data Collection

3.3.5 Analytical Approach

3.4 Phase Three: Qualitative Exploration of QDA Software Usage

3.4.1 Research Objectives

3.4.2 Data Collection

3.5 Research Limitations

3.1 Introduction

This research was designed as a three-phase study, representing both qualitative and quantitative approaches. The overall aim of the study was to evaluate software usage in qualitative marketing research. All objectives can be divided into two main groups, namely, projects-related objectives and software-related objectives (Figure 3.1). The projects-related objectives were focused on understanding the profile of both academic/published and commercial marketing research projects, and discovering the patterns in research techniques applied in the projects. The group of issues posed to reveal the particulars of projects undertaken by software and to compare them with patterns discovered in all qualitative projects is shown in Figure 3.1 as an overlapping area, covering both projects- and software-related objectives. Profiling of all qualitative projects and projects undertaken by QDA software was carried out in terms of typology of projects, analytical techniques, subject areas, data collection techniques, chronology, and approaches towards methodological convergence. Software-related objectives were set to uncover the purposes of software usage in qualitative analysis, to evaluate researcher' attitudes towards software usage, to explore the role of researcher experience in software usage and to understand the barriers to QDA software usage in marketing research.

Majority of the variables used in the analysis were identified through the literature review. Some of them, however, were not predetermined and emerged during the analysis. New variables were formed out of common patterns discovered through the study, contributing to the process of shaping a conceptual framework. The categories, which were determined by the literature review were then tested by the sampled data and further developed.

Methodological approaches applied in the three phases represented different research traditions and techniques. This, as well as the variety of data sources used, allowed for methodological and data source triangulation, assisting in findings validation and enrichment of the results (Figure 3.2).

The first and second phases of the study primarily employed quantitative methods, which were complemented by qualitative elements dealing with unstructured and complex data. The third phase was designed as purely qualitative, focusing on in-depth exploration and enrichment of the results (formed in the pervious phases) in order to achieve a holistic view of the issues under investigation. Analysis of the first and second phases was facilitated by specialised and general software applications (SPSS and Microsoft Access), in order to achieve quick and accurate statistical analysis of the quantitative data.

Data used in the study were collected from a variety of sources including qualitative projects published in leading marketing research journals, a survey of Irish marketing research companies, plus on-line and face-to-face interviews with CAQDAS professionals. The variety of data helped to ensure validity of findings (by means of data source triangulation) and to enrich the research outcomes (by implementing the multipoint view approach) so as to allow for comprehensive problem evaluation from different perspectives.

The interrelation of qualitative and quantitative research findings, known as triangulation, was used in the research design (Figure 3.2). There were two types of triangulation techniques used: data source triangulation and methodological triangulation. Data source triangulation was achieved by employing two independent samples of data, whereas methodological triangulation was obtained by applying different analytical techniques in the two phases. Triangulation of data sources and methodologies was used in order to:

- Mitigate weaknesses and aggregate strengths of each method
- Maximise the validity of the research findings
- Eliminate data source biases
- Produce richer results

Figure 3.1: The Logic of the Three-Phase Research Methodology

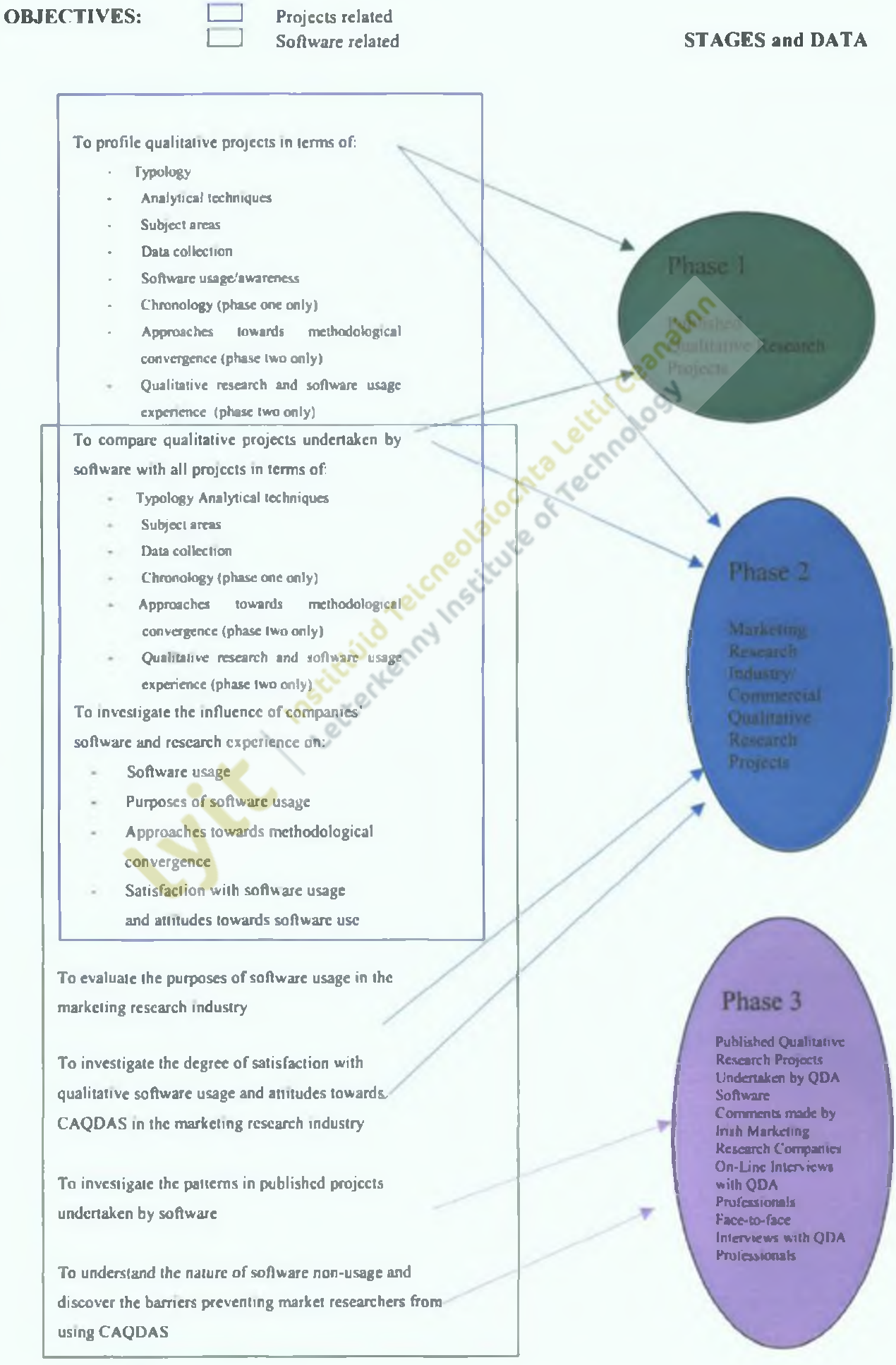
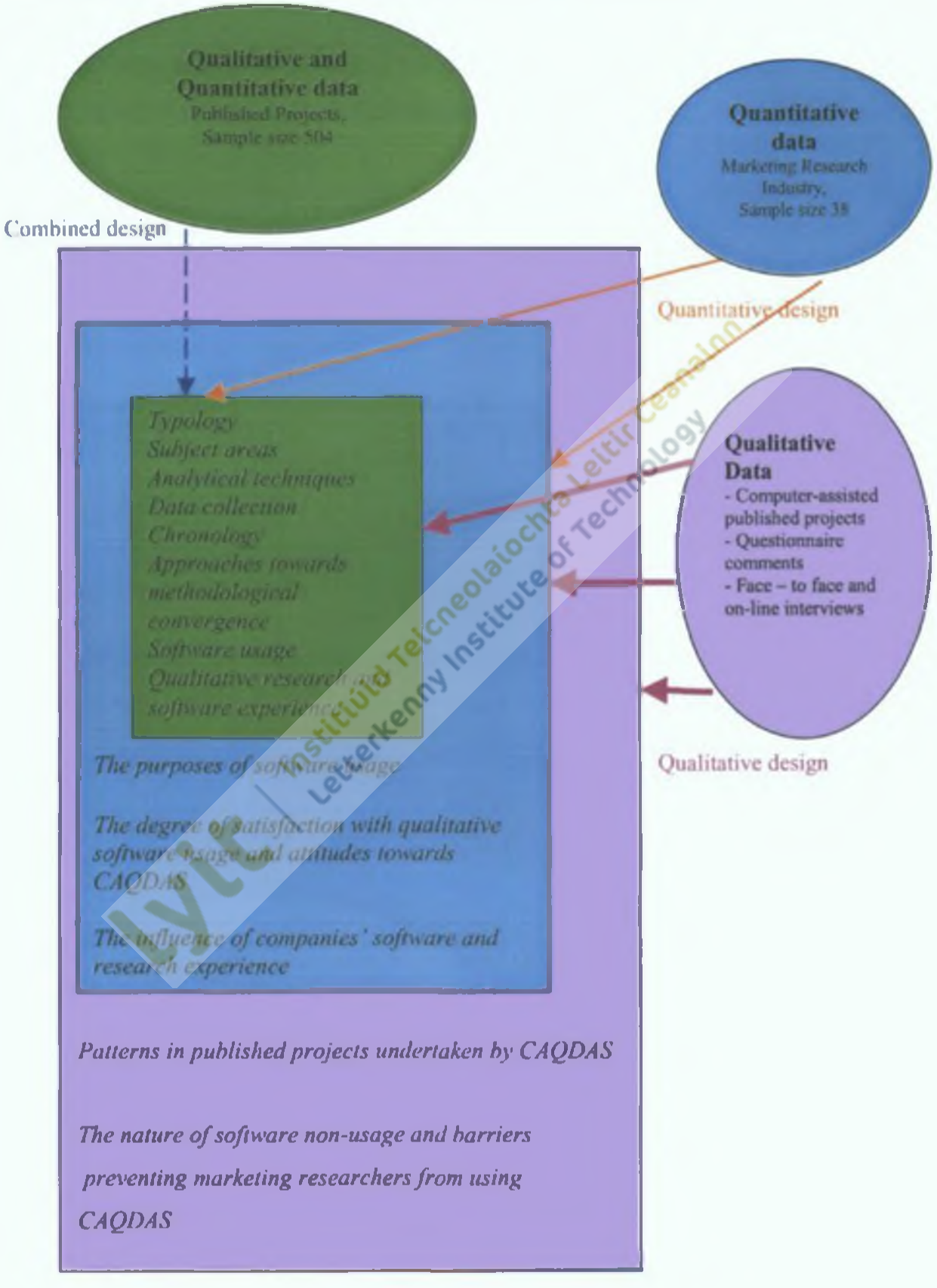


Figure 3.2: Triangulation of Data Sources and Research Methodologies



The main research limitations concern small sample sizes for both computer-aided published projects and companies using software, limited methodological information available in published projects and poor familiarity of the part of marketing research companies with qualitative software.

3.2 Phase One: Examination of Published Marketing Research Projects

3.2.1 Research Objectives

The first phase of the research aimed to assess methodological principles applied in published research projects. Examination of the publications to date allowed for understanding methodological profiles of the projects with a view to incorporating the revealed research approaches in future research designs.

The research objectives of the first phase were:

- To profile published qualitative marketing research projects in terms of:
  - Typology
  - Analytical techniques
  - Subject areas
  - Data collection
  - Software usage
  - Chronology
- To compare qualitative projects undertaken by software with all projects in terms of:
  - Typology
  - Analytical techniques
  - Subject areas
  - Data collection
  - Chronology

3.2.2 Sampling

The population of interest was represented by all marketing journals published in the last ten years (at the time of research from 1992 to 2001). The population data was obtained from on-line University sources as well as from other marketing related sites. The main sources are mentioned in the bibliography.

Since there were hundreds of marketing journals in the population, it was decided to limit the sample size. A sampling frame provided for a means of narrowing the population to the leading marketing journals. A literature review of studies assessing the importance of marketing journals revealed that the marketing journals' ranking presented by Hult et al. (1997) is widely recognised as the best in this area (Baumgartner and Pieters, 2000). The ranking of marketing journals is a component of a comprehensive three-sample study undertaken by Hult et al. (1997) and published in Journal of Marketing Education. Marketing journals were ranked in the study in terms of two indices: an importance/prestige index and a popularity/familiarity index. A stratified sample of one thousand marketing academics at assistant, associate, and professor levels was employed to compile the ranking. In addition, two samples of five hundred academics were used to validate the initial results. To be included in the list each journal had to be ranked by at least five percent of respondents. Forty one leading marketing journals were identified by the study.

For the purposes of the first phase of this research, the top ten journals listed by Hult et al. (1997) were included in the sample. Moreover, six additional journals that appeared in other studies assessing marketing journals were also included in the sample. Table 3.1 represents the leading marketing journals as identified in a number of studies.

Table 3.1: Studies Representing the Ranking of Marketing Journals

	Hult, et al. (1997)	Clark, (1986)	Moore and Taylor (1980), Mohr (1995)	Sparke and Harmon (1997)	Gordon and Heischmidt (1992)	Jobber and Simpson (1988)	Polonsky and Waller (1993)
Journal of Marketing	✓	✓	✓	✓	✓	✓	✓
Journal of Marketing Research	✓	✓	✓	✓	✓	✓	✓
Journal of Consumer Research	✓	✓	✓	✓		✓	✓
Journal of Retailing	✓	✓		✓	✓	✓	
Journal of the Academy of Marketing Science	✓				✓		✓
Marketing Science	✓				✓		
Harvard Business Review	✓				✓		✓
Journal of Business Research	✓				✓		
Journal of Advertising	✓	✓				✓	✓
Journal of Advertising Research	✓	✓			✓	✓	
Journal of Consumer Affairs						✓	
Sloan Management Review							✓
Industrial Marketing Management		✓				✓	
Journal of Business					✓		
European						✓	✓

Journal of Marketing							
Journal of Marketing Education		✓					

Thus, sixteen marketing journals, mentioned as leading journals from seven empirical studies were chosen for the sample. To validate the results, the sixteen marketing journals were then assessed in terms of their level of influence. Indices, which measure the journals' level of influence, were adapted from the Baumgartner and Pieters (2000) study. Based on the index of structural influence suggested by Salansik (1986), the study reported a citation analysis of 49 marketing and marketing related journals and resulted in assessment of their relative influence. The sample was made from 40 leading journals proposed by Hult et al. (1997) and an additional nine journals, which were listed in the Social Science Citation Index. The study provided for the evaluation of the level of influence of each of the 49 marketing journals in the marketing discipline as a whole, and in particular sub-areas of marketing such as core marketing, consumer behaviour, managerial marketing, marketing application, and marketing education. The classification of sub-areas of marketing used in the Baumgartner and Pieters (2000) study, was also mentioned by Pieters et al. (1999), Goodman (1991) and Clogg and Shidadeh (1994).

The overall level of influence of the sixteen sampled journals, which was calculated as a sum of indices identified by Baumgartner and Pieters (2000) was a remarkable 78 percent (Table 3.2). However, it was felt that those journals might unevenly represent the sub-areas of marketing. To enhance representation of the journals in each marketing sub-area it was decided to adjust the sample by including journals from underrepresented sub-areas. To do so, an examination of the 16 journals' influence in five marketing sub-areas was undertaken by employing the sub-areas indices proposed by Baumgartner and Pieters (2000).

Table 3.2: Level of 16 Journals' Influence on the Whole Marketing Discipline and its Sub-Areas

Journals	Sub-area	Index in all sub-areas	Index in sub-area 1 Core Marketing	Index in sub-area 2 Consumer Behaviour	Index in sub-area 3 Managerial Marketing	Index in sub-area 4 Marketing Application	Index in sub-area 5 Marketing Education
Journal of Marketing (JM)	1	2.897	0.463	0.345	0.169	1.873	0.047
Journal of Marketing Research (JMR)	1	2.48	0.703	0.393	0.12	1.236	0.027
Journal of Consumer Research (JCR)	2	2.068	0.491	0.765	0.047	0.748	0.018
Journal of Retailing (JR)	1	0.393	0.069	0.048	0.011	0.261	0.004
Journal of the Academy of Marketing Science (JAMS)	4	0.442	0.047	0.032	0.008	0.332	0.023
Marketing Science (MKS)	1	0.503	0.238	0.06	0.029	0.171	0.005
Harvard Business Review (HBR)	3	1.041	0.113	0.037	0.318	0.549	0.024
Journal of Business Research (JBR)	4	0.328	0.051	0.037	0.002	0.23	0.008
Journal of Advertising (JA)	2	0.23	0.092	0.046	0.002	0.087	0.003
Journal of Advertising Research (JAR)	1	0.377	0.102	0.109	0.006	0.157	0.003
Industrial Marketing Management (IMM)	4	0.391	0.023	0.008	0.033	0.309	0.017
European Journal of Marketing (EJM)	4	0.222	0.016	0.008	0.005	0.178	0.016
Journal of Consumer Affairs (JCA)	2	0.06	0.008	0.027	0	0.025	0
Journal of Business (JB)	3	0.085	0.034	0.006	0.006	0.035	0.004
Sloan Management Review (SMR)	3	0.268	0.031	0.006	0.102	0.12	0.008
Journal of Marketing Education (JME)	5	0.093	0.005	0	0	0.02	0.067
Total index of 16 Journals		11.88	2.49	1.93	0.86	6.33	0.27
%		100	20.93	16.22	7.22	53.3	2.31
Total index of 49 Journals		15.14	3.03	2.39	1.12	8.21	0.41
%		100	20	15.8	7.3	54.2	2.7
Percentage of the total index of 16 journals in the total index of 49 journals		78	82	81	77	77	67

Comparative analysis of the total indices of 16 journals with the total indices of the 49 journals revealed that some sub-areas were underrepresented by the sample of 16

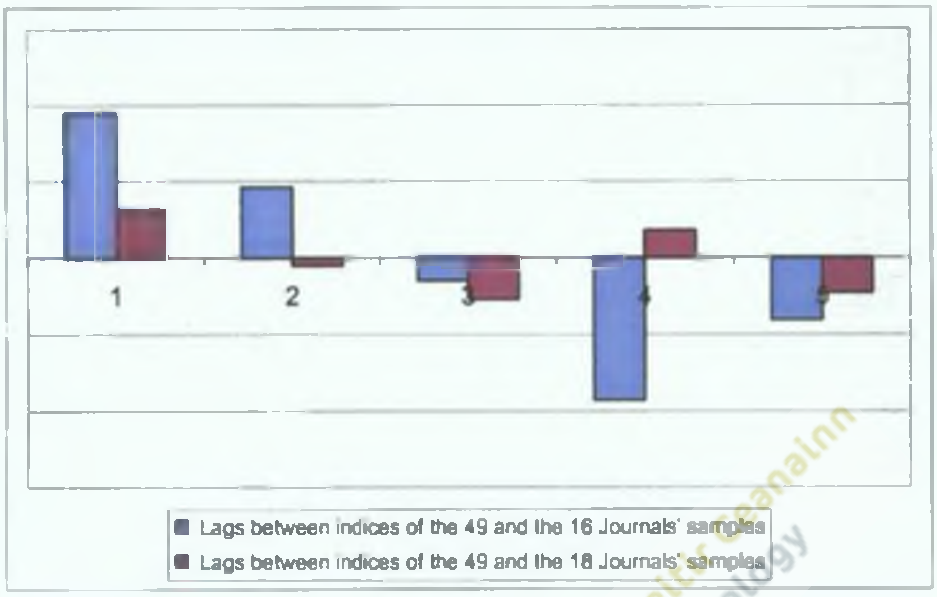
journals. Thus, percentages in sub-areas three, four, and five appeared to be respectively by one, one and 12 percent lower than the average. To improve the sample representation in the sub-areas of managerial marketing, marketing application, and marketing education (respectively three, four and five), two more journals were additionally sampled. These journals, namely, The Journal of International Business Studies and The Journal of Personal Selling and Sales Management obtained relatively high influence in underrepresented sub-areas and presumably could improve the sample representation in all marketing sub-areas (Table 3.3).

Table 3.3: Additional Marketing Journals and Level of 18 Journals' Influence on the Whole Marketing Discipline and its Sub-areas

Journals	Sub-area	Index in all sub-areas	Index in sub-area 1	Index in sub-area 2	Index in sub-area 3	Index in sub-area 4	Index in sub-area 5
Journal of International Business Studies (JIBS)	4	0.283	0.009	0.013	0.008	0.238	0.016
Journal of Personal Selling and Sales Management JPSSM)	4	0.216	0.017	0.005	0.013	0.164	0.017
Total index of 18 journals		12.37	2.52	1.95	0.88	6.73	0.31
Percentage of total index of 18 journals in total index of 49 journals		82	83	81	79	82	75

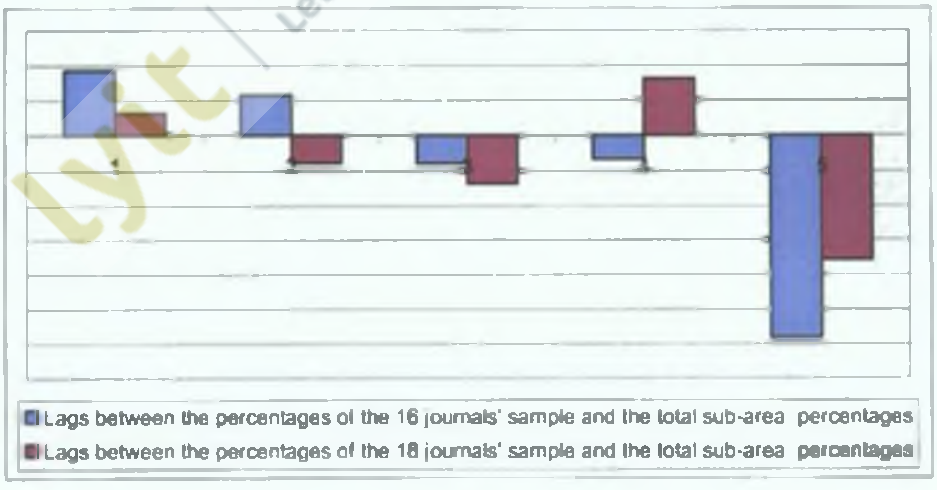
Adjustment of the initial sample by including two additional journals provided for an evident increase in the level of overall influence from 78 percent to 82 percent and gave a better distribution of the journals' influence level across the sub-areas. The chart below (Figure 3.3) represents a comparison in the lags of the 16 journals' indices (differences between total indices of the 16 journals' sample and the 49 journals' sample) and the lags of the 18 journals' indices (differences between total indices of the 18 journals' sample and the 49 journals' sample).

Figure 3.3: Indices Lags in Five Sub-Areas Before and After Adjustment



It is also worthwhile to compare the lags in the percentage of the16 journals' sample (differences between the percentage of the16 journals' sample and the 49 journals' sample) and the 18 journals' sample (differences between the percentage of the 18 journals' sample and the 49 journals' sample).

Figure 3.4: Percentage Lags in Five Sub-Areas Before and After Adjustment



Both Figures 3.3 and 3.4 show that the sample of 18 journals better represented the overall sample of 49 marketing journals in different sub-areas due to the lesser deviation of the lags in the adjusted sample. Standard deviation of the index lags had

decreased by 63 percent (from 0.57 to 0.19), whereas standard deviation of the percentage lags had been improved by 27 percent and provided decrease from 0.04 to 0.03. The final sample, therefore, constituted ten years of 18 leading marketing journals.

3.2.3 Data Collection

The study began with a broad-based article search through which a range of the projects undertaken by the various qualitative techniques was uncovered. Altogether 7066 articles represented in 729 issues were examined over the period of ten years (Appendix (ii)), accounting for 92 percent of all published issues available. The period covered was long enough to include most of the research trends relevant for the period under examination.

The analytical procedure consisted of four stages. During the first stage, a sample of 7066 articles available from the sources specified by Appendix (ii), were investigated to identify articles involving in primary research. 3140 articles were found to be research articles, which accounted for 44 percent of all sampled articles. During the second stage, all research articles were examined to identify usage of any qualitative technique at any stage of the research design. The main was the presence of qualitative data in various forms upon which qualitative methods were employed. This approach is proposed by Tesch (1990, p. 55) who stated that there is no such thing as qualitative research, there are only qualitative data.

Altogether 504 studies accounting for 16 percent of all research articles (or seven percent of all examined articles) were identified as projects containing elements of qualitative research design. The remaining 2636 research articles were found to be purely quantitative. Next, the 504 qualitative projects were evaluated along the following dimensions: typology, data collection technique, analytical technique, subject area, chronology and computer usage. At this stage, qualitative data from the published projects was coded for further quantitative analysis. For effective data management, search and retrieval, a database was created, containing all above

mentioned dimensions. The database also helped to ensure that all of the 504 articles were properly classified and the same set of categories were applied to the each project's content.

3.2.4 Analytical Approach

The analytical approach used during this phase of the analysis can be described as semi-structured, combining quantitative and qualitative techniques. It was semi-structured since some of the variables used in the analysis were identified through the literature review. Some of them, however, were not predetermined and emerged during the analysis. By employing an inductive approach, common patterns discovered through the study formed new variables, which then contributed to the process of shaping a conceptual framework.

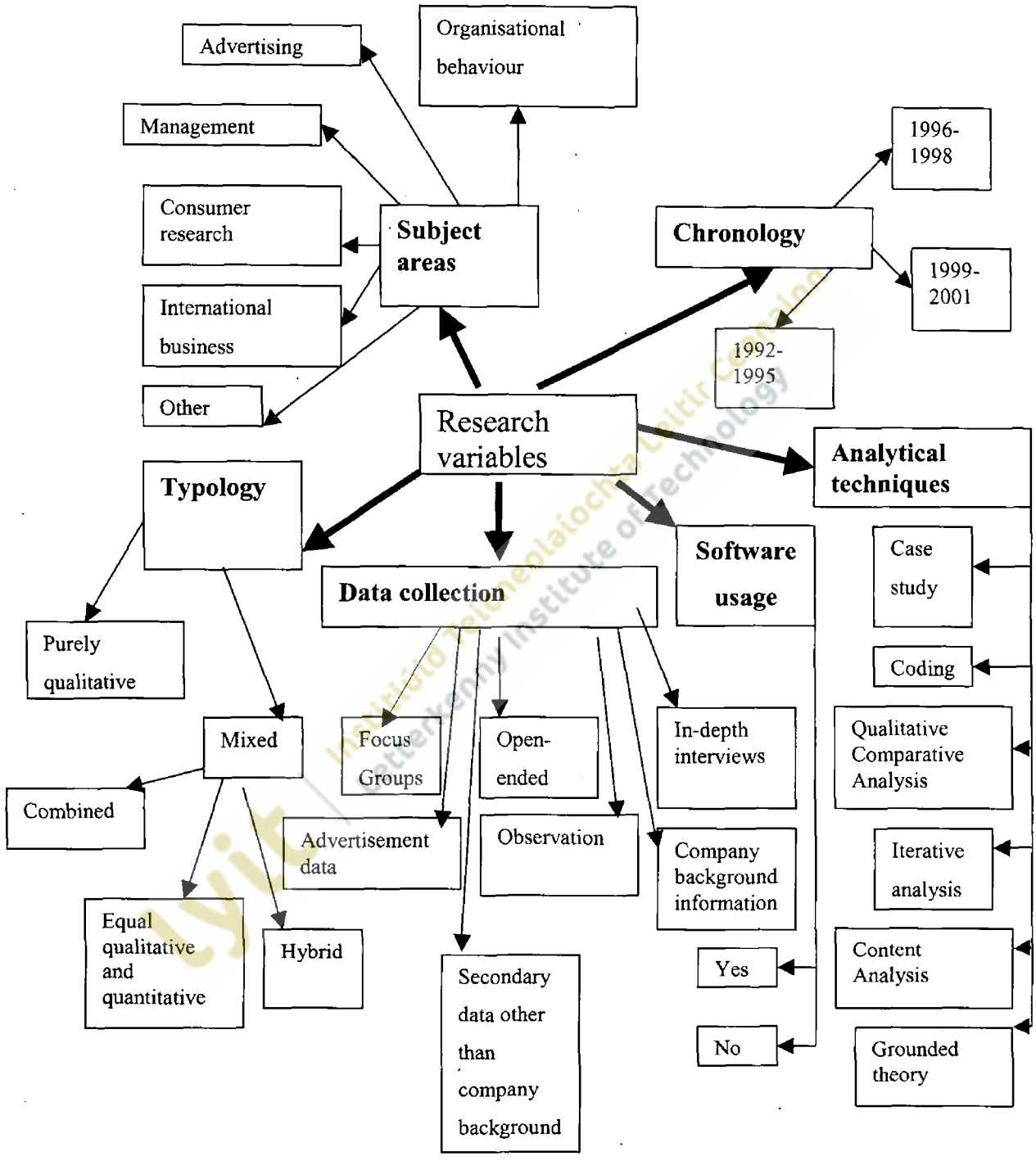
The advantage of implementing a qualitative approach was in focusing on the natural settings of identified projects. The categories, which were determined by the literature review were then tested by the sampled data and further developed. It should be noted, however, that the process of categories utilisation as highly subjective and judgemental in nature, was one of the major limitations of the study.

Finally, after completing the data entry stages, queries for calculation of frequencies and cross-tabulation tables were generated. To enhance comparability across the study, percentages of the variables' frequencies in all research articles (n=3140) and in qualitative articles (n=504) were also calculated.

3.2.5 Measurement

Research variables used in the first phase of the study were primarily concerned with the projects' characteristics. The six variables which reflect the core objectives of the first phase of research are highlighted in Figure 3.5 and discussed in more detail below.

Figure 3.5: First Phase Research Variables



Typology

As mentioned above, six main variables were used in the analysis. The first variable was typology (or types of projects) and provided for identification of the methodological approaches used in the projects. Principles of division between qualitative and quantitative approaches, which are firmly established in the marketing research discipline, grounded the process of identification of purely qualitative, purely quantitative and mixed projects.

The classification of mixed projects however was not as straightforward. Mixed design projects in academic literature were classified by the degree of dominance of one phase over the other (Creswell, 1994), or the sequence of phases (Fielding and Schreirer, 2001). Classification used in this study was undertaken by employing the approach introduced by Green et al. (1989). This study, which reviewed 57 research projects in terms of their research design characteristics, is widely cited and regarded as the most substantial contribution in this area. According to Green et al. (1989) mixed projects were classified on the basis of the following issues: status of the phases (equal, more dominant, less dominant), degree of the interactivity between them, and the phases' sequence (Table 3.4).

Table 3.4: Types of Research Design

Types of mixed design projects	Description	Status of phases	Degree of interactivity	Phase sequence
Preliminary qualitative design	Projects in which qualitative techniques are used for preliminary analysis followed by main quantitative phase(s); Qualitative measures to develop quantitative tools	Less dominant qualitative phase(s), more dominant quantitative phase(s)	Isolated	Sequential, First qualitative then quantitative
Combined design	Qualitative data coded for further quantitative analysis; Qualitative measures to develop quantitative tools	Dominant - less dominant	Interactive	Simultaneous, Qualitative data collection technique(s) followed by quantitative data analysis phase(s)
Hybrid design	Qualitative and quantitative data collected and analysed simultaneously, qualitative and quantitative data normally collected in one phase followed by separate data analysis; Quantitative methods to enlarge on qualitative study; Qualitative methods to explain quantitative results	Equal	Interactive data collection, Isolated data analysis	Simultaneous
Equal qualitative and quantitative research design	Separate data collection and analysis phase (s) contributed equally; Qualitative phase normally precedes quantitative one	Equal	Isolated	Sequential

Sources: Green et al., 1989; Ulin et al, 1996

Data Collection

The identification of qualitative data types was grounded on the description of qualitative data as unstructured, textual, or non-numerical (Tesch, 1990). It appears in the form of observation, interviews, documents, or images (Miles and Huberman, 1994). Amongst data types, focus groups, open-ended questions, and in-depth

interview data were the most frequently mentioned in the literature (Malhotra, 1999). Other unstructured data types, such as advertisement data, company background information, observation and other secondary data also appeared in the analysis of projects. The last group described all secondary data, which were not covered by the other variables. It represented the range of textual and visual sources of data used in the examined projects (such as published projects, historical information, TV or radio programmes, private letters and diaries).

Analytical Techniques

Classification of qualitative analysis techniques has been a matter of prolonged debate amongst academics and practitioners (Tesch, 1990; Miles and Huberman, 1994). Four main groups of analytical techniques were widely mentioned in the literature and were commonly recognised. These groups include grounded theory, case study, content analysis and qualitative comparative analysis (see chapter one). Two other groups, coding and iterative analysis, emerged from the analysis. Table 3.5 describes the categories of analytical techniques.

Table 3.5: Analytical Techniques

Group	Techniques	Literature sources
Grounded theory	Grounded theory, constant comparative method, analytic induction	Glaser and Straus (1967), Straus and Corbin (1990)
Case study	Single case studies, multiple-case studies, cross-sectional, cross-cultural case studies, ethnographic methods	Yin (1994)
Content analysis	Content analysis	Weber (1985)
Qualitative comparative analysis	Qualitative comparative analysis, Boolean analysis, qualitative configuration analysis, qualitative matrix configuration	Ragin (1987)
Coding	Various coding techniques for coding open ended questions, advertisements, observational, visual, and textual data; conceptual coding, descriptive coding, categorisation, laddering	Miles and Huberman (1994), Tesch (1990)
Iterative analysis	All other analytical techniques, which are not covered by the previous groups (for example critical incident technique, judgmental analysis, metaphorical analysis, discourse analysis, hermeneutical analysis, dialectic analysis)	Miles and Huberman (1994), Tesch (1990), Fielding and Lee (1991)

The challenge in identifying the appropriate category to which a reported technique should be attached was in vague technique description. The terminology of analytical techniques is not firmly established in the discipline of marketing research and can be characterised as ambiguous. Often researchers gave different names to the same technique, or introduced new names for existing analytical methods or their modifications. Another challenge in the process of categorisation appeared in the necessity to choose only the main research technique, which in cases of multi-methods design was not always specified in the methodological section of published projects.

Software Usage, Subject Areas and Chronology

The software usage variable was designed in a Yes/No format. Subject areas were not pre-specified and emerged through project examination. Chronology variables represented three periods of publication: from 1992 to 1995, from 1996 to 1998, and from 1999 to 2001.

3.3 Phase Two: CAQDAS in the Marketing Research Industry

3.3.1 Research Objectives

The overall research objective was to evaluate usage of qualitative techniques and computer applications in the Irish marketing research industry. The main benefits of employing the second stage were in including information from unpublished projects in the analysis, obtaining additional sets of data (such as on companies' attitudes, experiences, actual and perceived purposes of software usage), and in providing for triangulation of the first phase results. The objectives of the second phase were:

- To profile the qualitative practices employed in the marketing research industry in terms of:
    - Typology

- Analytical techniques
- Subject areas
- Data collection
- Software usage/awareness
- Approaches towards methodological convergence
- Qualitative research and software experience

- To compare qualitative projects undertaken by software with all projects in terms of:
  - Typology
  - Analytical techniques
  - Subject areas
  - Data collection
  - Approaches towards methodological convergence
  - Qualitative research and software experience
- To evaluate the purposes of software use in the marketing research industry
- To investigate the degree of satisfaction with qualitative software usage and attitudes towards CAQDAS in marketing research industry
- To investigate the influence of software and research experience on:
  - Software usage
  - Satisfaction with software usage
  - Purposes of software usage
  - Approaches towards methodological convergence

3.3.2 Measurement

A questionnaire was developed which helped to profile companies' qualitative research practice and stressed the potential impact of qualitative research and software usage experiences (Appendix (iii)). The questionnaire was broken into two parts. The first part was designed for all companies who conducted qualitative research and the second part was dedicated to respondents who had software experience. The division allowed for comparison of the opinions and practices of

software-experienced companies with all marketing research companies involved in qualitative research. The following issues were included in the questionnaire:

- A range of the research techniques (analytical and data collection) and project types ranked by the frequency of their usage in the companies' practice
- Subject areas
- Level of qualitative research and software experience
- Degree of awareness of qualitative software, length of software usage, name of software application (used or known)
- Degree of satisfaction, advantages and limitations of the software usage ranked by their importance for the respondents
- Perceived and actual purposes of qualitative research software usage
- Approaches towards methodological convergence

Variables used in the second phase represented two groups of variables, namely, project-related and software-related. Some of them (shown in overlapping area in Figure 3.1) deals with projects undertaken by qualitative software and relate to both projects and software. The project/software-related variables (Figure 3.6) were similar to the variables applied in phase one with the exception of the chronology variable and inclusion of two more variables (namely, approaches towards methodological convergence and qualitative research/software experience). The influence of qualitative research and software experience on these issues was also investigated in the second phase of the study.

The other variables related to software, which were explored in the second phase, are represented by companies' satisfaction with software, their attitudes towards CAQDAS and purposes of software usage (Figure 3.7).

Figure 3.6: Project -Related Variables of Phase Two

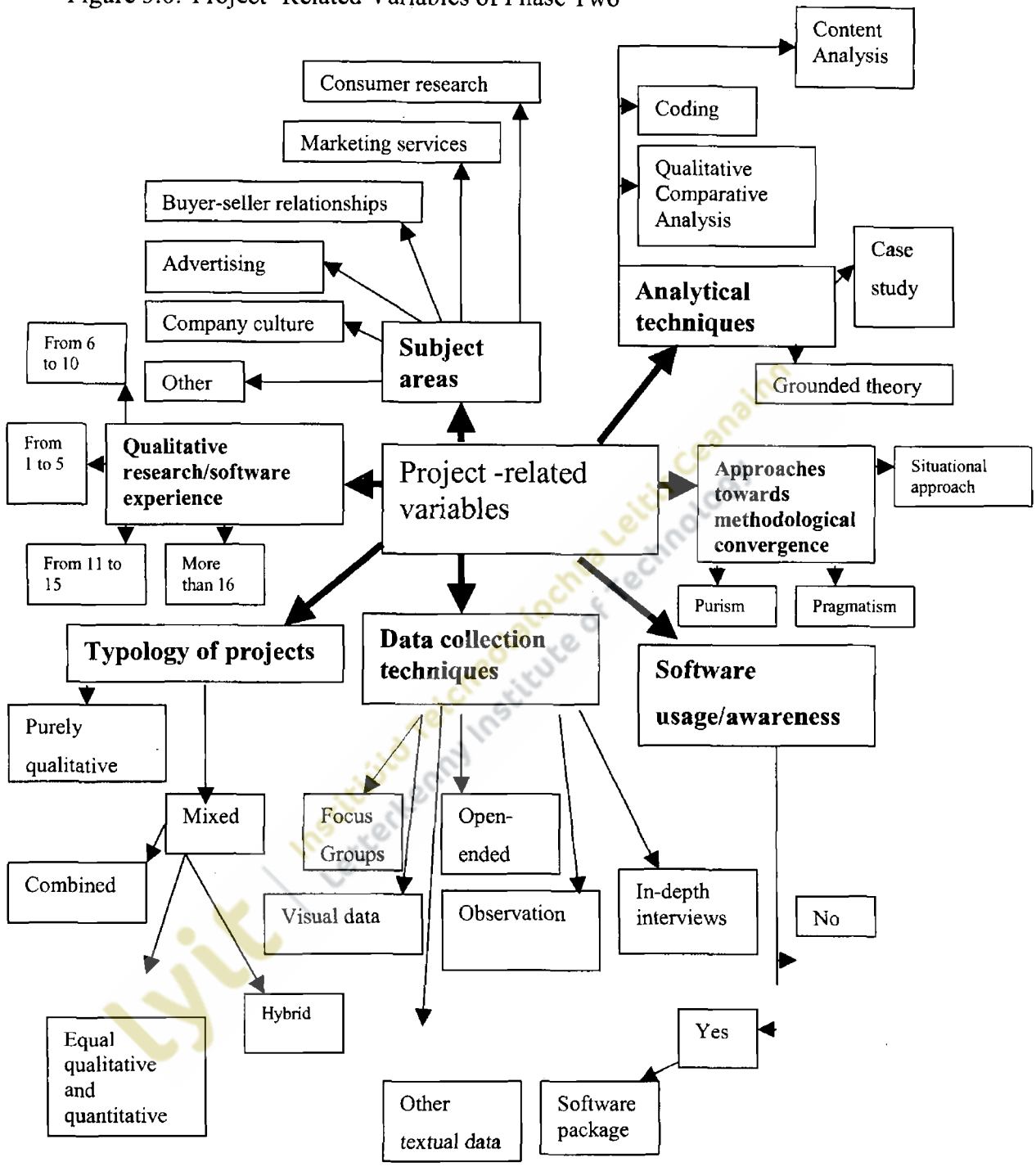
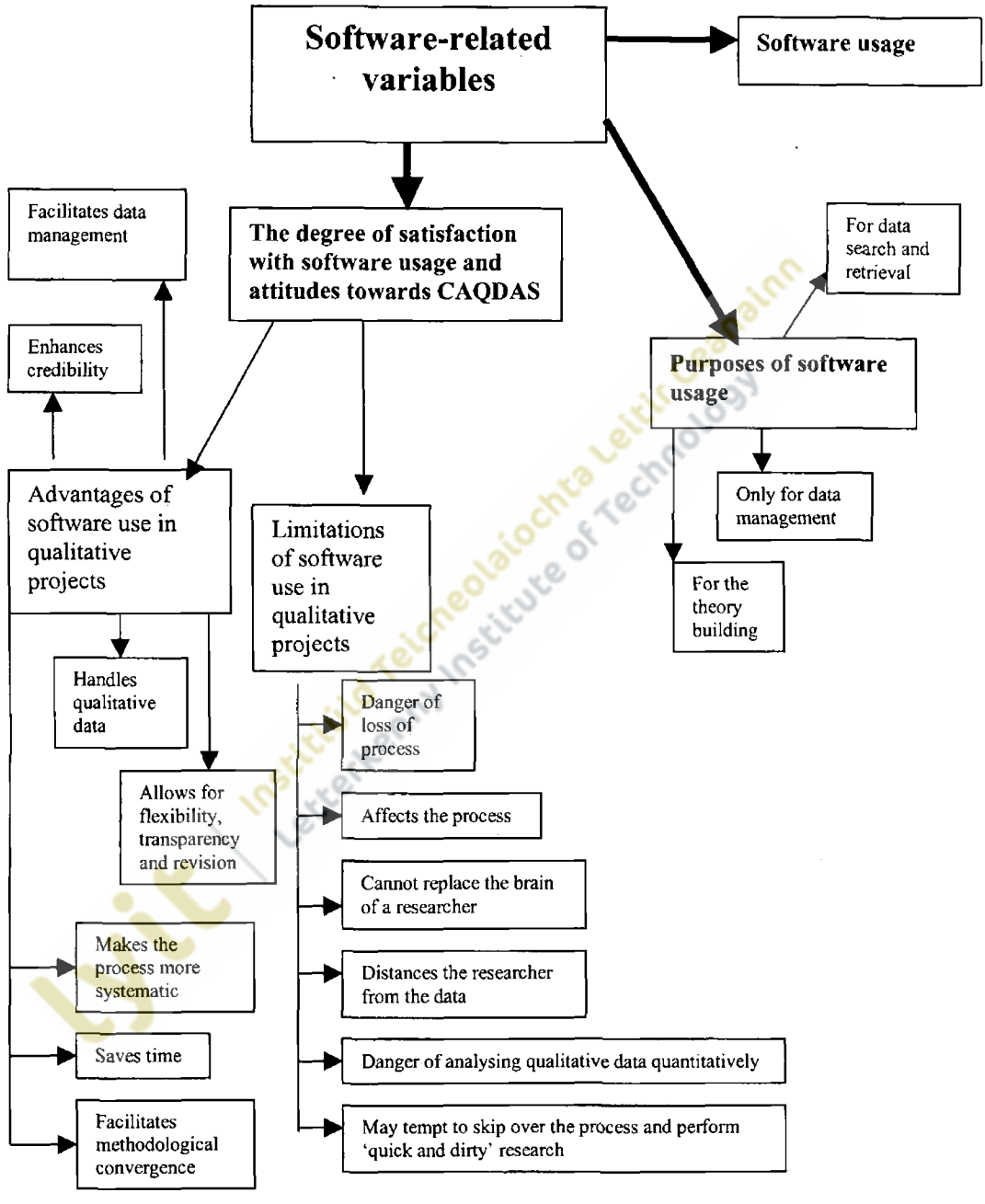


Figure 3.7: Software-Related Variables of Phase Two



The questionnaire was designed to serve the objectives identified for the second phase, which could be divided into two groups: related to research projects and qualitative software. Table 3.6 represents the links between questions and research objectives.

Table 3.6: Correspondence of Research Variables and Research Objectives of PhaseTwo

Variable	Question Number		Objective
	All projects	Projects undertaken by software	
Typology of projects	3		To profile qualitative projects in terms of project types To compare qualitative projects undertaken by software with all projects in terms of typology of projects
Data collection techniques	4	10	To profile qualitative projects in terms of data collection techniques To compare qualitative projects undertaken by software with all projects in terms of data collection techniques
Analytical techniques	5	11	To profile qualitative projects in terms of analytical techniques To compare qualitative projects undertaken by software with all projects in terms of analytical techniques
Subject areas	12		To profile qualitative projects in terms of subject areas To compare qualitative projects undertaken by software with all projects in terms of subject areas
Software usage/awareness	7	6 9	To profile qualitative projects in terms of qualitative software used or known To compare qualitative projects undertaken by software with all projects in terms of qualitative software used or known
Approaches towards methodological convergence	18		To profile qualitative projects in terms of approaches towards methodological convergence used by companies To compare qualitative projects undertaken by software with all projects in terms of approaches towards methodological convergence used by companies To investigate the influence of companies' software and research experience on their approaches towards methodological convergence
Qualitative research/ software experience	9	2	To profile qualitative projects in terms of companies' qualitative research and software experience To compare qualitative projects undertaken by software with all projects in terms of companies' qualitative research and software experience To investigate the influence of companies' software and research experience on their attitudes towards CAQDAS, satisfaction with software usage, purposes of software usage and applied approaches towards methodological convergence
Purposes of software usage	15 14		To evaluate the purposes of software usage To investigate the influence of companies' software and research experience on the purposes of software usage

Satisfaction with software use and attitudes towards CAQDAS	13 16 17	To investigate the degree of satisfaction with software usage and attitudes towards CQDAS in marketing research industry To investigate the influence of companies' software and research experience on satisfaction with software usage and attitudes towards CQDAS in marketing research industry

In the majority of questions three variants of the answer options were predetermined in order to increase completeness of the collected data. Thus, answers to questions describing typology of projects, analytical techniques and data collection techniques were laid out as the options of 'never used', 'used occasionally', and 'used frequently', whereas answers to attitudinal questions were designed as options of 'no importance', 'minor importance', and 'major importance'. This helped to obtain better quality data for frequency distributions, as well as acquiring data on the degree of importance of the variables.

The group of variables used for the first objective was developed in phase one of the study. A list of key variables related to the evaluation of companies' attitudes towards software usage and purposes of software employment was generated on the basis of the literature review. Variables concerned with companies' attitudes towards software usage consisted of the degree of satisfaction with software usage (aimed at companies experienced in software usage) and the benefits and limitation of software usage (targeted at all respondents).

To measure companies' satisfaction with software usage, a five point Likert scale was included in the questionnaire. The measurement of satisfaction using the Likert scale allowed for easy administration. Being addressed to marketing research professionals, the scale was expected to be readily understood and properly used for measurement of their satisfaction.

The list of advantages and disadvantages included in the questionnaire was developed from the literature review on the basis of ongoing debates in this area (see chapter two). The main studies used for the variables development were Fielding and Lee

(1991), Miles and Huberman (1994), Coffey et al. (2001), Weitzman (2000), Dey (1995), Catterall and Maclaran (1998). It was felt that professional marketing researchers to whom the questionnaires were addressed would be acutely aware of the specific features of computer analysis (even if they did not have any software experience) and would be able to evaluate the degree of importance of the variables.

The variables describing the purposes of software usage were adopted from Fielding and Lee (1998), who proposed them on the basis of an extensive focus group study of researchers' software experiences. It was reasonable to assume that all respondents representing marketing research professionals had general familiarity with qualitative software analysis and had developed an established opinion regarding the purposes of the software usage.

3.3.3 Sampling

A census was considered the most appropriate sampling strategy for the phase two of the study. Census data are generally of high quality due to the avoidance of sampling errors and an ability to see the whole population of interest. While being both costly and time consuming in consumer research, a census is a desirable sampling strategy in business research. Population characteristics (such as small size and large variation) dictate wide usage of the census in business studies. Otherwise, if a sample were taken within such a population, it is unlikely to be representative due to the degree of variance.

The decision to conduct a census was determined by the following factors:

- The small population of Irish Marketing Research companies (N=88)
- Nature of the study – business research
- Large variation in the number of employees (from solo researchers to companies employing hundreds of people) and in the commercial turnover of the companies included in the population

The list of population of Irish (including Northern Ireland and Republic of Ireland) market research companies was obtained from the five main sources:

- Guide to Marketing and Advertising Services (2000, p. 60)
- Golden Pages, market research and analysis category (www.goldenpages.ie)
- ESOMAR Directory (www.esomar.nl)
- Orange Pages (www.orangepages.ie)
- Surveys, The Marketing Services Directory (www.mii.ie).

In total, 88 marketing research companies were identified and included in the database (containing their addresses, telephone numbers, and other contact information). Names of contact people, which were not available in the sources mentioned above, were then identified by direct telephone calls. Letters outlining the objectives of the research and giving notification about the dispatch of the questionnaires were sent to the contact people in order to enhance response rate.

3.3.4 Data Collection

A mailing was prepared which included a cover letter, a questionnaire, and a postage prepaid envelope. A total of 88 questionnaires were mailed to Irish market research companies. Within one month of the mailing date, a total of 30 questionnaires (accounting for a 40 percent response rate) were returned. Later on, after follow-up phone calls, a copy of the questionnaire together with a prepaid, self-addressed envelope and a cover letter were mailed to the companies which did not respond to the first phase of mailing. The second phase of mailing yielded eight additional responses. Fifteen questionnaires were undeliverable or returned uncompleted during the two mailings. Thus a response rate of 52 percent was attained which is significantly higher than the average response rate in mail surveys.

In order to compare the actual response rate achieved with the average figure it is worth looking at the response rates of other surveys. Literature sources stated different response rates for the postal surveys, which ranged from 15-20 percent (Saunders et al., 1997) to 30 percent (Oppenheim, 1992). In any case the response

rate of 52 percent looks considerably better, and is the result of a number of factors, such as the high level of respondents' education, their awareness of the effect of response rate on the validity of results and good pre-survey preparation.

3.3.5 Analytical Approach

Quantitative data analysis was conducted by means of the statistical package SPSS. After the data entry stage, frequency tables and cross tabulations were generated for further analysis. Each case was then weighted on the basis of frequency of occurrence. Thus 'never used' cases were assigned null weights, 'used occasionally' cases adjusted by 50 percent weights, and 'used regularly' cases weighed as 100 percent. Therefore total frequency of each category was calculated as a number of regularly used cases plus half the amount for the occasionally used cases. To enhance comparability, percentages of the variables' frequencies in the total sample were also calculated.

Although a census was taken for the study, the small sample size of the population did not allow for generalisation of the results. Credibility of the findings obtained from the second phase was enhanced by cross-validation with the findings of the first phase of the study. However, some findings (particularly those relating to software usage) were obtained exclusively from the second phase of the study and could not be validated by findings obtained in the other phases.

Researchers in marketing research companies, even those who do not use QDA software, were presumably well informed about it. However, the survey revealed poor familiarity with software applications, which was reflected in the quality of attitudinal data related to QDA software use.

3.4 Phase Three: Qualitative Exploration of QDA Software Usage

3.4.1 Research Objectives

The aim of the third phase of the study was to explore the issues revealed in the first two phases and explain the quantitative findings.

Research objectives:

- To understand the nature of software non-usage and to discover the barriers preventing marketing researchers from using CAQDAS
- To investigate the patterns in published projects undertaken by CAQDAS

3.4.2 Data Collection

Qualitative data for the third phase of the study were obtained from the following sources:

- In-depth analysis of the published projects undertaken by QDA software (phase one)
- Analysis of the comments made by participants of the second phase of the study
- On-line and face-to-face semi-structured interviews with QDA professionals

After completion of the first two phases, a list of the issues, which required further exploration was developed and placed for discussion in the QUAL-SOFTWARE on-line forum (Appendix (iv)). The discussion group is a creation of the CAQDAS Project, coordinated by Nigel Fielding at the University of Surrey and Ray Lee at Royal Holloway, University of London.

As was noted in the literature, the number of professionals dealing with qualitative software is extremely small. However a high percentage of them participate in the discussion group in order to exchange ideas and information, which cover aspects ranging from practical and technical to methodological concerns. E-mailing the discussion group permitted reaching research and software specialists from all over the world, who would not be accessible otherwise.

Responses to the open-ended questions e-mailed to the discussion group members were obtained during the week after posting. The following people participated in an on-line discussion:

1. Linda S. Gilbert, PhD (the author of a doctoral dissertation - 'Reflections of Qualitative Researchers on the use of qualitative Data Analysis Software: An Activity Theory Perspective'), University of Georgia, Athens, Georgia, USA.
2. Silvana Di Gregorio, PhD, SdG Associates (Research and Training Consultant), London, UK and Boston, USA.
3. Ann Lewins (the Resource Officer for the CAQDAS Project and the QUAL-SOFTWARE list owner), University Of Surrey, UK.
4. Ester Haumann (Researcher), Cape Town, South Africa.

A discussion held in the on-line Association of Qualitative Research (AQR) Forum in 2001 was also used in the third phase of the analysis.

Finally, two face-to-face interviews were conducted with:

1. Dr. Miriam Catterall (the author of a number of CAQDAS related publications), School of Management and Economics, The Queens University of Belfast.
2. Suzanne Colgan, Marketing and Sales Director, CRMS Ireland (the distributor of the QSR products, such as NUD*IST and NVIVO in Ireland).

3.5 Research Limitations

In the first phase of the study, the majority of categories were predetermined and decided on the basis of the literature. However, a degree of consistency in utilising categories might represent one of the limitations of the analysis. Since the journals' content had been examined by a sole researcher, it was felt that reliability issues might be a matter of concern. In order to achieve a higher degree of reliability in coding through unstructured data, the process could have been carried out by a number of researchers and the final results agreed between them.

Limited methodological information available in published articles did not allow for obtaining a complete picture of all projects' research design. In some of the published projects the information regarding methodological construction was either completely omitted or presented in a vague and ambiguous form, which made the coding process quite complex. Moreover, due to the diversity of research terminology, authors often used different terms for the same research techniques and vice versa.

For the purposes of this study it was assumed that there was only one (main) data analysis and one (main) data collection technique in each project. This assumption, however, did not always reflect the real state of affairs, as in many cases there were two or more techniques equally important for research design.

The small sample size of computer-assisted published projects (n=22) did not allow for generalisation of findings and affected the quality of comparative analysis undertaken in the first phase. To enhance reliability of the findings, validation by the independent findings obtained in the second phase was undertaken. Moreover, the exclusion of unpublished commercial research projects from the analysis was compensated by the second phase of the study, focusing on projects undertaken by Irish marketing research companies.

The main criterion for the identification of qualitative projects, was the presence of qualitative data. This was in accordance with Tesch's (1990) understanding of qualitative design. However, many authors consider this issue to be controversial (for example analysis of open-ended questions is often regarded as a quantitative one).

During the second phase of the study the sampling frame was obtained from secondary sources (outlined in section 3.3.3), which were created for purposes other than the conducted study. Therefore there may be a possibility of incomplete coverage of Irish Marketing Research Companies or out of date information from these secondary sources. Although the information was obtained from five independent sources, the number of returned undeliverable questionnaires, which accounted for 17 percent of the population (n=15) evidently suggested a high level of

error in the sampling frame. Moreover, the small sample size of companies using software affected the reliability of the comparative analysis undertaken in the study.

Vague and ambiguous terminology relating to qualitative research techniques and lack of a comprehensive explanation attached to the questionnaire also affected the reliability of results as researchers could easily misunderstand the terms outlined in the questionnaire. Although, the offer to give an additional explanation of the issues, which required further clarification for researchers was made in the cover letter, no researchers asked for it. However, it was evident from the completed questionnaires that some issues were loosely understood.

Chapter Four

Findings: Published and Commercial Qualitative Projects and CAQDAS Usage

4.1 Introduction

4.2 Profile of Published Qualitative Research Projects

4.2.1. Typology

4.2.2 Subject Areas

4.2.3 Data Collection

4.2.4 Analytical Techniques

4.2.5 Chronology

4.3 Profile of Commercial Qualitative Research Projects

4.3.1 Typology

4.3.2 Subject Areas

4.3.3 Analytical Techniques and Data Collection

4.4 CAQDAS in Published Projects

4.4.1 Typology

4.4.2 Analytical Techniques

4.4.3 Data Collection

4.4.4 Subject Areas

4.4.5 Chronology

4.5 CAQDAS in Commercial Research Projects

4.5.1 Data Collection

4.5.2 Analytical Techniques

4.5.3 Evaluation of the Purposes of Software Use

4.5.4. Influence of Qualitative Research and Software Experience

4.5.5. Companies' Attitude Towards Software Use in Qualitative Projects

4.1 Introduction

The scope of this chapter is defined by project and CAQDAS related objectives and findings. The project related objectives focus on profiling qualitative research projects in terms of their typology, analytical techniques, subject areas, data collection techniques and chronology. Data associated with project related objectives were collected in the first and second phases of the study, combining published qualitative projects and projects undertaken by Irish marketing research companies. Triangulation of data sources allowed for cross-comparisons of findings from the first and second phases and positioning of qualitative research projects, outlined in the next chapter.

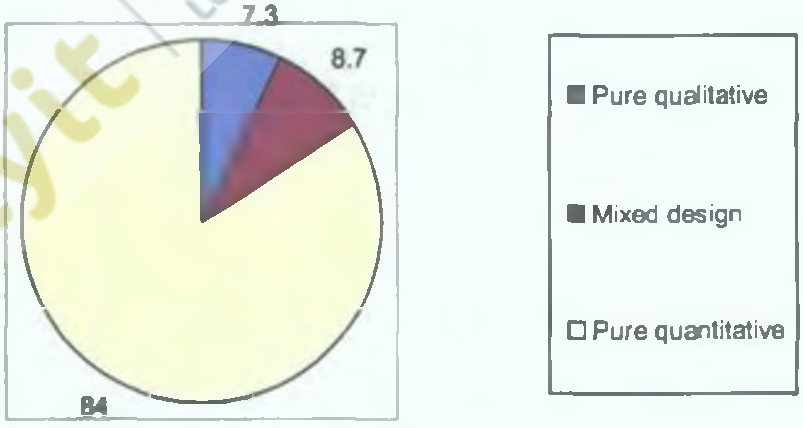
Findings associated with CAQDAS related objectives include a comparison of qualitative projects undertaken by software with all qualitative projects, an evaluation of the purposes of software use, and an investigation of the influence of qualitative research and software experience on software usage and evaluation of companies' attitudes towards software. Data for the comparative analysis of qualitative projects with projects undertaken by CAQDAS were obtained from the first two phases of the study. The outcomes associated with the purposes of qualitative software use, evaluation of attitudes towards software usage and investigation of the influence of software and research experience were revealed on the second phase of the study.

The aim of this chapter is to present the findings of the first two phases in their technical detail. The outlined findings were not exposed here to additional exploration and evaluation. In the following chapter the findings from the first and second phase (described in this chapter) are further enriched (by the outcomes of phase three), explored, compared and evaluated.

4.2 Profile of Published Qualitative Research Projects

Analysis of the data collected in the first phase of the study commenced with the search for all articles describing primarily research projects. The search uncovered 3140 research articles, which accounted for 44 percent of all examined articles. Respectively 38 percent, 31 percent and 31 percent were published from 1992 to 1995, from 1996 to 1998, and from 1999 to 2001. Next, each article was examined in terms of the presence of any qualitative technique in its research design. It was revealed that 504 articles (16 percent of all research articles) reported employing a qualitative approach at some stage of their research design. The decade examined showed a progressive increase of 2.3 percent in qualitative projects as a percentage of all research articles. Thus, in the most recent period, 17.3 percent of all research articles appeared to employ a qualitative approach, compared to 15 percent in the period from 1992 to 1995. Articles reporting the usage of a purely quantitative technique accounted for an impressive 84 percent of all research articles, which was more than ten times higher than the percentage of purely qualitative projects (7.3 percent, n=235)

Figure 4.1: Typology of Published Research Projects, (%)



As is shown in Figure 4.1, more than half of the projects which reported qualitative techniques (n=504), were mixed design projects (n=269).

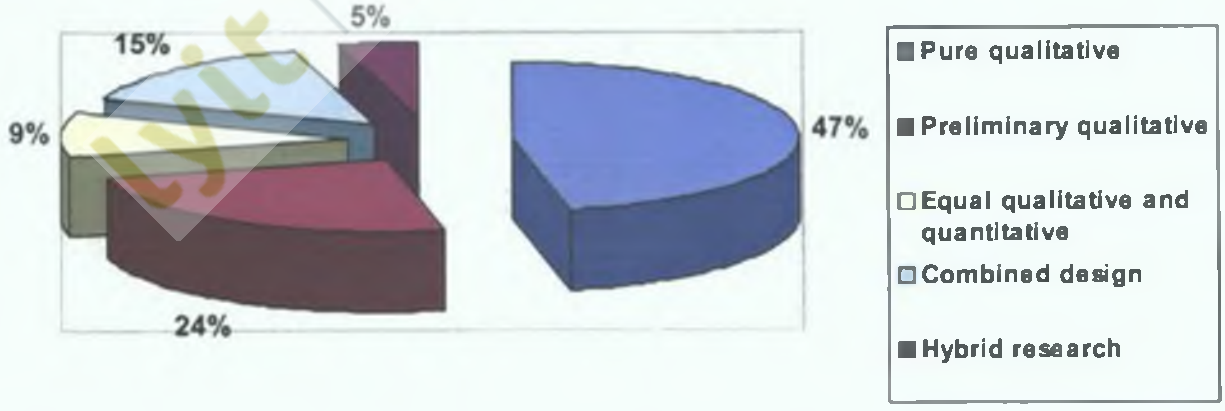
4.2.1 Typology

Mixed design projects were further divided into four major groups:

1. Projects in which qualitative techniques were used for preliminary analysis followed by the main quantitative phase;
2. Projects in which qualitative and quantitative phases were equal in status, research design was characterised by separate data collection and data analysis stages for both approaches, each contributing equally to the research outcomes;
3. Combined design, in which qualitative data were coded for further quantitative analysis;
4. Hybrid design in which qualitative and quantitative data were collected and analysed simultaneously, qualitative and quantitative data normally collected in one phase followed by separate data analysis.

Figure 4.2 shows each group as a percentage of all projects undertaken by employing qualitative research techniques.

Figure 4.2: Typology of Published Qualitative Projects, (%)



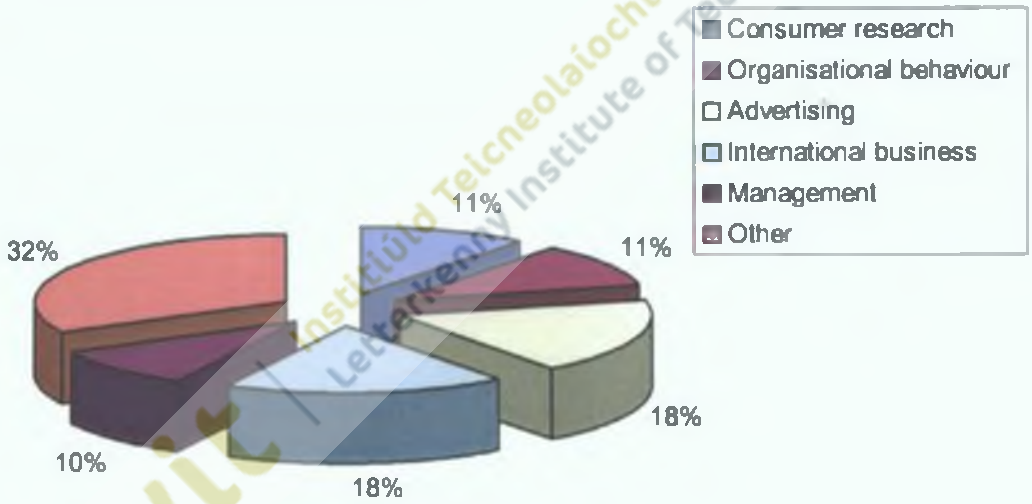
It can be seen that the contributions of project types varied considerably. Research projects with a preliminary qualitative phase were the most popular in mixed design

studies (n=123), followed by combined design studies (n=75). The purposes of the preliminary qualitative phase specified in published projects included questionnaire development, variable/hypotheses generation, setting of measurement strategies, coding schemes, conceptual models, initial exploration and discovery patterns in data.

4.2.2 Subject Areas

Fifteen subject areas were identified in the investigation. Figure 4.3 shows that advertising, international business, consumer research, and organisational behaviour accounted for more than 60 percent of all published qualitative projects.

Figure 4.3: Subject Areas of Published Qualitative Projects (%)



It was revealed that in all areas the number of mixed design projects exceeded the number of the purely qualitative projects. However, in such areas as human research management (HRM), chain management, retailing, advertising, and buyer-seller relationships, the percentage of purely qualitative projects was higher than in other areas (such as services marketing, international business, new product development (NPD) and consumer research), where mixed design projects contributed the most.

Table 4.1 compares the incidence of two types of project design employed in different subject areas.

Table 4.1: Subject Areas of Purely Qualitative and Mixed Design Published Projects

Subject Areas	Total	%	Purely qualitative (No)	Mixed design (No)
Consumer research	81	11.2	35	46
Organisational behaviour	80	11	37	43
Advertising	139	19.1	67	72
Retailing	17	2.3	8	9
Services marketing	25	3.4	8	17
International business	135	18.6	54	81
Sales management	32	4.4	14	18
Buyer-seller relationships	49	6.8	23	26
Chain management	8	1.1	6	2
Management	74	10.2	34	40
Marketing	50	6.8	19	31
HRM	5	0.7	5	0
NPD	23	3.2	6	17
Finance, banking	9	1.2	4	5

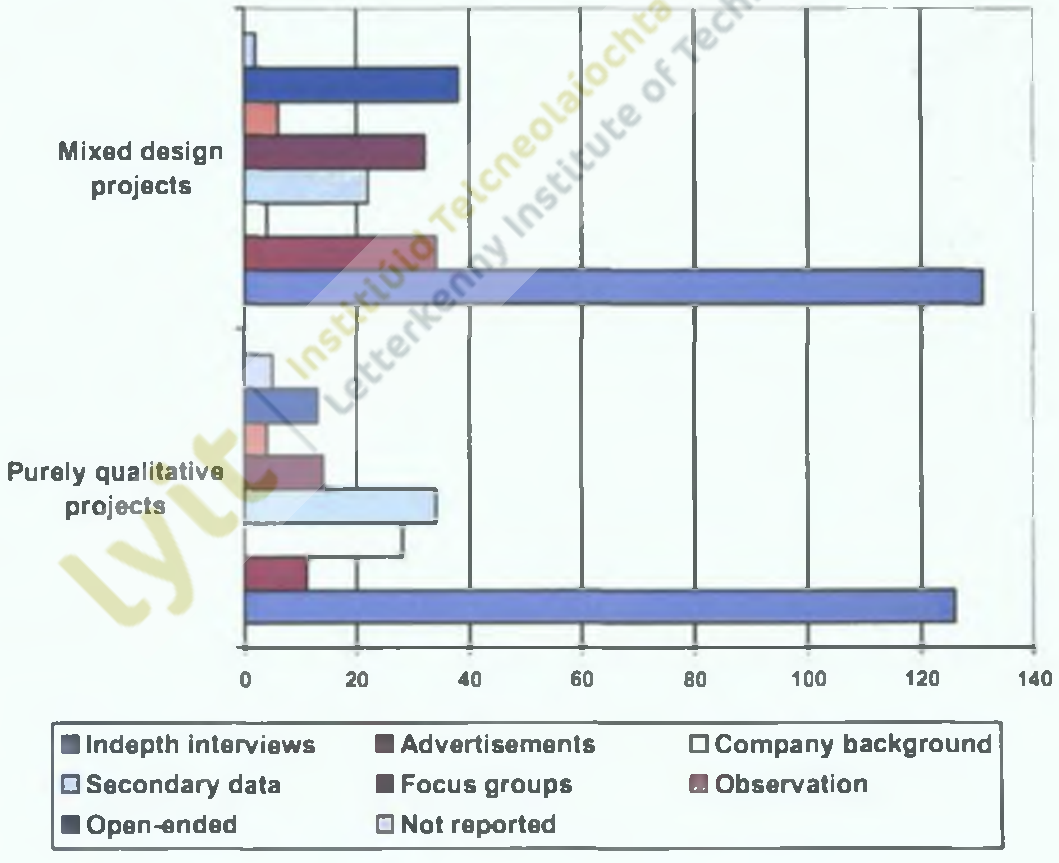
4.2.3 Data Collection

The correspondence between the types of projects and data collection techniques was also examined. As expected, in-depth interview were the most popular data collection technique for both mixed design and purely qualitative projects. The findings

indicated that research data such as advertisements, open-ended questions and focus groups were more frequently used in mixed design projects.

On the other hand, company background information and other secondary data were probably collected more for purely qualitative analysis (Figure 4.4). The average number of in-depth interviews conducted in the qualitative projects was 33, and the average time recorded was 38 hours. The number of focus groups ranged from three to eighteen, and advertisements collected for qualitative analysis accounted for an average figure of 1110 advertisements.

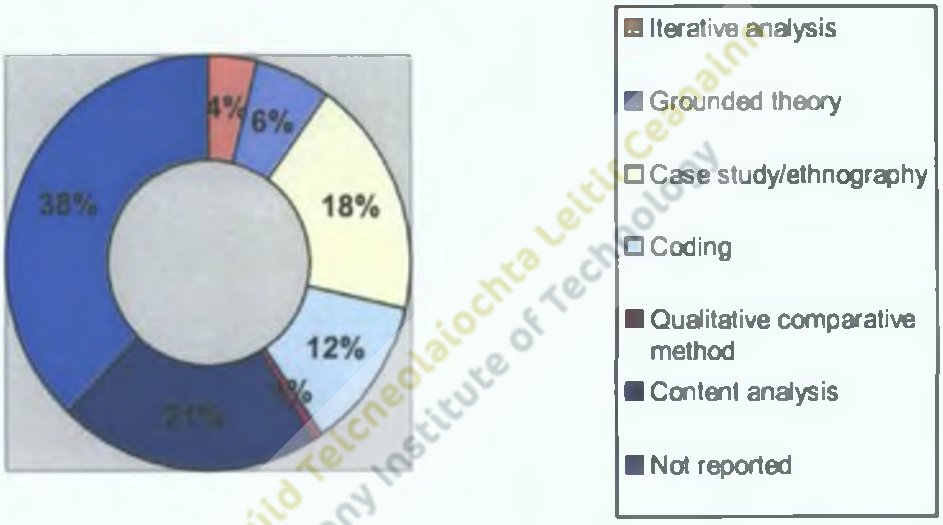
Figure 4.4: Types of Qualitative Data Collection Used in Published Projects, (No)



4.2.4 Analytical Techniques

Figure 4.5 presents the analytical techniques used in 504 qualitative projects. Content analysis (21 percent) appeared in the greatest number of projects, followed by case studies (18 percent), and coding (12 percent).

Figure 4.5: Analytical Techniques Used in Qualitative Projects, (%)



It was revealed that usage of analytical techniques differed in purely qualitative and mixed design projects. Figure 4.6 indicates that the case study was overwhelmingly the most popular technique used in purely qualitative projects, consistently appearing in 79 projects. No other technique came close to the frequency of case study usage. The contribution of the content analysis in purely qualitative projects (No=45) was nearly half that of case studies, and was followed by the grounded theory approach (No=26). The top techniques appearing in the list of frequencies in the mixed design projects were content analysis (No=60) and coding (No=40). It should be noted, that in the majority of projects with a preliminary qualitative phase, a data analysis technique was not reported.

Figure 4.6: Analytical Techniques Used in Purely Qualitative and Mixed Projects, (No)

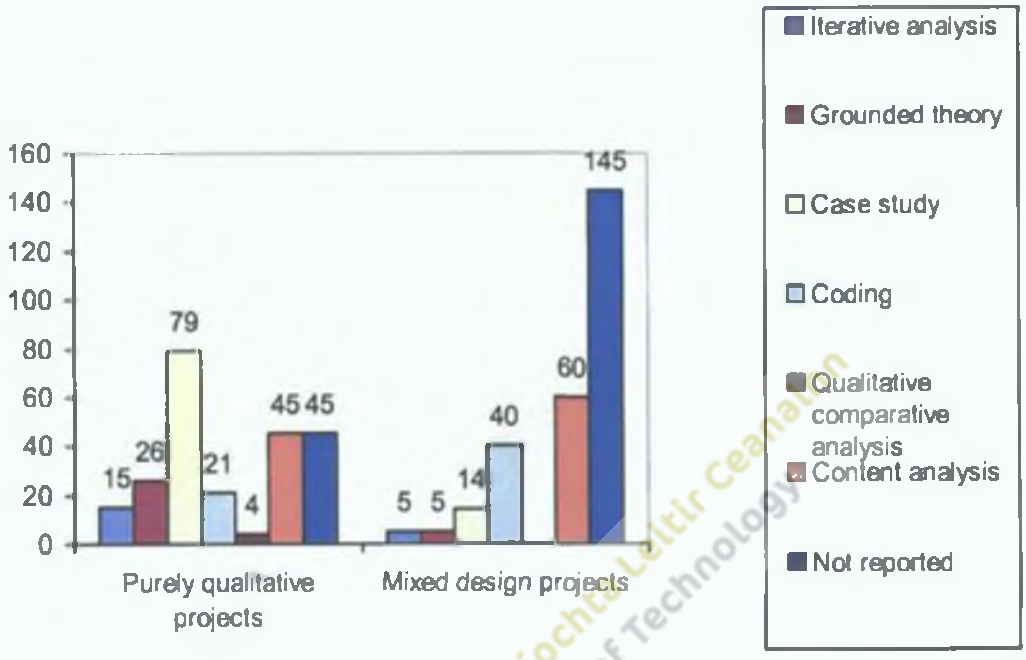


Table 4.2 illustrates the correspondence between data collection and data analysis techniques. The data indicate that in-depth interview data were primarily analysed by grounded theory in case studies, and iterative analysis. On the other hand, secondary data and advertisement data would more likely be analysed by means of content analysis.

Table 4.2: Correspondence Between Data Collection and Data Analysis Techniques in All Research Projects, (No)

Analytical Technique	Data collection techniques								
	In-depth interview	Advertisements	Company background information	Secondary data	Focus groups	Observation	Open-ended questions	Not Reported	Total
Grounded theory	22	0	0	1	4	2	1	1	31
Qualitative comparative analysis	2	0	0	2	0	0	0	0	4
Case study	50	0	29	2	5	1	1	5	93
Coding	16	9	1	11	3	3	18	0	61
Content analysis	22	35	0	31	5	3	9	0	105
Iterative analysis	11	1	0	1	1	0	6	0	20
Not reported	134	0	2	8	28	1	16	1	190
Total	257	45	32	56	46	10	51	7	504

The findings indicated that in-depth interviews and company background information in the purely qualitative projects were used predominantly for case studies. On the other hand, advertisement data in mixed design projects were primarily analysed using the content analysis technique.

Comparison between the data collection techniques employed in purely qualitative and mixed design projects (Figures 4.7 and 4.8) suggests that the same analytical technique could deal with different types of data in purely qualitative and mixed design projects. Thus, coding and iterative analysis were primarily involved with in-depth interviews in purely qualitative projects and with open-ended questions in mixed design projects. Content analysis, which was employed in mixed projects primarily for analysing advertisement data, dealt with secondary data in purely qualitative projects.

Figure 4.7: Distribution of Data Collection Techniques by Types of Data Analysis in Purely Qualitative Projects, (No)

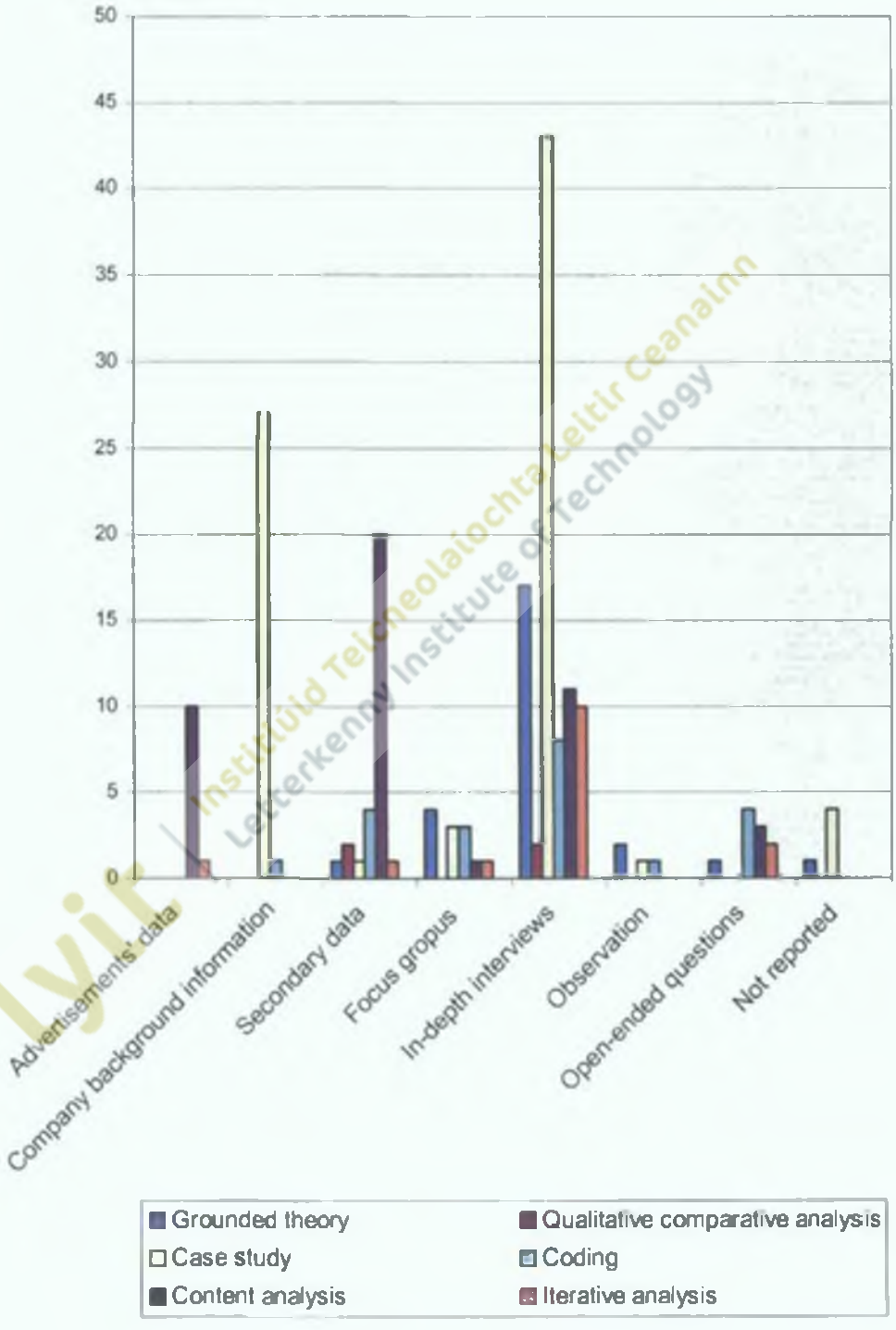


Figure 4.8: Distribution of Data Collection Techniques by the Types of Data Analysis in Mixed Design Projects, (No)

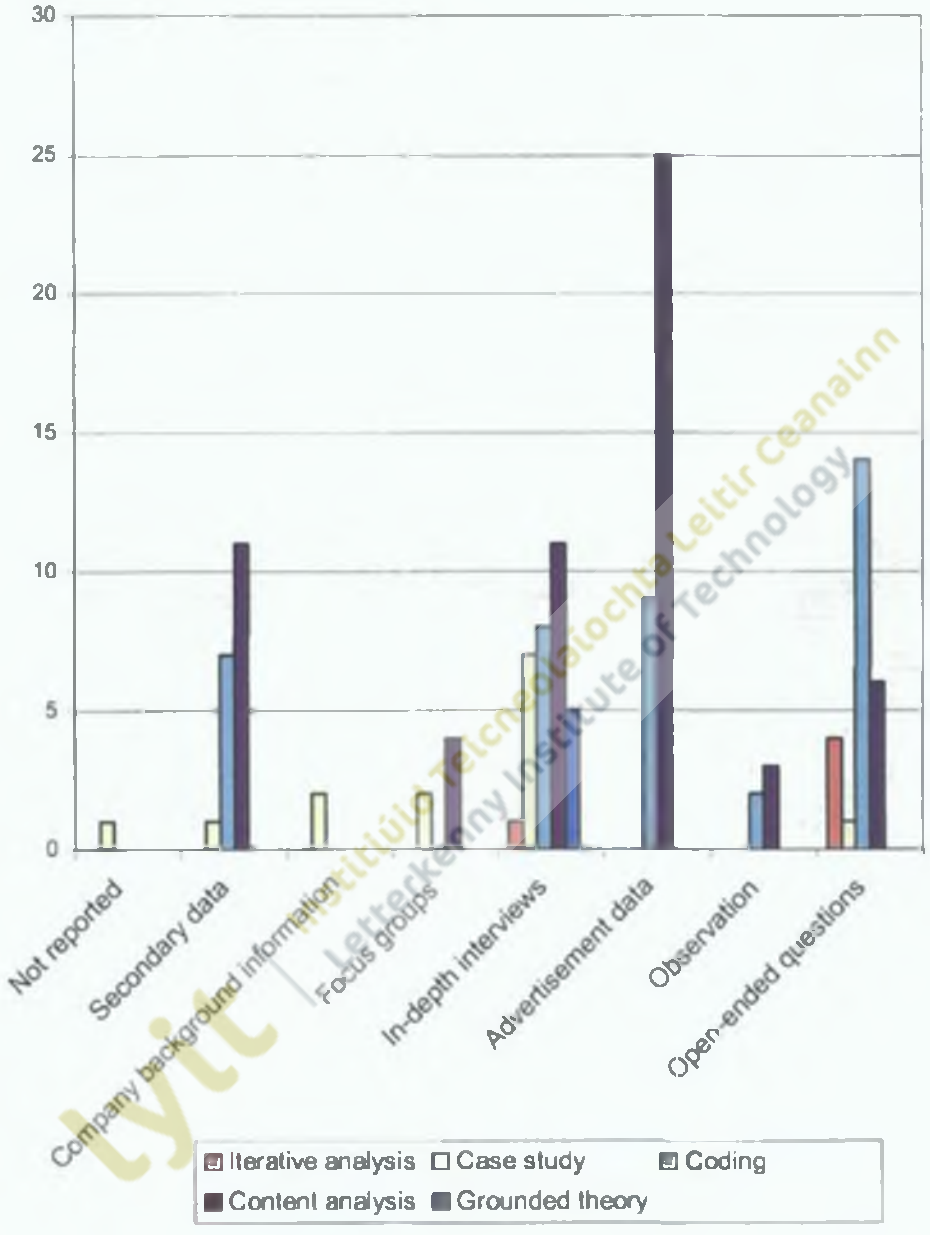


Table 4.3 presents the overall distribution of analytical techniques by subject areas. It is evident that content analysis was mainly used in advertising, NPD, international business and services marketing. Case study techniques were popular in management areas, retailing, and organisational behaviour. Grounded theory and coding were rather evenly distributed through the subject areas. Data analysis by means of grounded theory was noted in the areas of buyer-seller relationships, HRM, and

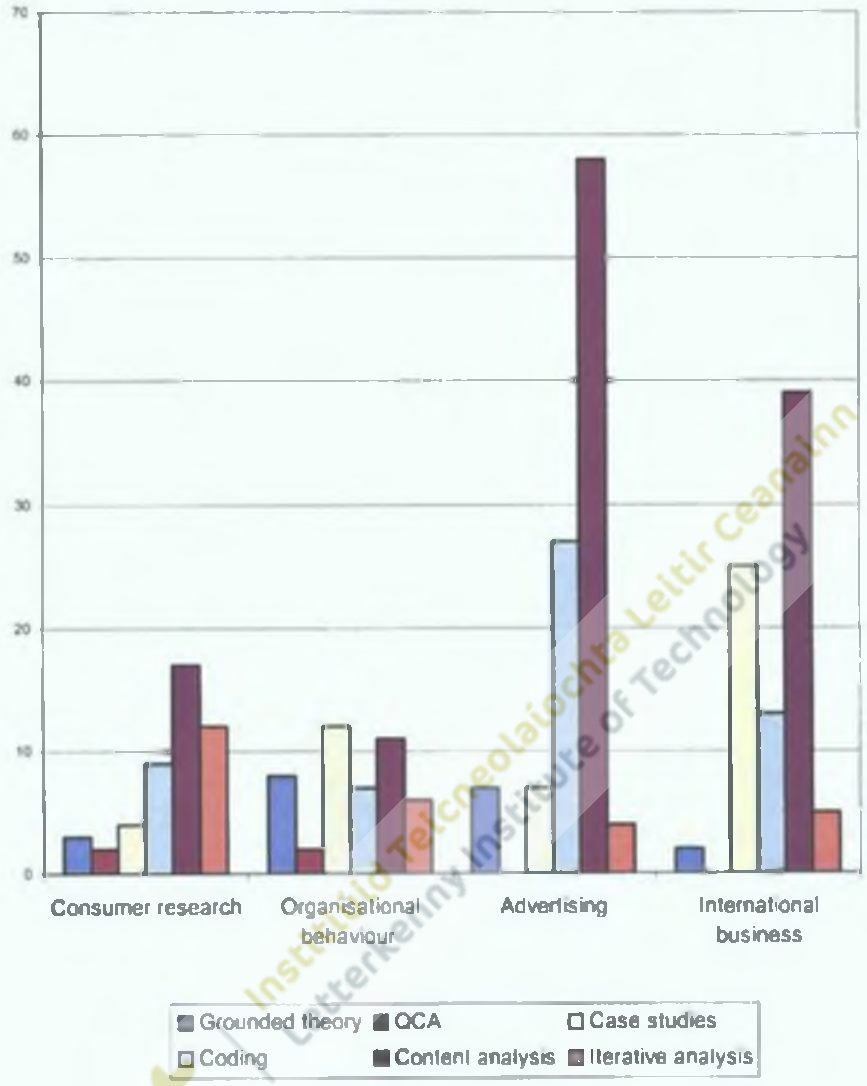
retailing. On the other hand, coding was the favourite technique in sales management, advertising, and retailing. Iterative analysis appeared to be systematically used in consumer research, services marketing, and the other marketing areas.

Table 4.3: Distribution of Analytical Techniques by Subject Areas of Published Qualitative Projects

Area	Total	%	Analytical techniques						
			Grounded theory	QCA	Case studies	Coding	Content analysis	Iterative analysis	Not reported
Consumer research	81	11.2	3	2	4	9	17	12	34
Organisational behaviour	80	11	8	2	12	7	11	6	34
Advertising	139	19.1	7	0	7	27	58	4	36
Retailing	17	2.3	2	0	3	3	3	0	6
Services marketing	25	3.4	1	0	2	0	5	4	13
International business	135	18.6	2	0	25	13	39	5	51
Sales management	32	4.4	3	0	2	6	5	0	16
Buyer-seller relationships	49	6.8	5	0	9	4	1	1	29
Chain management	8	1.1	0	0	7	0	0	0	1
Management	74	10.2	5	0	19	4	9	3	34
Marketing	50	6.8	3	0	8	3	6	7	23
HRM	5	0.7	1	0	3	0	0	0	1
NPD	23	3.2	1	0	1	2	5	1	13
Finance, banking	9	1.2	0	0	3	0	1	1	4

Figure 4.9 shows analytical techniques used in the main subject areas of the projects, which were identified early in this chapter. The most popular analytical techniques employed in the main subject areas of the projects were content analysis, coding and case studies.

Figure 4.9: Analytical Techniques Used in Main Subject Areas, (No)



4.2.5 Chronology

Table 4.4 shows the frequency of occurrence of each technique in research articles. Figure 4.10 illustrates trends in applying different analytical techniques over a ten year period. Although content analysis and case study techniques had the highest contributions, they remained quite steady over the studied period. Changes appeared in the usage of grounded theory (whose popularity more than doubled over the ten years) as well as in the usage of iterative analysis.

Table 4.4: Chronological Distribution of Analytical Techniques

	Total	Grounded theory	QCA	Case studies	Coding	Content analysis	Iterative analysis	Not reported
1992-1995								
Research projects	179	6	4	35	36	38	0	60
% of all articles	15	0.6	0.3	3	3	3	0	-
1996-1998								
Research projects	153	11	0	29	13	38	12	50
% of all articles	16	1.1	0	3	1.3	4	1.2	-
1999-2001								
Research projects	172	14	0	29	12	29	8	80
% of all articles	17.3	1.4	0	3	1.2	3	0.8	-

Figure 4.10: Trends in Usage of Analytical Techniques, 1992 -2001, (%)

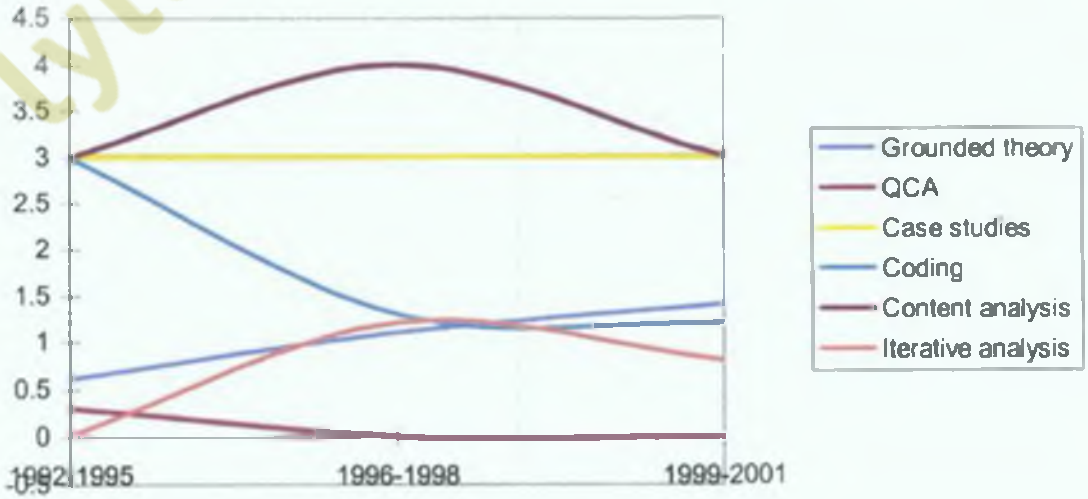


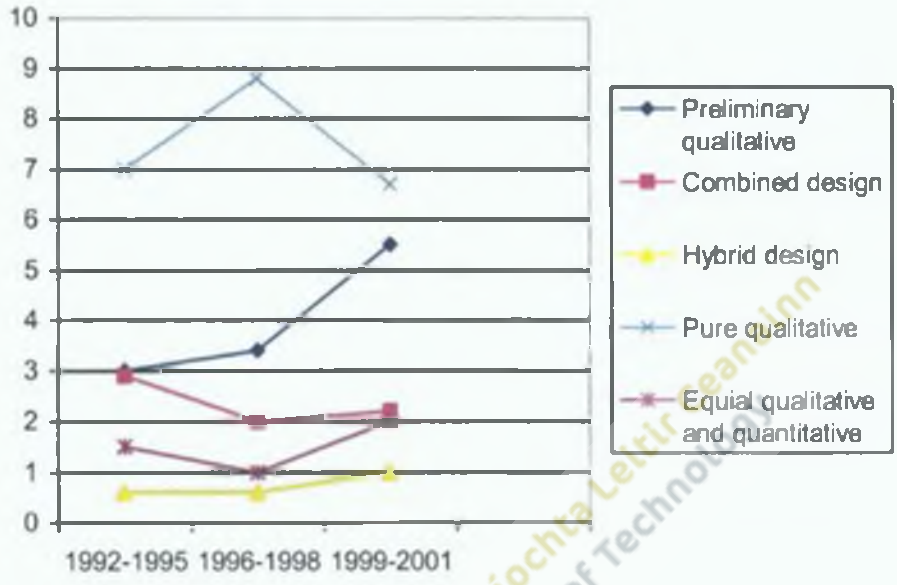
Table 4.5 represents the chronological distribution of project types. The frequency of occurrence of each project type and the percentage of its appearance in the total number of research articles is shown in order to enhance comparability across the time interval under study. It was felt that the total number of research projects was a better base for comparison than the number of qualitative projects, since a shift in the popularity of qualitative techniques over the examined period had been noted.

The rise in the contribution of qualitative projects in the total number of research projects was as a result of an increase in the usage of mixed design projects by 2.6 percent over the past ten years. At the same time, the percentage of purely qualitative projects remained relatively unchanged. Interestingly, the most significant increase came from the preliminary qualitative projects, whose contribution almost doubled over the ten years. On the other hand there was a small decline in the appearance of combined projects (Figure 4.11).

Table 4.5: Chronological Distribution of Project Types, 1992-2001

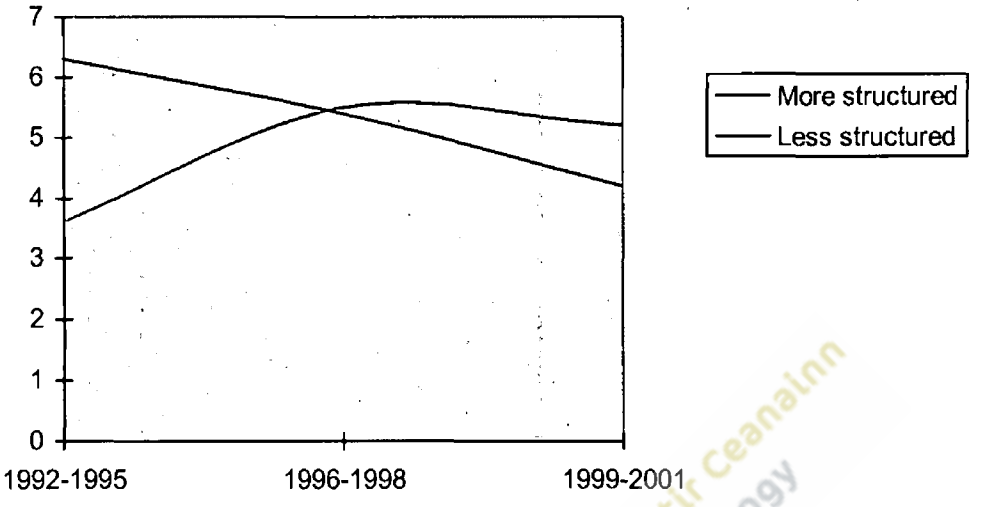
	Total	Purely qualitative	Mixed	Computer assisted	Preliminary qualitative	Combined	Hybrid	Equal qual and quant
1992-1995								
Research projects	179	83	96	9	36	34	7	17
% of all research articles (n=1187)	15	7	8	0.76	3	2.9	0.6	1.5
1996-1998								
Research projects	153	85	68	6	33	19	6	10
% of all research articles (n=963)	16	8.8	7	0.6	3.4	2	0.6	1
1999-2001								
Research projects	172	67	105	7	54	22	9	20
% of all research articles (n=990)	17.3	6.7	10.6	0.7	5.5	2.2	1	2

Figure 4.11: Chronological Distribution of Project Types, 1992 -2001, (%)



To summarise the findings described above and to discover additional insights to the published projects over the ten-year period, analytical techniques were divided into two groups. The first one was represented by less structured techniques such as grounded theory, case studies, and iterative analysis. The second group consisted of content analysis, qualitative comparative analysis and coding. From Figure 4.12 it is evident that the more structured techniques were gradually declining in popularity over the period of ten years giving way to less structured techniques, whose proportion had increased by nearly 50 percent over the studied period.

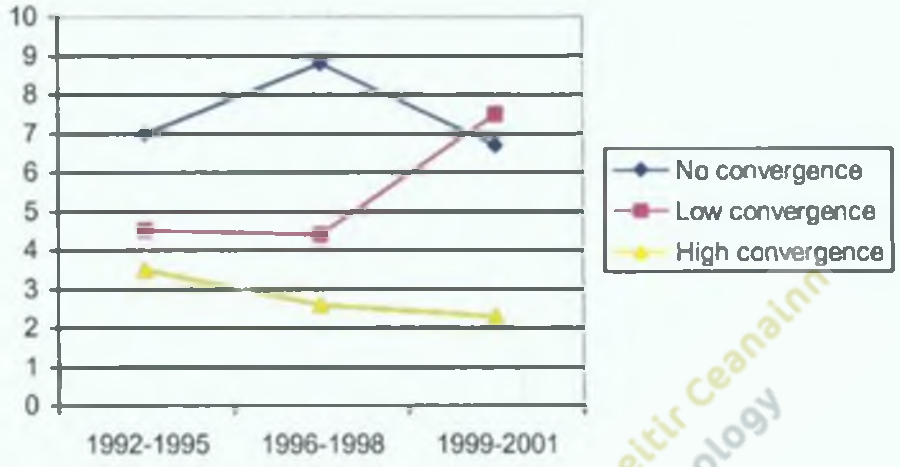
Figure 4.12: Trends in Usage of Analytical Techniques, (%)



A summary of chronological distribution of qualitative projects can be achieved by breaking down the project types into three groups with regard to the degree of their methodological convergence. The first group of non-converged projects was represented by purely qualitative projects. The second group of projects, characterised by a low level of convergence included preliminary qualitative projects and projects with equal qualitative and quantitative phases. Finally, the third group of highly converged projects consisted of combined and hybrid research design studies.

Figure 4.13 indicates a significant increase in the popularity of projects with a low level of methodological convergence and a decline in nonconverged and highly converged projects.

Figure 4.13: Summary of the Chronological Distribution of Project Types, as a Percentage of all Research Projects, (%)



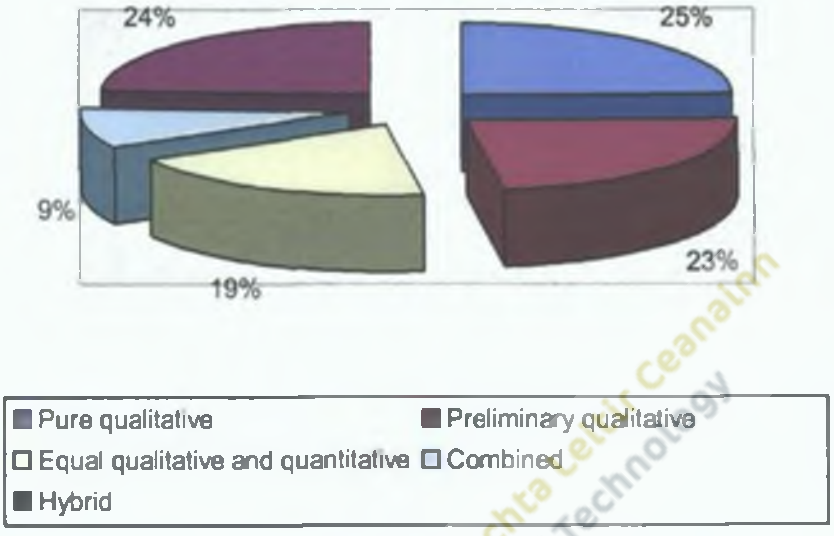
4.3 Profile of Commercial Qualitative Research Projects

During the second phase of the study, completed and returned questionnaires, containing responses from seven companies using software and 31 companies which did not use software, were analysed. The questionnaires were analysed in terms of types of projects they carried out in their research practice, data collection and data analysis techniques employed, and subject areas of the qualitative projects.

4.3.1 Typology

The findings indicated that the leading research design type was the pure qualitative one, followed by hybrid and preliminary qualitative research designs (Figure 4.14).

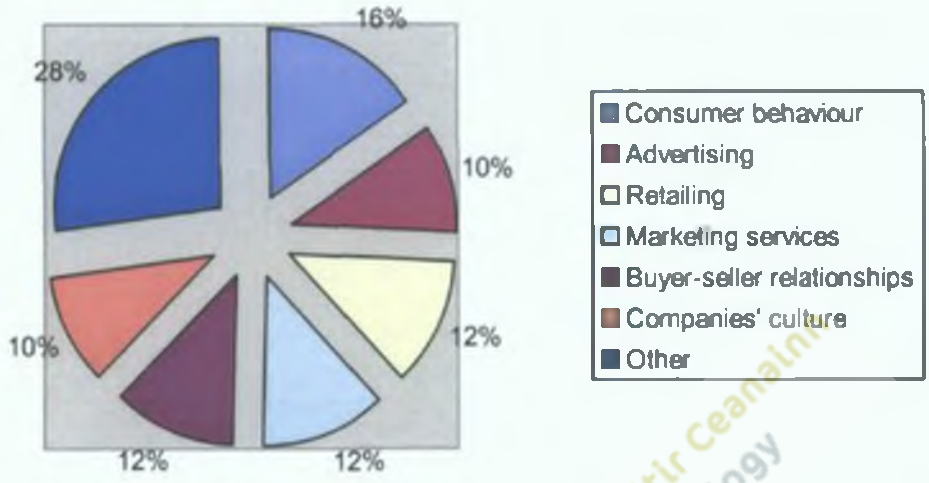
Figure 4.14: Types of Projects Carried out by Companies, (%)



4.3.2 Subject Areas

The analysis of commercial qualitative projects by subject areas revealed the main areas of companies' activities. Figure 4.15 illustrates that the majority of the projects were undertaken in the areas of consumer behaviour, buyer-seller relationships, marketing services, advertising and company culture.

Figure 4.15: Companies' Subject Areas, (%)



4.3.3 Analytical Techniques and Data Collection

The survey results indicate that more than 75 percent of all respondents used in-depth interviews and more than 70 percent of them collected data through open-ended questions. The least popular data types analysed by companies were visual and observational data. Amongst the data analysis techniques, content analysis and case studies were the most frequently mentioned by companies, whereas grounded theory and coding seemed to be used to a lesser extent.

4.4 CAQDAS in Published Qualitative Projects

Computer analysis was employed in 22 published projects, which accounted for 4.4 percent of the qualitative projects studied. The most frequently used package in published papers was NUD*IST, which is mentioned in six out of twenty two projects (27 percent). SPSS and other statistical and standard Microsoft packages were noted in three projects (14 percent), one project employed Ethnograph and five studies were undertaken by little known or homemade qualitative packages (Texypack, LADDERMAR, SALT, Concord and Tally). The rest of the projects, although

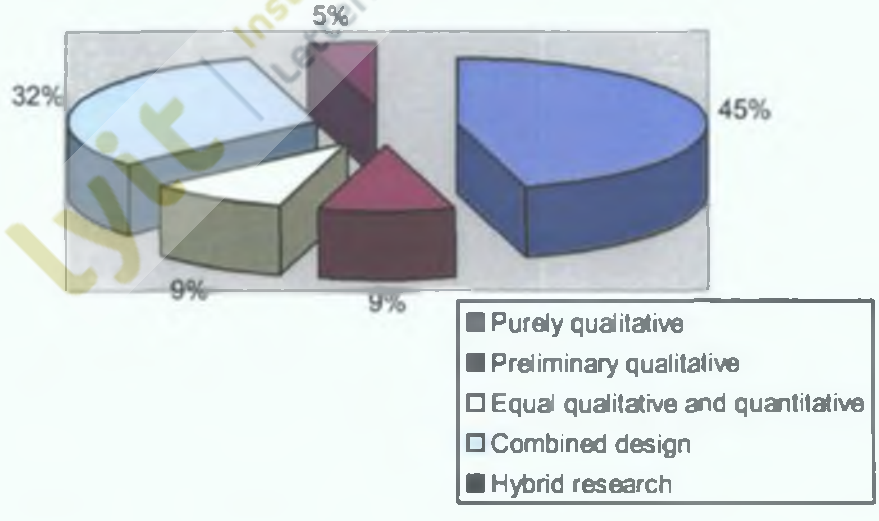
mentioning software data analysis, did not specify a package, describing only the purpose of the software (for example searching through voluminous qualitative data).

Due to the small sample size of published projects undertaken by software, findings can not be regarded as totally reliable and useful for generalisation. However, it was still worth making some comparisons between computer-assisted projects and all published qualitative projects. Besides purely scientific curiosity, the outcomes of the comparison might provide some ideas useful for further research in this area.

4.4.1 Typology

The findings indicated that the majority of computer-assisted projects were purely qualitative (n=10) and combined design (n=7) projects (Figure 4.16.).

Figure 4.16: Types of Research Projects Undertaken Using Computer Applications, (%)

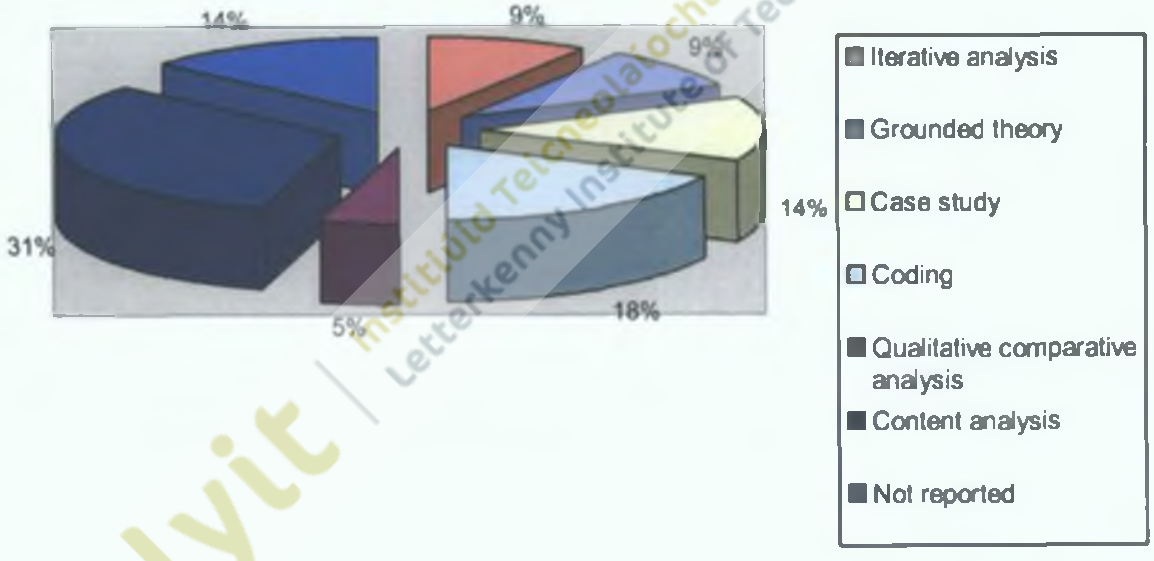


A comparison of the typology of computer assisted projects and all qualitative projects revealed that computer-assisted projects were more frequently used in combined designs and were rarely employed in preliminary qualitative design projects.

4.4.2 Analytical Techniques

In projects where analysis was undertaken by computer (as well as in all projects), the highest contribution was from content analysis. However, the proportion of content analysis in computer-assisted projects was roughly 30 percent higher than that found in all qualitative projects. Iterative analysis techniques were used twice as often and grounded theory was used 50 percent as frequently in computer-assisted projects (Figure 4.17)

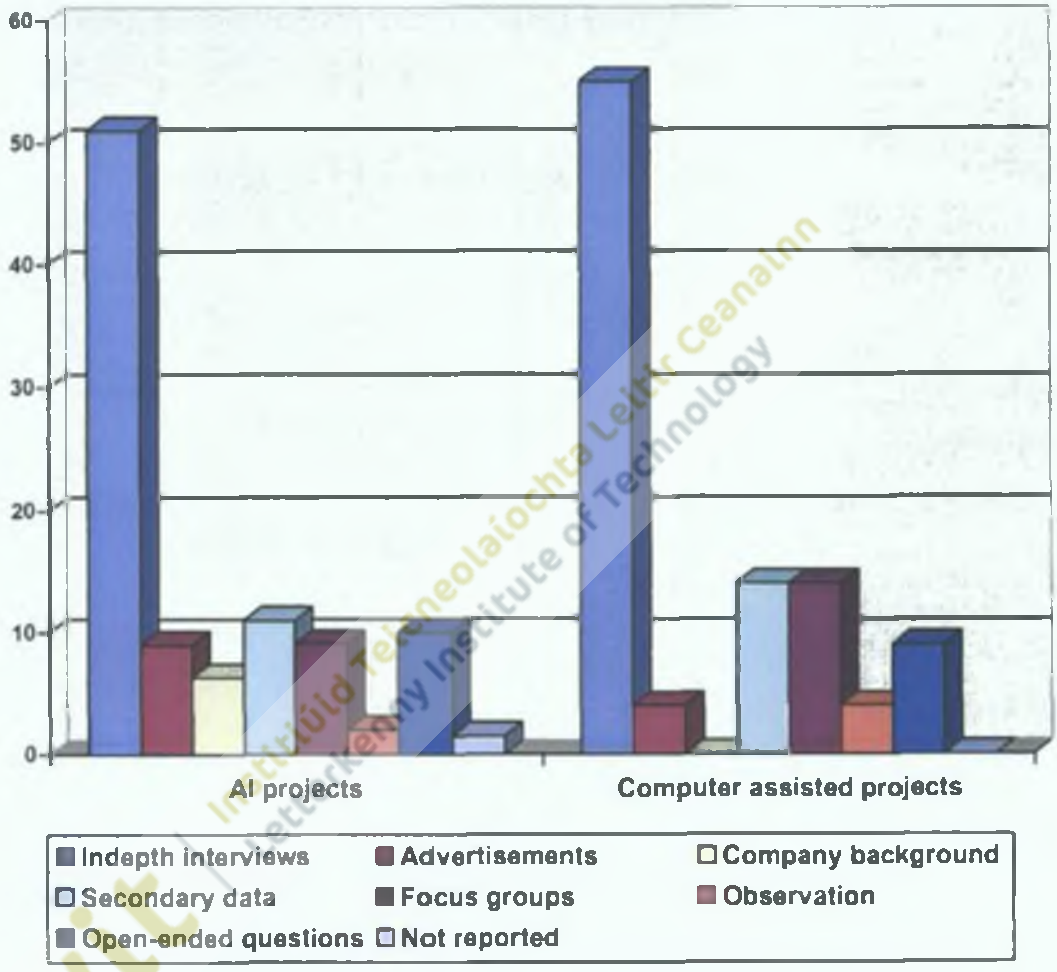
Figure 4.17: Types of Qualitative Analysis Undertaken by Computer Applications, (%)



4.4.3 Data Collection

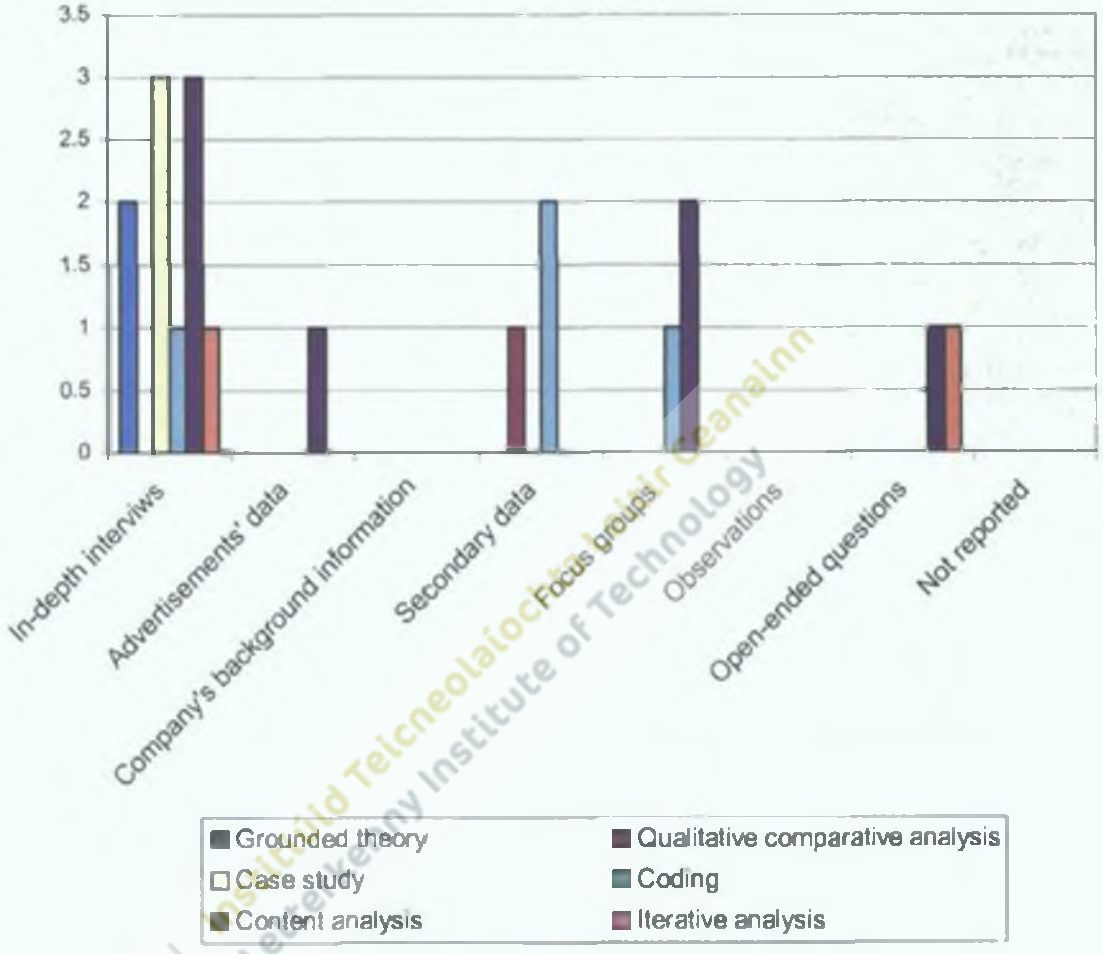
Priorities found in the data collection techniques (Figure 4.18) used in computer-assisted projects generally coincided with those in all qualitative projects. There was a greater contribution of in-depth interview techniques, secondary data and focus groups in the computer-assisted projects. On the other hand computers were rarely used for analysis of advertisement data.

Figure 4.18: Comparison of Data Collection Techniques Used in all Published Projects and Computer Assisted Published Projects, (%)



The correspondence between data collection and data analysis techniques revealed some unexpected results including significant proportions of content analysis of focus group data (which did not occur in the case of all qualitative projects). Another difference was a significantly greater contribution of coding of secondary data and grounded theory analysis of in-depth interviews. Content analysis of advertisements, quite popular among all qualitative projects, had a modest contribution in the case of the computer-assisted projects (Figure 4.19).

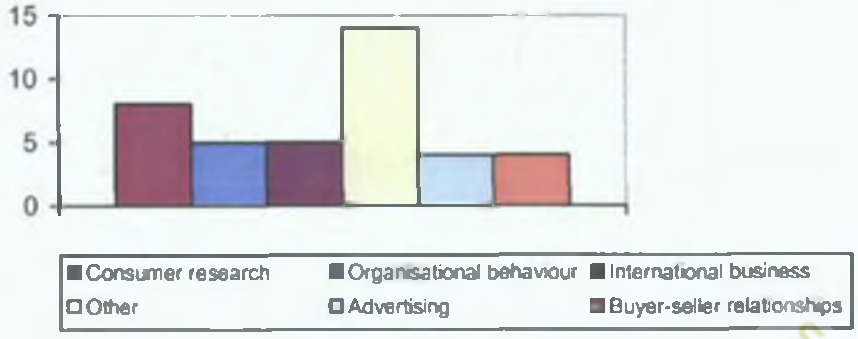
Figure 4.19: Distribution of Data Collection Techniques by the Analytical Techniques in Projects Assisted by Computer Applications, (No)



4.4.4 Subject Areas

The subject areas of computer-assisted projects differ significantly from the areas in which all qualitative projects were undertaken. Consumer research, organisational behavior, and buyer-seller relationships are the main areas of the projects, whereas international business and advertising are diminished almost fourfold compared with all qualitative projects (Figure 4.20).

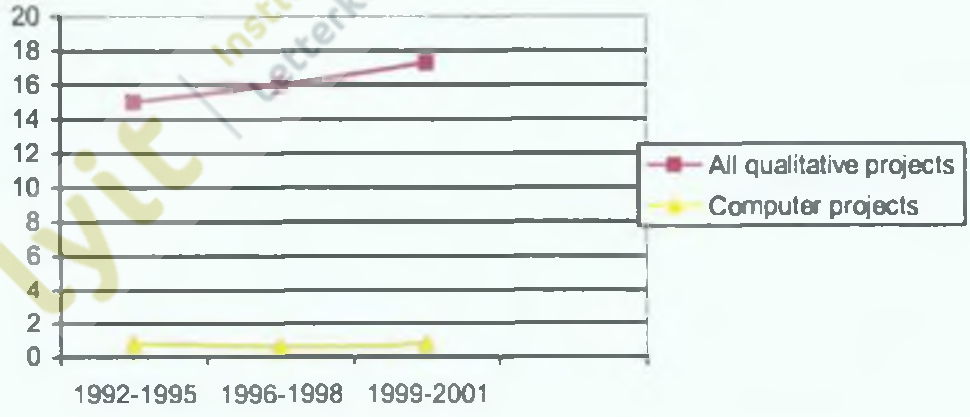
Figure 4.20: Distributions of Computer Assisted Published Projects by Subject Areas, (No)



4.4.5 Chronology

The chronological distribution of qualitative projects did not reveal any noticeable trends (Figure 4.21) and appeared to be steady over the ten-year period.

Figure 4.21: Chronological Distribution of Project Types, as a Percentage of all Published Projects, (%)



Investigation of the types of packages used in published studies over the three periods revealed interesting trends. All statistical packages were used in the first two periods (1992-1995 and 1996-1998), along with little known packages. On the other hand, in the last period (1999-2001), six out of seven projects were analysed by NUD*IST, which was not mentioned until 1999.

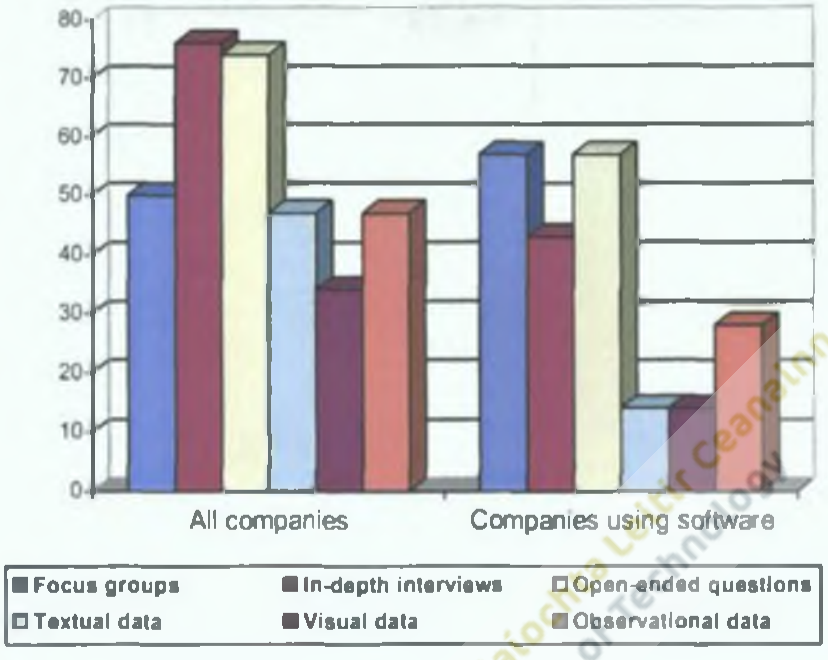
4.5 CAQDAS in Commercial Research Projects

In the questionnaire, companies were asked to provide information regarding qualitative software packages which they were aware of or used in their business. Interestingly, respondents named not only qualitative software packages, but also purely statistical packages. The packages most frequently mentioned by companies were NUD*IST and SPSS. Three quarters of respondents who named NUD*IST did not use it. On the other hand, the majority of companies mentioning SPSS were actual users of the package. Their software experience ranged from eight to 25 years. Other than SPSS, statistical software and standard Microsoft packages were also named by companies. The remaining software used by companies was in the form of the homemade packages. It was not surprising that all of the homemade packages were used in companies' commercial practice.

4.5.1 Data Collection

Comparison of the data collection techniques employed by all companies with the ones employed by companies using software unexpectedly revealed the leading position of focus groups in projects undertaken by QDA software. The focus group technique together with open-ended questions were most frequently employed by companies using software, followed by in-depth interviews and observational data.

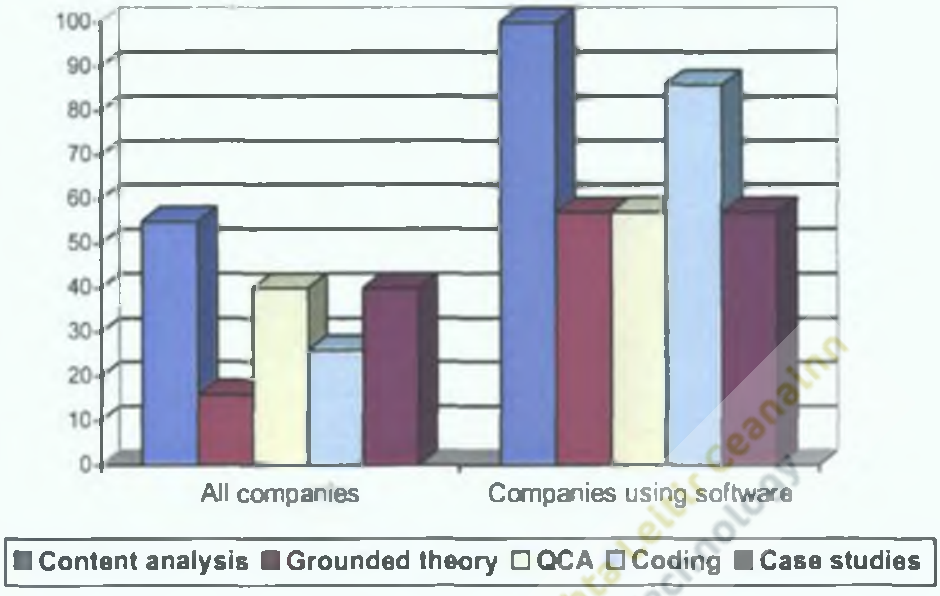
Figure 4.22: Comparison of the Usage of Data Collection Techniques Between all Companies and Software-Using Companies, (%)



4.5.2 Analytical Techniques

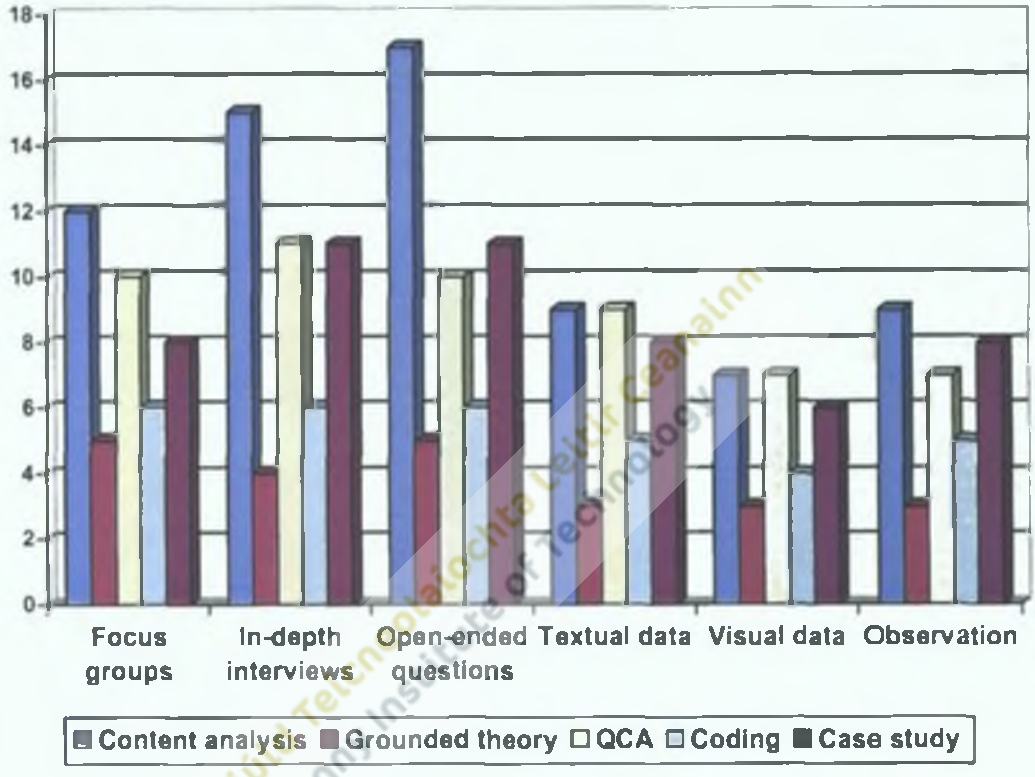
Data analysis techniques were more frequently reported by companies using software compared with all companies involved in the study (Figure 4.23), representing greater emphasis on data analysis by software-using companies. The leading data analysis techniques for all companies were content analysis, qualitative comparative analysis and case studies. There was also a higher percentage relating to coding and grounded theory techniques. Moreover, the frequency of usage of grounded theory and coding techniques differed significantly between the two groups.

Figure 4.23: Comparison of the Usage of Analytical Techniques Between all Companies and Companies Using Software, (%)



Insight into data collection and data analysis practices is provided by Figure 4.24, illustrating the distribution of data collection techniques by the types of data analysis used by all companies. It was evident that content analysis of open-ended questions and in-depth interviews were the most popular combinations in project designs.

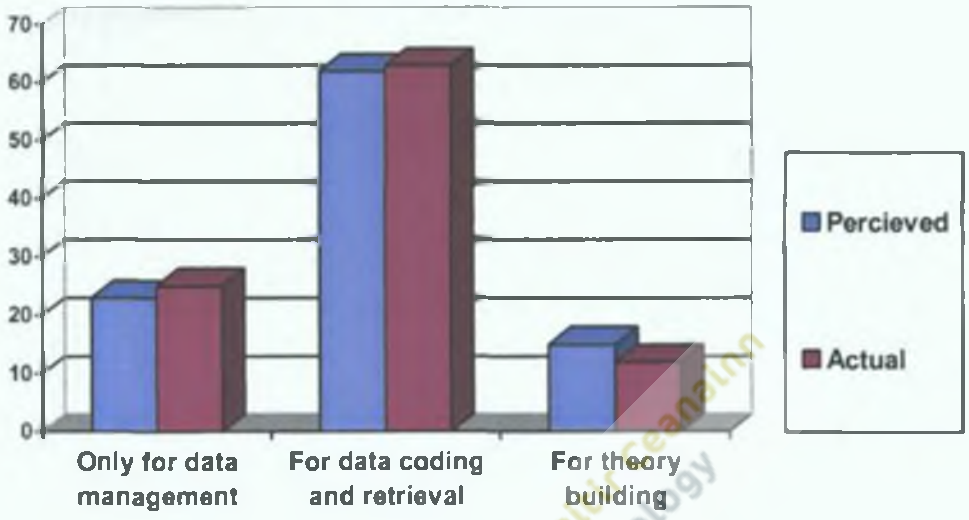
Figure 4.24: Distribution of Data Collection Techniques by Analytical Technique Employed by all Companies, (No)



4.5.3 Evaluation of the Purposes of Software Use

Literature identified the three main purposes of software usage as data management, data coding and retrieval, and theory building. Perceived and actual purposes of software usage among respondents were measured in the study. Software usage only for data management appeared to be greater than companies' perception of this purpose (Figure 4.25). On the other hand, respondents perceived the theory-building purpose of software as more important than was applied in reality.

Figure 4.25: Comparison of Perceived Purposes of Software Usage with Actual Purposes of Usage, as a Percentage of all Companies, (%)



It is worth examining the perceived and actual purposes of software usage in terms of qualitative and software experience of respondents. Figures 4.26 and 4.27 illustrate the distribution of companies' actual and perceived purposes of software usage by qualitative experience. The data indicated that companies with less than fifteen years qualitative experience used software for data coding and retrieval. Some of the companies, however, perceived the purposes of software usage differently. Thus, nearly 20 percent of companies with experience ranging from eleven to fifteen years expressed a positive attitude toward software usage for theory building. On the other hand, respondents from the most experienced group excelled in employing software only for data management. They perceived, however, that software should be more involved in theory building and data coding.

Figure 4.26: Distribution of Companies' Actual Purposes of Software Usage by Qualitative Research Experience, as a Percentage of all Companies, (%)

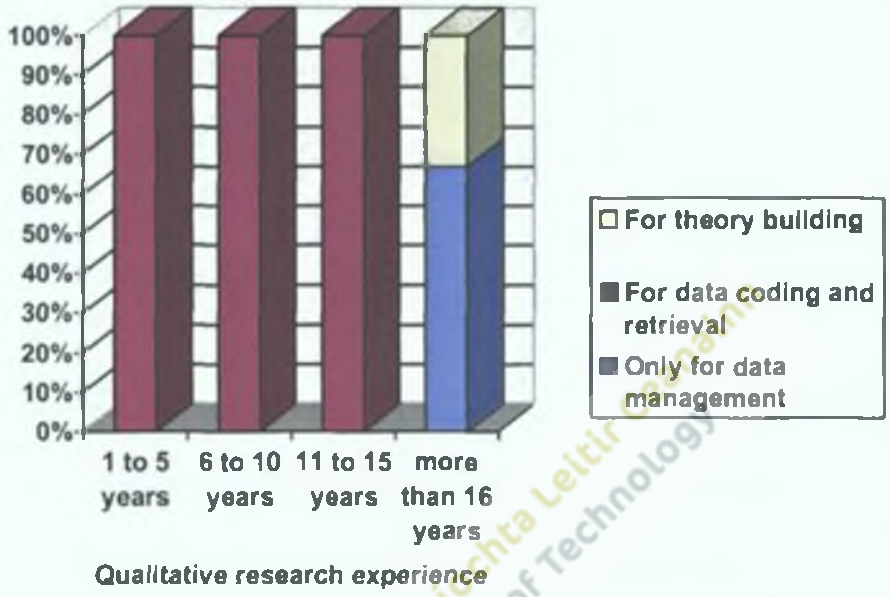
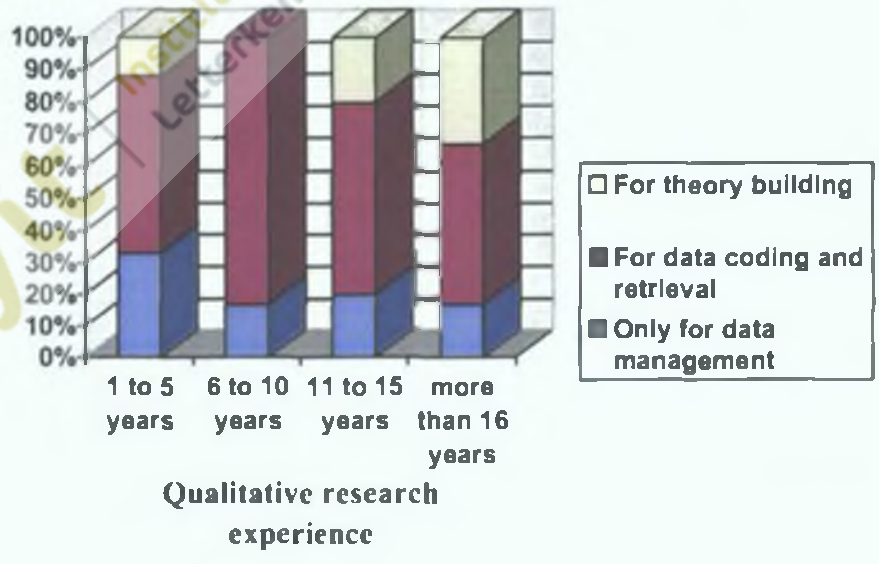


Figure 4.27: Distribution of Companies' Perceptions of Software Usage by Qualitative Research Experience as a Percentage of all Companies, (%)



The distribution of perceived and actual purposes of software usage by software experience revealed a different picture (Figures 4.28 and 4.29). Companies with experience ranging from six to ten years expressed perceptions of software usage, which coincided with the real purposes of software usage. However, perceptions of

companies with the highest software experience, significantly contradicted actual purposes of software use. Thus, they viewed the usefulness of software only in terms of implementing its data management features. In reality, however, 40 percent of them used software for theory building.

Figure 4.28: Distribution of Companies' Actual Purposes of Software Usage by Software Experience, (%)

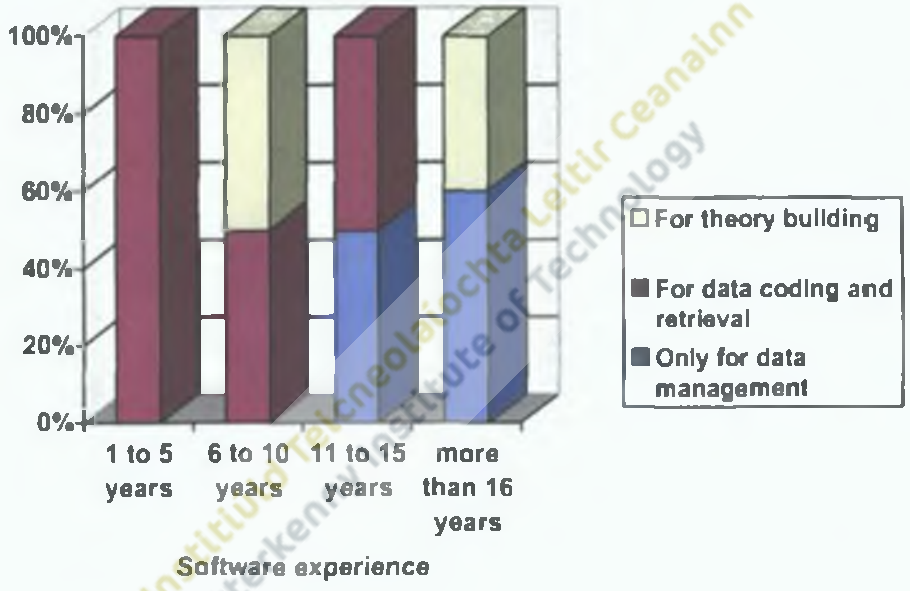
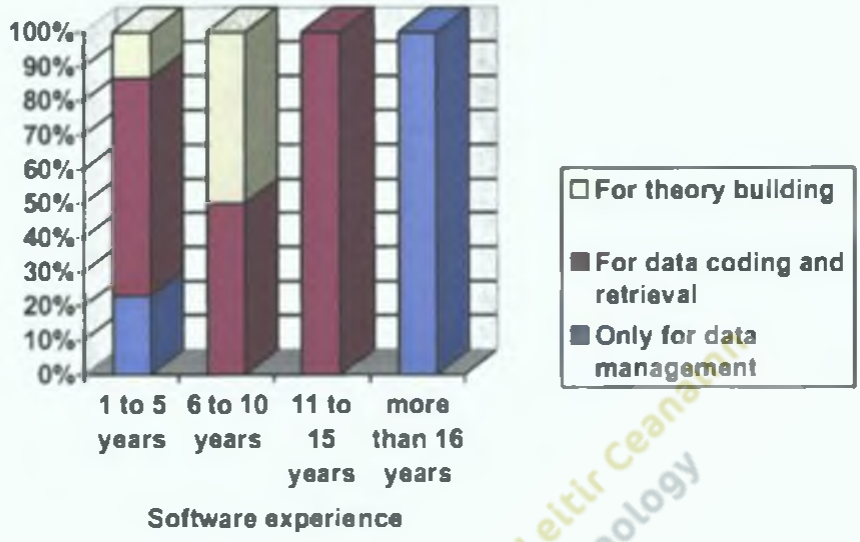


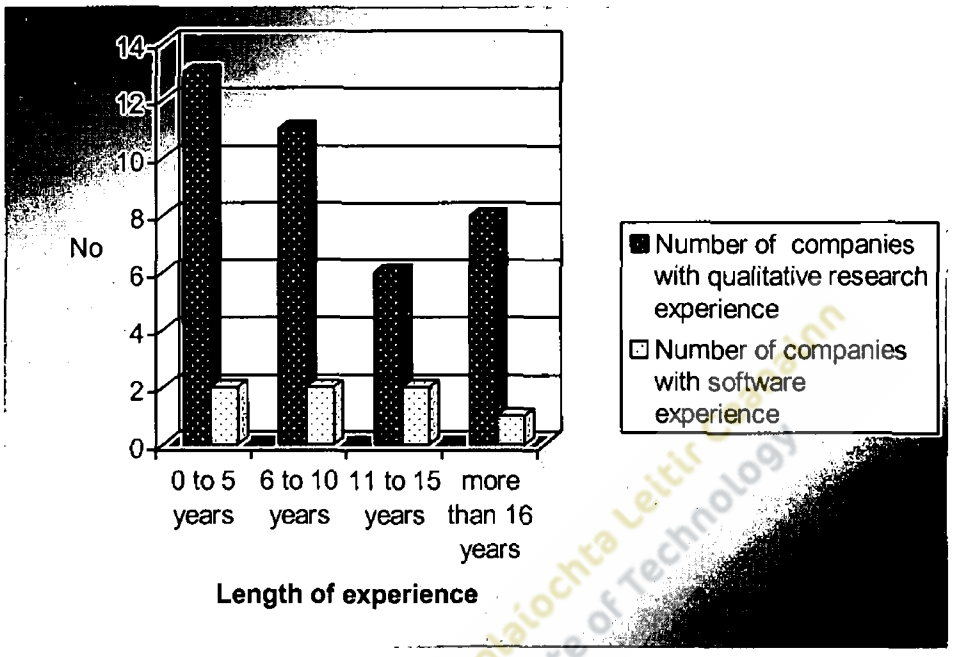
Figure 4.29: Distribution of Companies' Perceived Purposes of Software Usage by Software Experience, (%)



4.5.4 Influence of Qualitative Research and Software Experience

Companies examined in the second phase of the study were divided into four groups in terms of their qualitative research and software experience. As is illustrated by Figure 4.30, 13 out of 38 companies had less than five years qualitative research experience and eight of them had more than sixteen years experience. The spread of software-using companies according to experience was rather even, with two companies in each group except for the last one.

Figure 4.30 Distribution of Companies by their Qualitative Research and Software Usage Experience, (No)



The correspondence between companies' research experience and the duration of their usage of software is represented by Figure 4.31. The results indicated that the length of software experience rose in tandem with qualitative research experience. Moreover, there was a significant difference between the number of years of qualitative research practice and the length of software experience. Thus, companies with less than five years software experience in average had fourteen years qualitative experience.

The average length of qualitative research experience of software-using companies (21.8 years) compared favourably with the average qualitative experience of all companies (11.37 years). On the other hand, software-using companies reported an average software experience of 10.4 years (less than half the duration of their qualitative experience).

Figure 4.31: Average Qualitative Experience Cross-Tabulated by Companies' Software Experience, (years)

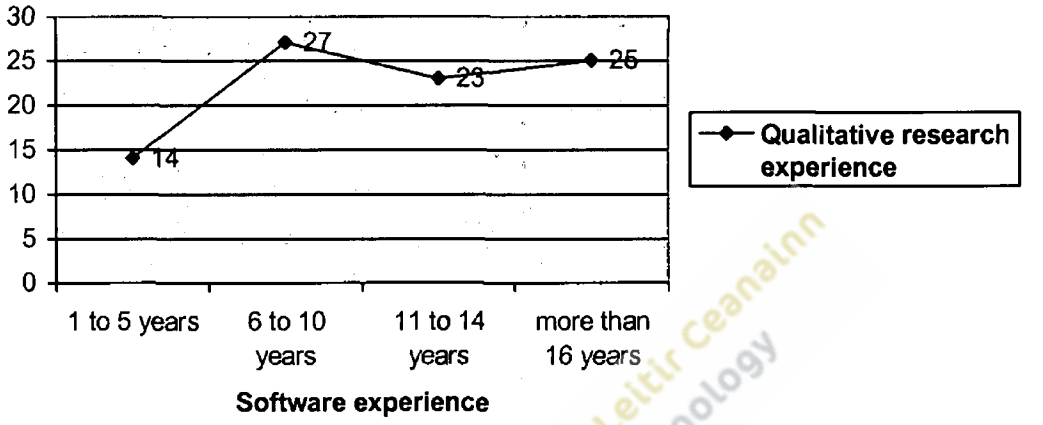
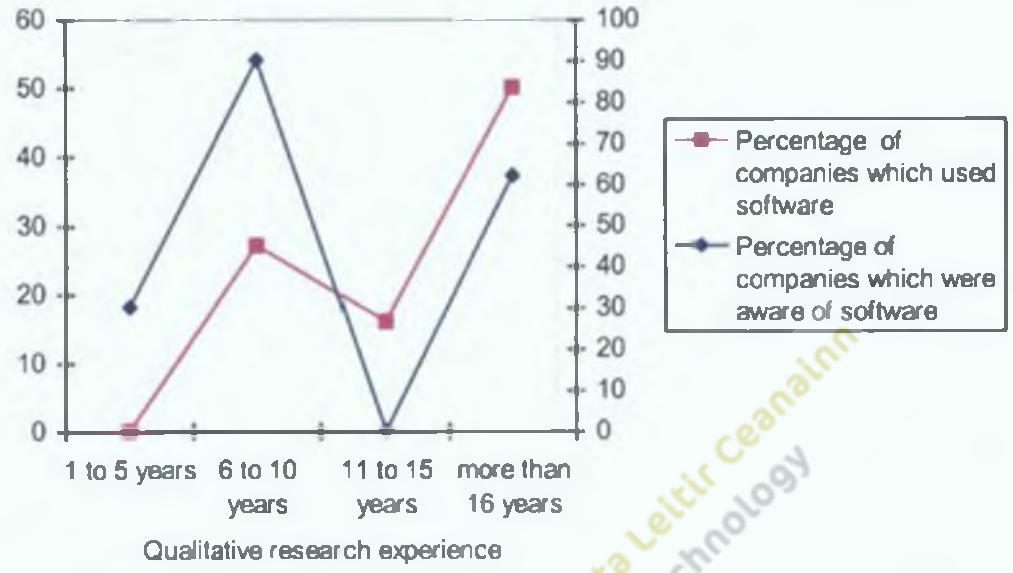


Figure 4.32 provides for useful comparisons between companies using software and companies who were aware of qualitative software. Interestingly, there was a positive relationship between the percentage of companies which used or were aware of software and the length of their qualitative experience. This trend was evident in companies with up to ten years research experience. However, in companies with more than ten years qualitative research experience, the number of using software companies becomes significantly greater. Companies with ten to fifteen years of research experience, had the lowest awareness of software. They also displayed a lower percentage of software usage than companies with lesser qualitative experience, suggesting a greater degree of conservatism in projects design.

Figure 4.32: Companies Using Software Cross-Tabulated by Qualitative Research Experience, (%)



4.5.5 Companies' Attitude Towards Software Use in Qualitative Projects

The degree of satisfaction with software among market research companies was measured by using a five point standard Likert scale. The result (the mean rating was four) conveyed an expression of satisfaction with software usage.

Respondents' answers indicated that 'facilitation of data management' and 'systematisation of qualitative procedure' were the most highly rated of the listed advantages. Investigation of companies' attitudes toward software usage revealed that the opinions of companies using software differed significantly from the vision of companies who were not involved in software analysis. Software-using companies evaluated the importance of almost all advantages higher than those companies who did not use software. However, their perception of the importance of such advantages as 'creditability', 'transparency enhancement', and 'methodological convergence facilitation' was lower than companies who were not involved in software use.

Analysis of perceived advantages of CAQDAS by companies' qualitative research experience provided for valuable insights into their attitudes towards software. There was a higher perceived importance of process systematisation resulting from software usage associated with greater research experience. At the same time, the value of time saving issues was lower with increased qualitative research experience.

Software-using companies, regardless to their software experience, unambiguously perceived the following advantages as the most important: data management facilitation, process systematisation, and qualitative data handling. The greater the companies experience, however, the lower the perceived importance of time saving. At the same time, appreciation of 'creditability enhancement' and 'methodological convergence facilitation' rose with experience.

The limitations associated with software usage perceived as most important by respondents were 'problems of distancing the researcher from the data' and 'the probability of uncritical acceptance of the methodological assumptions of program developers'. The average degree of importance of disadvantages expressed by software-using companies was lower than the degree of importance stated by companies who did not use software. The major difference in opinions between the two groups of companies was associated with their attitude towards the importance of such disadvantages as the 'danger of affecting the qualitative process' and 'an encouragement of analysing qualitative data quantitatively'.

The findings associated with disadvantages of using software revealed the growing perceived importance of 'distancing the researcher from the data', 'danger of the loss of process', and 'reflection of the methodological assumptions of the program developers'.

A rather different picture emerged when the limitations were considered in terms of software experience. Longer experience was associated with greater significance of the problem of 'skipping over the process' as well as the 'danger of affecting the process' and 'analysing qualitative data quantitatively'.

Chapter Five

Analysis of Findings

Content

5.1 Introduction

The aim of this chapter is to provide insights into the findings outlined in chapter four by comparing the outcomes of the first two phases and the enrichment of the findings by the further exploration of issues at the third phase of the study. The importance of cross-comparison of the findings was determined by the small sample sizes of market research companies and computer related published projects (which represented the major limitations of the first two phases of the study). Therefore, it was essential to validate the findings obtained from both independent samples by discovering features similar to both. The second section of the chapter represents a comparative analysis of the profiles of all qualitative projects with projects undertaken by qualitative data analysis software, evaluating and assessing the main differences between them.

In section three of this chapter, the projects undertaken by CAQDAS were further evaluated and explored. As a result of the detailed examination of published projects undertaken by qualitative data analysis software five main models, representing both purely qualitative and mixed research designs, were uncovered.

The issues outlined in sections four and five of the chapter, focusing on evaluation of approaches towards methodological convergence and the influence of research and software experience were primarily based on findings obtained from phase two of the study, complemented by qualitative exploration in phase three. Finally, the problems associated with computerised data analysis which led to limited software usage, were outlined and explored in section six of the chapter. This section revealed the main reasons for reluctance towards usage qualitative data analysis software. In the final chapter the conflicts associated with qualitative data analysis software are further explored and possible remedies posited.

5.2 Cross Comparison of Findings

5.2.1 Qualitative Marketing Research Projects

Table 5.1 combines the top findings from the first two phases of the research and highlights the common features of published projects and projects carried out by marketing research companies. This comparison revealed a great degree of similarity in the outcomes.

On the basis of the combination of findings it should be noted, that qualitative projects were characterised by a low degree of methodological convergence. The projects were primarily purely qualitative or with a preliminary qualitative phase. Projects were undertaken in areas such as consumer behaviour, advertising, and buyer-seller relationships. Data collected for the projects were primarily in the form of in-depth interviews and open-ended questions. Finally, the prevailing data analysis techniques used were content analysis and case studies.

Table 5.1: Comparison of Findings from the First and Second Phases of Primary Research: All Published Projects Versus Projects Undertaken by Companies

Variables	Published projects	Projects undertaken by companies
Types	1. **Purely qualitative** 2. **Preliminary qualitative** 3. Combined	1. **Purely qualitative** 2. Hybrid 3. **Preliminary qualitative**
Subject Areas	1. **Advertising** 2. International business 3. **Consumer behaviour**, organisational behaviour, **buyer-seller relationships**	1. **Consumer behaviour** 2. Marketing services, Retailing, **buyer-seller relationships** 3. **Advertising**, company culture
Data collection	1. **In-depth interviews** 2. Secondary data 3. **Open-ended questions**, advertisments	1. **In-depth interviews** 2. **Open-ended questions** 3. Focus groups
Data analysis	1. **Content analysis** 2. **Case study** 3. Coding	1. **Content analysis** 2. **Case study** 3. Qualitative comparative analysis

Comparing the results obtained from computer-related samples also reveals quite similar project profiles, it was noted that there was a higher degree of methodological convergence in these projects. Computer-assisted projects, both published and carried out by companies, shifted towards hybrid and combined designs. They were carried out primarily in the same areas as all projects, with a lesser involvement in advertising research. The focus group technique appeared to be one of the main data collection methods in computer-related projects found in both independent samples. Analytical techniques such as case studies and content analysis were found to be the most popular in all investigated projects. They were complemented by coding and grounded theory in computer-related projects.

Table 5.2: Comparison of Findings from the First and Second Phases of Primary Research: Computer-Related Published Projects Versus Computer-Related Projects Undertaken by Companies

Variables	Published projects	Projects undertaken by companies
Types	**1. Purely qualitative** **2. Hybrid** 3. **Combined**	1. **Hybrid, combined,** preliminary qualitative **2. Purely qualitative** 3. Equal qualitative and quantitative
Subject Areas	1. **Consumer behaviour** 2. Organisational behaviour **4. Buyer-seller relationships**	**1. Consumer behaviour** **2.** Retailing, marketing services, **buyer-seller relationships** 3. Advertising
Data collection	**1. In-depth interviews** **2.** Secondary data, **open ended questions** 3. **Focus groups**	**1. Open ended questions, focus groups** **2. In-depth interviews** 3. Observation
Data analysis	**1. Content analysis** 2. **Coding, case studies** 3. **Grounded theory**	**1. Content analysis** **2. Coding** 3. **Grounded theory, case studies,** qualitative comparative analysis

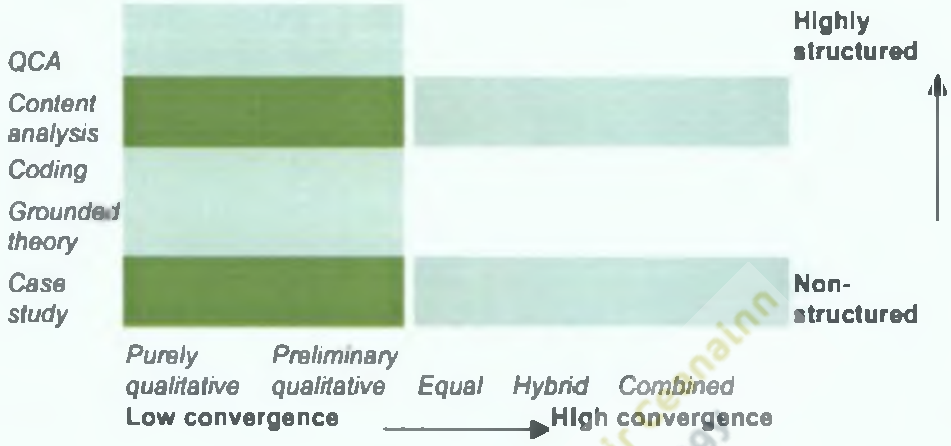
Cross comparisons of the features of purely qualitative projects with mixed design projects can also be validated by contrasting the findings obtained from the two independent samples. Table 5.3 combines the results of the comparisons and highlights the features common to both phases. It is evident that purely qualitative projects were carried out in the same areas as mixed projects (advertising and consumer behaviour). Content analysis, which prevailed in mixed projects, was supplemented by case studies in pure qualitative projects. The in-depth interview, as the main data collection technique in purely qualitative projects, was used along with open-ended questions and focus groups in mixed projects.

Table 5.3: Cross Comparison of Purely Qualitative Projects and Mixed Projects

Variables	Purely qualitative projects		Mixed projects	
	Published projects	**Projects undertaken by companies**	**Published projects**	**Projects undertaken by companies**
Subject Areas	1. **Advertising** 2. International business 3. Organisational behaviour, **Consumer behaviour,** Marketing	1. **Consumer behaviour** 2. **Advertising** 3. Retailing, Buyer-seller relationships	1. International business 2. **Advertising** 3. **Consumer behaviour,** Organisational behaviour	1. **Consumer behaviour** 2. Retailing, Buyer-seller relationships 3. **Advertising**
Analytical techniques	1. **Case studies** 2. **Content analysis** 3. Grounded theory	1. **Content analysis** 2. **Case studies** 3. Qualitative comparative analysis	1. *Content analysis* 2. Coding	1. **Content analysis** 2. Qualitative comparative analysis 3. Case studies
Data collection techniques	1. **In-depth interviews** 2. Secondary data and company background information	1. **In-depth interviews** 2. Open-ended questions 3. Focus groups	1. **In-depth interviews** 2. **Open-ended questions** 3. Advertisements, focus groups	1. **In-depth interviews** 2. **Open-ended questions** 3. Focus groups

A graphical interpretation of findings outlined above is represented by Figure 5.1, and shows a two-dimensional positioning of all projects. Qualitative data analysis techniques are placed on the vertical axis and range from non-structured case studies to highly structured qualitative comparative analysis. Types of qualitative projects shown on the horizontal axis are set with regard to the degree of their methodological convergence. They range from purely and preliminary qualitative projects with a low level of convergence to highly converged hybrid and combined projects.

Figure 5.1: Positioning of All Projects



The positioning of all published projects and projects carried out by companies on a two-dimensional matrix demonstrated that projects were more likely to be purely qualitative or with a preliminary qualitative phase and contain content analysis or case studies techniques. This vision of converged projects as projects with a preliminary qualitative phase was in line with Lyn Richards (2002, p. 2), who described the relationship between phases as unequal; 'one "sort" of data being the second class contributor, the method being merely to transfer the second class data into the "real" project'.

5.2.2 Projects Undertaken by CAQDAS

Qualitative software was found to have limited usage in practice. Thus, only 4.4 percent of the published qualitative projects were undertaken by software, while only seven out of 38 Irish market research companies had ever used the packages. It is interesting that the number of companies, who were aware of the software was nearly three times higher than the number of software-using companies. Reluctance of commercial researchers towards software use was also pointed out in the face-to-face interviews during the third phase of the study. Thus, Marketing and Sales Director of CRMS, Suzanne Colgan stated that their customers were primarily third level educational institutions and government bodies. Although commercial market

researchers demonstrate some interest in software, they tend not to use it in their practice, relying instead on the traditional way of doing QDA.

The most popular software package used in published projects and projects carried out by companies was NUD*IST. The leading position and growing popularity of NUD*IST was in line with findings reported by Fielding and Lee (1998). Ann Lewins, who participated in the third phase of the study, also stated: ' I'd agree that probably in Ireland currently NUD*IST is the most used'. Silvana di Gregorio in her E-mail response noted: 'As for NUD*IST being the most popular package – yes, it is – although I think that it will soon, if it has not already, be taken over by NVIVO [which was also developed by QSR]'.

SPSS, standard Microsoft and homemade qualitative packages were also frequently mentioned in published projects and projects carried out by companies. Content analysis of qualitative data followed by statistical computer analysis in combined projects, which was in accord with what the literature stated (so that qualitative software could be used as 'gateway' for quantitative analysis).

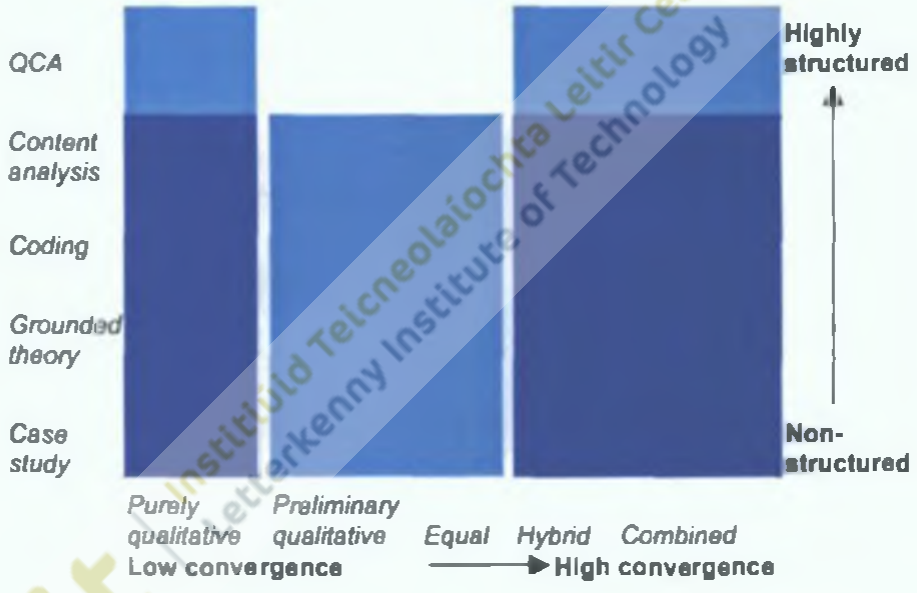
Positioning of computer-related projects represented by Figure 5.2 demonstrates a significant shift towards a higher level of methodological convergence. The finding supports a viewpoint that computer usage might facilitate the process of methodological convergence (Ragin and Becker, 1989), and break down many conventional dichotomies, such as qualitative and quantitative (Richards and Richards, 1995).

On the other hand, Dr. Silvana di Gregorio, participant of the final phase of the research, pointed out:

> There is a strong trend to mixed research. But I do not believe that it is driven by software. I think it is the other way around – that those who are moving toward a mixed methods approach are attracted to the use of software. I also think that many of the people moving towards a mixed approach originally come from a quant background and are attracted by the use of a package – I should say for the wrong reason – that they think a package is more "scientific". I have noticed this particularly in management and in medical/public health research.

Figure 5.2 portrays nearly the whole spectrum of qualitative research techniques including case studies, coding, grounded theory and content analysis. This differs from the pattern found in all projects, which employed primarily either non-structured or highly structured techniques. The use of a wider range of analytical techniques in computer-assisted projects was supported by Fielding and Lee (1998). They noted that numerous computer-aided qualitative studies were associated not only with grounded theory but also with other analytical techniques.

Figure 5.2: Positioning of Computer-Assisted Projects



Overall the profile of computer-related projects was as follows: the projects were more likely to be undertaken in the areas of consumer research or buyer-seller relationships; the design was hybrid, combined or purely qualitative; data were more likely to be collected in the form of in-depth interviews, open-ended questions or focus groups. This supports Fielding and Lee's (1998) findings indicating high levels of usage of in-depth interviews compared to observational and secondary data.

Software use for analysis of focus groups was described by a survey participant (in comments made on the questionnaire) as a tool, which can 'augment' the data. He noted that: 'in focus groups there is a lot of time wasted on reflecting atmosphere. Software or on-line qualitative tools can be used effectively to capture all information

into the requirement of the research.' Another respondent stated that he employs a software package 'to help in the analysis of full interview and group discussion transcripts'. The literature, however, suggested divergent attitudes toward software usage for focus groups analysis. Thus, Fielding and Lee (1998) found that qualitative software was more suitable for interview analysis than for focus groups. On the other hand, Di Grigorio and Stein (2002, p. 4) mentioned the successful usage of qualitative software for focus groups and multi-method studies, pointing out that software 'has the capacity to handle this'.

Although international business did not appear as a strong area for conducting computer-assisted projects, the comments on this issue obtained from a leading Irish market research company suggest otherwise:

> We only use the packages on international comparative studies ...We have found the approach [software usage] quite helpful in the development of questionnaires, which need to be prepared in a number of different languages and where one is attempting to get common meaning across countries

5.3 Investigation of Patterns in Published Projects Undertaken by Qualitative Software

While the initial data for investigation were collected at the first phase of the study, a detailed analysis of published projects undertaken by qualitative software was attempted at the final stage. As was already mentioned in chapter three, the main criteria in identifying qualitative research projects amongst other published projects was the presence of non-numerical qualitative data, used at different stages of research design. In other words, it was assumed that qualitative analysis is analysis of qualitative data, which is in line with the definition of qualitative analysis made by Tesch (1990).

In accordance with the definition of qualitative data analysis, qualitative computer analysis was regarded as computer analysis of qualitative data. The purposes of qualitative computer analysis in published projects ranged from data quantification for further statistical analysis to construct development for theory building.

Qualitative data for computer-assisted published projects were derived from more than one source, suggesting a wide usage of the data source triangulation technique. 'We obtained the evidence collected for this investigation from a variety of data sources, including company documents, government reports, archival data, and personal interviews, which resulted in rich, thick descriptions' (Ellis and Pecotich, 2001, p. 123).

Qualitative data are characterised in the published research projects as voluminous, rich, complex and contextual. 'Transcripts ranged from 5000 to 15000 words [...]. In addition to interview transcripts, documents were collected [...] providing additional data with which to compare interview transcripts interpretations' (Flinn and Wodruff, 2001, p. 325).

In some studies, the variety of data was regarded as an appropriate substitute for a big sample size, so that 'the collection of richer data, incorporating the perspectives of respondents from both ends of the dyad, would compensate for the necessarily smaller sample size involved' (Brennan and Turnbull, 1999, p. 482). This is in line with Yin (1994), who recommended the use of multiple sources of data to ensure the validity of qualitative research.

It appears from this study, that variety rather than size could be considered the main attribute of qualitative data complexity. The literature suggests, that a big sample size would be unlikely to be a characteristic of qualitative research design (Malhotra, 1999). Big sample sizes in qualitative research are not treated as an advantage and do not necessarily result in increased validity. Kelle (1995, p. 24) warned that the advantages of a large sample size might be outweighed by the extra costs of data preparation.

On the other hand, the value of qualitative software is its ability to handle a large volume of data (Catterall and Maclaran, 1998) or in coping with voluminous and varied data (Fielding and Lee, 1998). However, Fielding and Lee (1998) found little in the testimony of focus group participants to suggest that packages were

encouraging researchers to use large sample projects in qualitative research. They noted the decision about sample size instead reflects sponsor or peer expectations or specific methodological affiliation of the researcher. Although computer-assisted projects were found to be associated with bigger sample sizes in this study, there was evidence that the variety of data rather than a large sample size determines data complexity and encourages researchers to employ qualitative software. In qualitative projects sample size is not designed beforehand. 'Instead, a number of interviews were dictated by the progression of theory development' (Flinn and Wodruff, 2001, p. 324).

Researcher triangulation as a means of validation is often reported in computer-assisted projects. Data collection and analysis may be conducted 'by the principle researcher, or other researchers providing varying degrees of objectivity, enabling both process and conclusions' (Flinn and Wodruff, 2001, p. 324). On the other hand, a coding scheme can be produced manually by a number of judges (researchers) with computerised search and retrieval following.

The analysis of qualitative data started from 'multiple reading of each transcript in order to capture a holistic image of the participants' stories, followed by part-by-part interpretation of key thoughts throughout each transcript' (Flinn and Wodruff, 2001, p. 325). Literature also suggests that familiarisation with the raw data is essential in the early stage of qualitative analysis. It could take place by data entry or organisation of the database, which provides for data management and control.

The findings indicated a variety of applied research designs. Figures 5.6, 5.7 and 5.8 present the qualitative data analysis models discovered in the published computer-assisted projects.

Figure 5.6: Patterns in Data Analysis in Purely Qualitative and Combined Projects

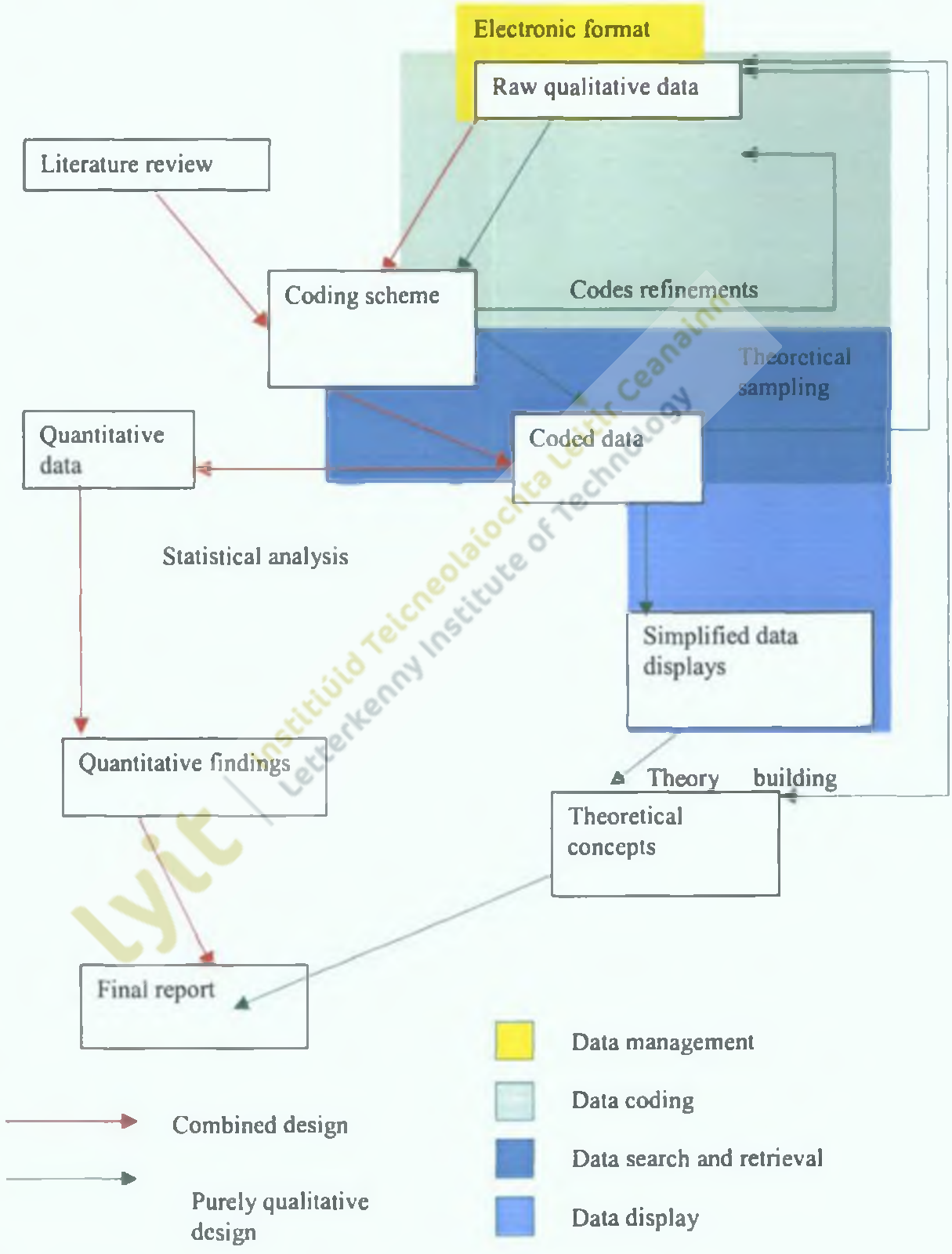


Figure 5.7: Patterns in Data Analysis in Equal Qualitative and Quantitative and Preliminary Qualitative Projects

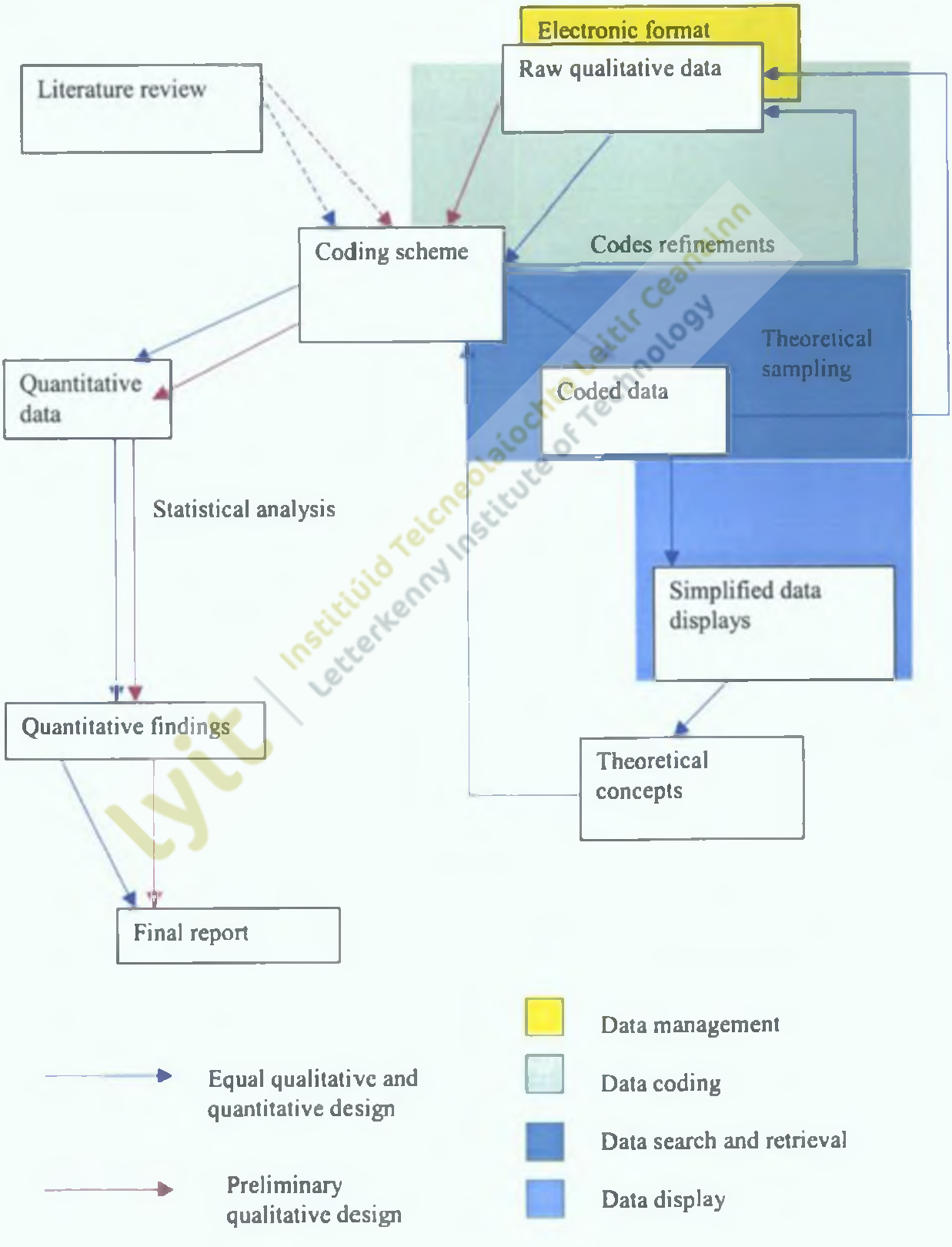
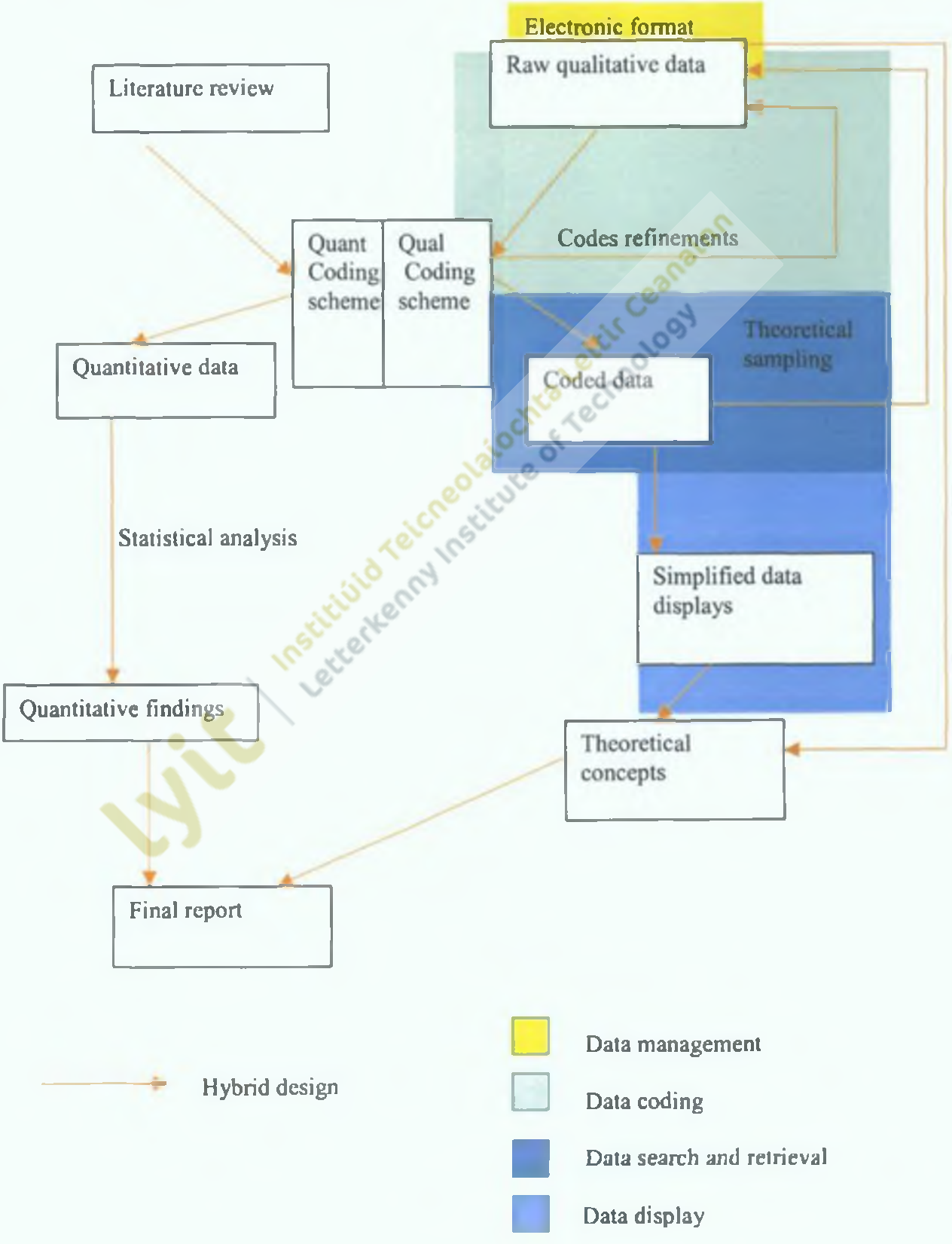


Figure 5.8: Patterns in Data Analysis in Hybrid Design Projects



The first step in computerisation of all projects was data transformation from paper to electronic format. It appears in the models as a yellow square. The necessity of data transformation is one of the major barriers to the computerisation of research processes as in many commercial projects data are not even transcribed. The time consuming nature of the data transformation process prevents the requirements of the commercial researcher being met, since they always work under time pressure and require a high rate of turnover. The adaptation to working on a screen instead of paper is referred to by Linda Gilbert as 'the tactile-digital divide'. It is characterised by a 'temporary period of discomfort, followed by a synthesis that often mingled paper-based and program-based analysis' (Gilbert, 2002, p. 8)

After the period of data transformation, researchers start developing coding schemes out of the data. In purely qualitative projects (Figure 5.6) codes emerged gradually through the continuous process of code refinement and modification. The process was characterised as a cyclical interchange between raw data and identified codes, in which new instances of data are constantly compared with the codes in order to discover new codes or modify existing ones. As was mentioned in the literature, changes and refinements of the codes are natural processes in qualitative research resulting in clarifying ideas and developing general concepts. Qualitative software could play a major role by keeping track of the development of code definitions and facilitating the constant comparative method.

The computerised coding process is marked in the model as green squares. Linda Gilbert, who studied the interplay between the user and the data, defined the relationship at this stage as 'the coding trap'. She noted that the coding phase involves extensive closeness to the data.

> It seemed to surface after the user had overcome the tactile-digital divide and developed some comfort with the program. Users felt that using NUD*IST allowed them to be very close to their data, but warned that there was a tendency to become "bogged down" in coding ... One participant simply noticed that NUD*IST created an "expectation" of thorough coding, and deliberately chose not to code at that level' (Gilbert, 2002, p. 8)

Data search and retrieval in accordance with an identified coding scheme was another stage where computers were quite helpful. Coding and searching through the data from one source interconnected the same procedure upon the data from another source, which was in accord with the theoretical sampling concept. An iterative process of theoretical development was described as 'building analytical technique whereby successful iterations and revisions of an initial theoretical statement are compared with the findings of several cases until no new learning results [...], the conceptualisation of the cosmopolitan constructs coincided with the collection of data' (Ellis and Pecotich, 2001, p. 124). Using software at these stages can 'facilitate this highly labor-intensive and recursive task, which inherently required intensive human judgment and decision-making, the software allows for interactive coding in an easy-to-use format' (Gengler et al., 1995, p. 19).

However, as was often mentioned in published projects, the 'software only facilitates the traditional qualitative analytical process of developing an appropriate coding structure and applying the codes to data, it cannot do the analysis' (Brennan and Turnbull, 1999, p. 485). The most sophisticated level of software involvement is the production of simplified displays of theoretical constructs and their interconnections. The displays 'cannot be interpreted on their own, but only in the context of the case analysis' (Brennan and Turnbull, 1999, p. 485). Therefore theory building is a 'software free' process, which could be facilitated by simplistic qualitative scatter-plot displays. It is a 'constant interplay between the convenient, but highly simplified scatter-plot displays and the original qualitative data' (p. 485).

Although facilitated by computer, interpretive analysis appeared to be a highly time-consuming process. Thus, the analysis in Flinn and Wodruff's (2001, p. 325) project took place over ten months, which accounted for 1040 hours of analysis or 47 hours per transcript. Another study reported spending 12.4 hours sorting, managing and analysing data for every hour spent in the field (Ellis and Pecotich, 2001, p. 124).

Although qualitative software could be used at all stages of purely qualitative projects, except for final theoretical development, the majority of studied projects

employed software only for developing a coding structure or only for search and retrieval. This was in line with Fielding and Lee's (1998) findings, suggesting a low level of usage of the theory building facilities of packages.

The main purpose of qualitative data analysis in combined studies (Figure 5.6) was the transformation of qualitative data into numerical data for further statistical analysis. Combined research requires developing a coding scheme in order to extract quantitative data, which appeared through the literature review as well as from raw qualitative data. In the former case, qualitative software may well be used to facilitate the process of code structuring. Software also appeared to be helpful in searching through qualitative data and chunks grouping.

The aim of the qualitative stage in preliminary qualitative research design is to develop a questionnaire for the following quantitative study (Figure 5.7). Therefore, qualitative data analysis is used only for code (category, construct) development, which is utilised in survey research. Qualitative software involvement in this type of research design is quite limited.

Equal qualitative and quantitative research design was characterised by complete qualitative data analysis, conducted for theoretical development (Figure 5.7). The theoretical concepts were then tested in a quantitative phase, which used an emerged coding scheme for quantitative questionnaire construction. In hybrid research design, qualitative and quantitative data were collected simultaneously and analysed independently from each other (Figure 5.8). The two phases used independent coding schemes, different data sets and analytical procedures. The main purpose of the qualitative phase was the enrichment of the final findings. Qualitative software in projects with equal qualitative and quantitative phases and in hybrid studies could be used at all stages of qualitative data analysis.

Lyn Richards, who named mixed design projects 'pattern analysis', noted that:

> The spread of QDA programs coincided with wide acceptance of a mode of qualitative research that does not appear in literature: I call it pattern analysis ... Pattern analysis, now possibly the most frequent sort of qualitative research, has come to the front without us noticing, via import of table data, and it is a phenomenon in search of a method.

She pointed out that 'the challenge of integration data must be recognised and addressed in qualitative software design and teaching' (Richards, 2002, p. 3)

5. 4 Investigation of Approaches Towards Methodological Convergence

The growing importance and acceptance of converged projects were recognised by a participant of the third phase of the research, Silvana Di Gregorio, who stated that 'there is a strong trend towards mixed method research'. Lyn Richards (2002, p. 2) named emerging mixed design techniques 'pattern analysis' and claimed that the 'changes have distorted qualitative data analysis, in particular by strengthening forms of qualitative research that are not recognised by established qualitative methods'. She argued in favour of the 'rapid spread of acceptance of qualitative research, and a concurrent and related shift away from what I term methodological completeness' (Richards, 2002, p. 3)

Chronological trends, discovered through this study also showed a growing popularity of designs with a low degree of methodological convergence such as preliminary qualitative projects and research design with equal qualitative and quantitative phases

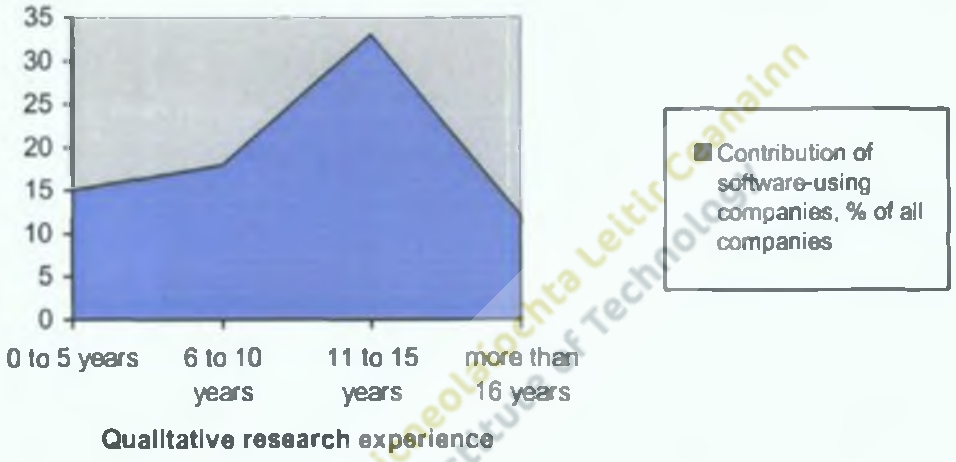
5.5 Influence of Research and Software Experience

5.5.1 Research Experience and Software Usage

The findings outlined in chapter four indicate that the average software experience (10.4 years) was significantly lower than the average qualitative experience of market research companies using software (21.8 years). It was also found that the qualitative research experience of the software-using companies was more than ten years higher than the average qualitative research experience of all companies (11.4 years).

Figure 5.3 indicates that the highest commitment to software use was demonstrated by the group with qualitative experience of ten to 15 years.

Figure 5.3: Contribution of Software-Using Companies in All Companies Cross-Tabulated by Qualitative Research Experience, (%)



Research outcomes show that in the period of up to ten years of qualitative experience, the number of software-aware companies exceeded the number of companies actually using software in their practice. However, after ten years of qualitative research experience there were more companies, who used software than companies who were merely aware of it.

Findings indicated that during the first ten years of their qualitative practice, the companies' learning curve and willingness to use software in their research increased gradually. In the period from six to 15 years of qualitative experience companies became actual users. However, companies, who did not become involved with software usage at this point, rarely became software users later. A downward slope in Figure 5.3 might indicate the reluctance towards software expressed by companies with established qualitative traditions. Therefore, the first years of qualitative experience could be considered as a period of learning and making decisions as to whether it would be necessary to employ software in the companies' qualitative research practice.

A lack of qualitative research and software education and training in the past could be a major reason for the barriers to analysis of qualitative data by software. Currently, education and training are readily available from third level institutions and training companies. However, Di Gregorio and Clements-Stein (2002, p. 4) noted that the 'training in qualitative analysis and training in software are mainly done separately (if they are done at all)'. They pointed out that 'the software should not be treated in isolation from the analysis as the analysis should not be treated in isolation from the qualitative approach adopted'. A researcher participating in the final phase of this study wrote 'In fact, the idea of doing the data analysis without N6 [NUD*IST] was quite daunting. Because I did not see how can I manage through all the complexities of the interviews without organising them' (Ester Haumann).

Collaboration of knowledge in qualitative data analysis and computing resulted in the creation of some of the most up-to-date QDA software products such as NUD*IST and NVIVO.

> QSR products are also very good. That is because of the input of Lyn and Tom Richards; Lyn being a sociologist and having a very clear vision of tools that qual researchers need and Tom being very clever at them (Silvana Di Gregorio).

The growing popularity of NUD*IST was evidenced at the first and second phase of this study, suggesting that although there was no increase in computer usage for qualitative research, researchers tended to substitute other packages for NUD*IST.

The importance of training was emphasised by qualitative software consultant Silvana di Gregorio in her response to the posed open-ended questions. She views the popularity of QSR products (NUD*IST, NVIVO) as a result of good marketing and training campaigns.

> They were the first to get Scolari to market a software package. They were the first to see the importance of training and encourage a worldwide network of trainers (although in real terms they are few in number, they are much more than those offering training in other packages) (Silvana Di Gregorio).

Good training and post-purchase support of QSR was also confirmed by another participant of the final stage of this study, Ester Haumann. She noted that 'in SA (South Africa) there are no real training programs. I have found QSR support very helpful with technical questions ... Dr. Lyn Richards was also very helpful in answering questions'.

5.5.2 Experience and Purposes of Software Usage

It is worth looking at the influence of qualitative and software experience on the purposes of software usage. Findings outlined in chapter four showed that the majority of companies, which use software for data coding and retrieval, perceive this purpose as the main one. This supports the findings obtained by Fielding and Lee (1998) also stated that an average user of qualitative software values the data management more than the theory building features of packages. The majority of examined companies with up to fifteen years qualitative research experience and up to five years experience using software in their practice stated that the only purpose of software usage was data coding and retrieval.

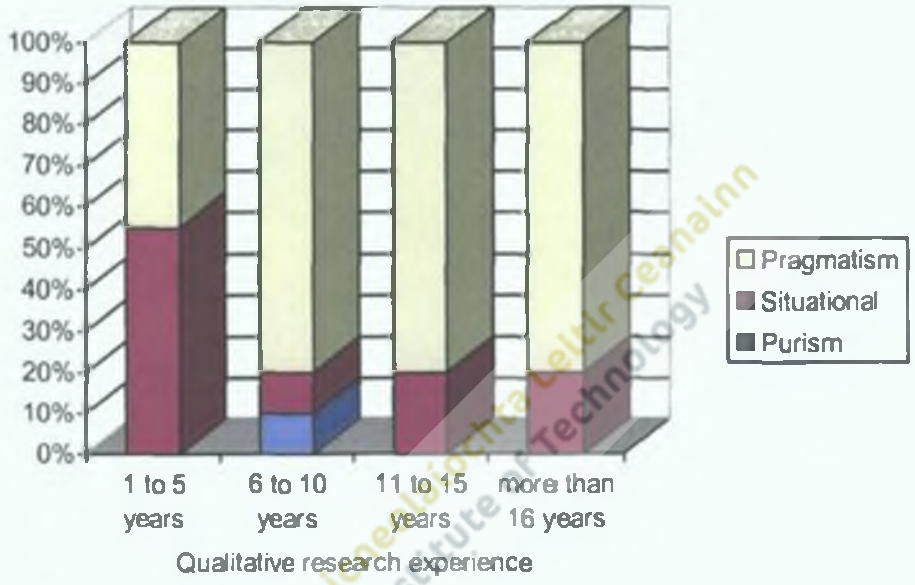
The perception of using software for theory building outweighed the actual use of qualitative packages for that purpose. It increased gradually with qualitative research experience. Companies with more than ten years software experience perceived that they should not use software for theory building. Some of them, however, actually used software for theory building. There was a noticeable shift towards software usage only for data management in the group of companies with the largest software experience.

5.5.3 Experience and Approaches Towards Methodological Convergence

Affiliation towards a pragmatic approach to methodological convergence was expressed by the majority of the respondents (65.8 percent). In contrast, only one company stated its support for purism. Figure 5.4 reflects the positive correlation between qualitative research experience and the percentage of companies, which

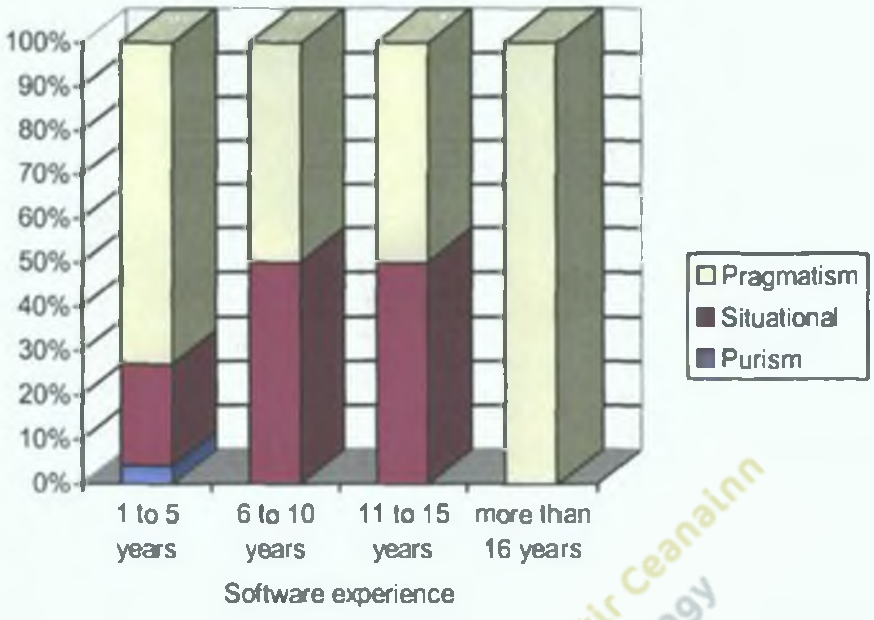
advocated pragmatism. Moreover, pragmatism appeared to be a dominant concept after five years research experience.

Figure 5.4: Cross-Tabulation of Approaches Used by Companies by their Qualitative Research Experience, (%)



Companies involved in software usage (Figure 5.5) pointed out their pragmatism in research design. However, companies with software experience ranging from six to 15 years supported a situational approach to the same extent as a pragmatic one.

Figure 5.5: Cross-Tabulation of Approaches Used by Companies by their Software Experience, (%)



Findings outlined above portray pragmatism as the major approach used by companies, affiliation to which increased with the rise of qualitative research experience. Researchers commented on the combination of different techniques in a project as 'value added'. Moreover, mixing techniques and paradigms is often regarded as a routine in market research companies (for example according to a survey participant 'most projects at the tourism research centre combine a mix of qualitative and quantitative research'). Interestingly, a combination of approaches was often associated with computer usage, where one may stimulate another.

> In the past we made extensive in-depth interviews, which was unstructured. In present times we have developed a semi-structured format which has most of the features of purely qualitative in-depth interviews, but which later allows analysis, using SPSS. We make use of qualitative pilot studies for most quantitative surveys. The IMW software is more designed to handle data, which needs to be condensed in advance by the researcher. We have used this rather more in situations where we are moving from a qualitative to a quantitative phase of research (a survey respondent).

The degree of methodological convergence and its suitability in projects was considered as being dependent on 'the projects objectives and outcomes, ... some clients want just facts and figures, while others want opinions, ideas and suggestions' (a survey respondent).

The examination of published projects revealed various types of triangulation used, including triangulation across methods, data researchers and respondents. Triangulation of methods within the qualitative approach (for example a combination of case studies and content analysis) was less frequently used than triangulation of data collection techniques. Data triangulation was found in nearly one third of all published projects. The most popular combinations of two data collection techniques included focus groups and in-depth interviews, in-depth interviews and observation, in-depth interviews and secondary data, focus groups and secondary data. Moreover, there were a number of projects with three or more techniques used in the study. Data were frequently collected from multiple sources and in multiple phases.

One of the most popular means of data source triangulation was represented by cross case studies or comparative case studies. It was noted that the main purpose of data triangulation in published projects was cross validation and enrichment of the final results. Researcher triangulation was found to be widely used in content analysis and coding, where interpretation of data by independent judges was followed by calculation of inter-judges agreement.

5.5.4 Experience and Attitudes Towards Software Usage

Companies who used software overall expressed satisfaction with their usage, which grew gradually after five years of software experience. Companies using software perceived the importance of the advantages of software use more highly than companies who did not use software. The average degree of importance of the limitations perceived by companies using software was lower than that expressed by companies who did not use software.

The overall importance of advantages was lower for the first five years of qualitative experience and then gradually increased. The overall importance of the disadvantages as perceived by companies increased in the first five years of qualitative experience and then stabilised.

The advantages that were perceived by companies as most important were data management facilitation, systematisation of research process and handling of qualitative data. As was noted in the literature, the value of qualitative software as a data management device in handling complex data should not be underestimated; 'it can take considerable effort to organise and keep track of data from multiple sources' (Fielding and Lee, 1998, p. 18). Ester Haumann, who participates in the final qualitative phase of the study, noted that the initial drive to use software for QDA the motivated by data complexity: 'now I am starting to do the actual analysis, it is helping me to think more systematically, and that frees me up'.

Companies with low qualitative experience perceive 'making the process more systematic' as being lower in importance than experienced companies and 'time saving' issues higher than experienced companies. The opinion of experienced companies coincided with the viewpoint of Miles and Weitzman (1995) who pointed out that computers do not save time, because of the increased learning time required and necessity to perform more complex tasks.

Time saving advantages were perceived to be less important by companies experienced in software use. Moreover, a long and steep learning curve appeared as one of the major barriers to applying software in commercial research. Philly Desia, participating in on-line AQR forum expressed the following opinion:

> I found that the learning curve was too steep – you really need to invest a lot of time to get the hang of it, which I never did. I found if like most commercial researchers you are only going to analyse and use your data once, the time it takes to set up is the same as the time you would have taken analysing it with a big piece of paper and coloured pens!

The issue of an excessively long learning curve preventing usage of software in commercial marketing research, was supported by Alistair MacLeod, director of the healthcare research specialist MacLeod and Associates, who pointed out:

> The learning curve required to get to know the tool is too long/steep for commercial research environments to permit ... The time it takes not just to learn it, but to apply it does not pay off (from client's point of view) in any clearly demonstrable way.

Timing issues were considered as one of the major barriers to software usage in commercial marketing research. Ann Lewins, responding to the open-ended questions posed in the 'QUAL-SOFTWARE' forum, expressed the opinion that the main reason for non-usage of software in commercial market research is the nature of the commercial environment, in which '[researchers] often needed fast turnover where interview or group data are not even transcribed'.

Perceptions of the value of advantages of software such as flexibility, credibility enhancement and facilitation of methodological convergence grew with software experience.

The main disadvantages perceived by all companies were distancing the researcher from the data, the danger of analysing qualitative data quantitatively and the reflection of methodological assumptions of software developers in packages, which may be accepted by researchers uncritically. The danger that software can reflect the methodological assumptions of programmers, and the assumption that software can not replace the human brain was ranked quite high by companies with software experience from six to ten years. This finding was supported by the opinion expressed by Alistair MacLeod in the AQR forum discussion:

> Each time I try to use, I got bogged down with worries; am I adapting my analysis to fit the software? Is my transcript good enough? Does not the good researcher spot the heart of the matter without focusing on the final details that NUD*IST constantly invites? Is the tool, in fact better suited to sociological research?

In the final stage of the study, however, it was found that researchers tended to choose a program, which reflects their methodological 'assumptions' and satisfies the project's requirements rather than uncritically accept the 'methods' incorporated into software. Thus, Ester Haumann noted:

> I had to use a qualitative method, because my research is about the nature and the meanings of experiences ... I chose a program that appeared user-friendly and compatible with the way I think ... The fact that I wanted to use grounded theory was the motivation for using N6 [NUD*IST 6], N6 also makes it easier to do grounded theory.

The danger of the loss of the process was perceived to be more important by researchers with longer qualitative experience, whereas the assumption that qualitative software may affect the process is a commonly held view by inexperienced researchers. Researchers with a higher level of software experience did not consider the above-mentioned limitations as being major. However, the fear that the package reflects methodological assumptions may be situation or package related. As was pointed out by a researcher who participated in the survey 'this does not seem to be the case with the packages I have mentioned'.

The fear that programs could affect the process, the danger of loss through fracturing data and distancing the researcher, and the danger of analysing qualitative data quantitatively were considered as minor disadvantages by highly experienced researchers who participated in the survey.

> Do programs affect the process? Yes they do. It is not a great disadvantage but neither is it any significant advantage in our experience ... The danger of loss through fracturing data. This is a minor disadvantage, I think with the IMW package. It is only likely to arise if the task is delegated to somebody other than the data collector ... Distancing the researcher from the data – really I see this as very similar to the previous point ... Analysing qualitative data quantitatively. Ironically, I do not see this as a major problem. I do not have any hang-ups about "counting heads' as a part of qualitative analysis. If quantification becomes the primary focus of qualitative analysis, that fact becomes very evident to the recipient of the results (a survey respondent).

This viewpoint was in accord with Weizman (2000, p. 816) who stated that qualitative software 'neither makes it [data] better nor worse, it simply changes it'. The low importance of the danger of analysing qualitative data quantitatively was supported by findings obtained by Caracelly and Greene (1993).

A growth was noted in the overall perceived importance of disadvantages with increased software experience. This might be an implication of the growing 'meta-cognitive shift' (in Gilbert's (1999) terminology) which is described as 'a highly reflective attitude toward software use [developed by experienced users] consciously assessing desirable and undesirable effects of different ways of working with it' (Gilbert, 2002, p. 8).

From the perspective of software-experienced researchers, the fear that the researcher may be tempted to skip over the process grew with the growth of software experience. This fear was raised by Fielding and Lee (1991), who considered teaching the use of programs and analytical techniques as a remedy. These findings were supplemented by comments obtained from a leading market research company in this study, who stated:

> I see this as a major potential problem area. It is one that we would be particularly nervous about. It raises the prospect of clients assuming that sophisticated analysis is being conducted. If the analysis is being done by inexperienced researchers, I fear it would be very damaging to the image and more importantly the quality of qualitative research (a survey respondent).

5.6 Investigation of Software Non-Usage

Evaluation of companies' attitudes towards qualitative software was limited by a lack of software experience and software awareness on the part of the companies. Thus, in additional comments the researcher admitted that 'not knowing specific packages means that I can not really comment on them'. A shortage of software knowledge and understanding often affected the researchers' attitudes and resulted in rather negative statements such as: 'I do not know about qualitative systems and dismiss it' or 'I have little or no confidence in software for qualitative research, but I have not seen such software'. Reluctance towards software use was a result of a lack of information. This was confirmed by the final phase participant Ester Haumann, who wrote: 'I found my supervisor to be quite reluctant that I was using it, but then he also knew nothing about it'.

Researchers who did not use software expressed rather negative comments on the role of qualitative packages in qualitative research. They stated that the usage of software is limited due to various reasons. Thus, 'usage of software in qualitative analysis is very limited in the Irish market. It is suited to American pseudo-qualitative mindset' or 'these tools are better suited to academic than commercial research'.

Dr Miriam Catterall, a participant of the final phase of this study, viewed the rejection of the software as flowing out of the nature of qualitative research. She pointed out

that a holistic approach to research could be achieved by repeated reading through the text with the different methodological settings in mind, until a satisfactory result. The natural way of undertaking a qualitative research is in considering the data as a whole rather than as a combination of parts. Therefore researchers oppose data fragmentation (as a necessary element of software analysis) and prefer to perform the analysis by the 'best computer in the world'.

'God feeling' type of analysis was criticised by Suzanne Colgan, the Marketing and Sales Director of CRMS Ireland (a participant of the final phase of the study), who viewed it as a non-scientific approach. Dr Catterall argued that professional qualitative researchers are highly intellectual people (normally obtain postgraduate level qualifications in social science and related disciplines) who excelled in performing high quality qualitative data analysis without use of computers. It should be noted, however, that the majority of researchers currently working in qualitative research completed their education more than fifteen years ago when software products were just starting to appear. The lack of software education and training available at that time might affect researchers' perceptions and attitudes towards software. Currently, there are a wide variety of available study programs offered by different third level institutions.

Another reason for the reluctance suggested by Dr. Catterall was the on-going paradigm war, where professional qualitative researchers (as purists in their approach) consider software analysis as something 'quantitative like'. Thus, they were unlikely to carry out mixed research projects or even perform their analysis by employing different qualitative traditions, preferring to work with one methodological technique.

Dr. Catterall noted that clients in commercial research normally have no interest in the applied methodology or software. The final report is primarily in the form of a small power-point presentation containing the major outcomes of the study. Therefore the clients usually do not encourage the researcher to use software or to elaborate on methodological design of projects.

Some researchers were convinced that qualitative software is not suitable for every day qualitative work. Thus, a survey participant stated that software can be used only 'for a major piece of qualitative work like a project with 240 in-depth interviews. For most qualitative work I did not see a role for it'. However, this statement was not supported by findings obtained from published projects. Although the average number of in-depth interviews in computer related projects (n=53) was higher than in all projects (n=33), they only ranged from 22 to 166 interviews. The majority of published projects, reported that the number of in-depth interviews collected was less than fifty. There were only three projects, where the number of interviews was more than 100. It was noted that researchers tend to estimate the volume of qualitative data by the number of words in an in-depth interview transcript or number of hours of in-depth interviews recorded. It was found that the average number of hours of in-depth interviews reported in projects was 38, which is nearly half the average number of hours stated in computer-related projects.

Although there is a clearly expressed rejection of qualitative software in the comments in questionnaires, researchers claimed to remain open-minded and ready to 'be convinced otherwise', 'if there is a package out there that saves time or allows for transparency'. Companies who use software are more constructive in their comments. Most of them indicate that they use software occasionally and only for specific purposes such as 'international comparative studies', 'moving from qualitative to quantitative phase of research', or to capture a 'focus group atmosphere'.

The effect of software experience was emphasised in Linda Gilbert's study, describing the highest level of software familiarisation as 'the meta-cognitive shift'. She noted that experienced researchers achieved closeness not only with their data, but also with the software program.

> The "meta-cognitive shift" relates to understanding and monitoring operations on the data performed with the assistance of QDA programs. It requires users to extend their meta-cognitive awareness to software processes as well as their own cognitive processes ... They also developed sophisticated strategies for verifying that the results of complex processes were in line with expectations. (Gilbert, 2002, p. 8)

To achieve 'the meta-cognitive shift' resulting in the most effective software usage, a researcher has to spend a great deal of time and effort learning program features and capabilities. However, a long and steep learning curve and the short-term nature of many qualitative projects precluded the investment to set up the software. Philly Desai (a participant of AQR Forum, 2001) suggested a solution by 'working with another researcher who was doing a portion of the fieldwork [coding] on a job I reported' or 'was coding it up for me'. On the other hand, Alistair MacLeod pointed out that the 'one-off' nature of qualitative projects could be changed if applying 'the very same computerised coding system' as in the previous projects' in order to diminish subjectivity of the research (AQR Forum, 2001).

The idea of limited appropriateness of QDA software for commercial market research was widely expressed in literature (Macer, 2002; Ereaut, 2002, Richards, 2002) and was supported by Ann Lewins in her reply to the open-ended questions posed by this study. She noted that 'the needs of market researchers are probably somewhat different to that of a social researcher (mostly to do with rate of turnover)'. This precludes researchers from using a package 'apart from Word processing application or possibly Excel'. Gill Ereaut (2002) expressed the idea that although packages were designed for academic purposes, they are probably suitable for commercial use if supported by commercial-specific manuals and training.

Chapter Six

Conclusions and Recommendations

Content

6.1 Introduction

The three phase study represents the investigation of research projects published in eighteen marketing journals over a ten year period, a survey of the Irish marketing research industry, and an in-depth exploration of the issues discovered during the first two phases. The research investigated the patterns in qualitative research design and methodology of published and commercial projects employing qualitative techniques and software applications. It also aimed to compare the research designs of projects carried out by qualitative software with projects undertaken manually. Finally, the study attempted to reveal marketing researchers' perceptions of QDA software and explored issues relating to software usage in marketing research. These included: purposes of software use; influence of qualitative research and software experience; and barriers to software usage.

The profile of published qualitative projects and qualitative projects undertaken by companies can be described as follows: projects were more likely to be undertaken in the areas of advertising, consumer research and buyer-seller relationships. The design of projects was primarily purely qualitative or preliminary qualitative; the collected data were in the form of in-depth interviews, open-ended questions or secondary data, and data were analysed by qualitative techniques such as case studies or content analysis.

A comparison of projects undertaken by qualitative software with all qualitative projects revealed a significant shift towards a higher level of methodological convergence in computer-assisted projects, which supports the idea of a higher degree of quantitativeness of projects undertaken by QDA software. Although the literature suggested otherwise, computerised analysis of focus groups was found to be quite popular in published projects and projects undertaken by companies. The overwhelming majority of companies used qualitative software for data coding and retrieval and perceive this purpose as key one.

Revealed patterns in published projects undertaken by software were summarised in Figures 5.6, 5.7 and 5.8. The models representing different types of research design showed three major areas of application of QDA software in qualitative projects: at data transformation stage, data coding and retrieval stage and theory building stage. It was noted that the complexity and timing issues of the data transformation stage were the main barriers to computerisation of qualitative projects. In the majority of projects, computer analysis was undertaken in order to facilitate coding and retrieval procedures. Finally, theory building was not found to be frequently facilitated by QDA software as a result of the highly interpretive nature of theoretical development.

Qualitative research and software experience were found to be of high importance for successful usage of QDA software. It was noted that good training and education can help to overcome the barriers preventing researchers from QDA software usage. The main values of QDA software, perceived by software-experienced companies are in process systematisation and data management facilitation. It was noted that although QDA software affects the research process, it is 'not a great disadvantage, neither is it any significant advantage'. The real danger perceived by software-experienced companies was in conducting a computerised study using inexperienced researchers, who may be tempted to skip over the process and perform 'quick and dirty' research. The previous chapter revealed the main reasons for the reluctance to use QDA software, including the on-going paradigm war and immerse nature of qualitative research, lack of information and poor marketing of QDA software particularly for the commercial research niche, the nature of the commercial environment and a long/steep software learning curve.

6.2 Conclusions

The findings can be combined into three major groups relating to: commercial researchers, QDA software, and the research projects. These are followed by an overview of existing conflicts preventing market researchers from using QDA software and a number of proposed remedies.

Research Projects

Qualitative projects (published and carried out by companies) were primarily purely qualitative or with a preliminary qualitative phase in mixed design studies. They were mostly undertaken in the areas of advertising, consumer research and buyer-seller relationships. Data for the majority of the projects, which was collected in the forms of in-depth interviews and open-ended questions, was analysed by case studies and content analysis.

A comparison of all qualitative projects with projects undertaken by QDA software revealed a shift towards a higher degree of methodological convergence in the software-assisted projects. The projects employing QDA software used a wider spectrum of qualitative data analysis techniques. Other findings were concerned with the suitability of the analysis software for dealing with focus group data and a higher degree of data source triangulation in computer-assisted projects.

The study revealed that more than half of all qualitative projects were converged, or in other words they used both qualitative and quantitative techniques and data in their designs. Furthermore, computer assisted projects appeared to be converged to an even greater extent. It was also found that the combination of qualitative and quantitative approaches was often associated with computer usage. However, it was not just the software which facilitated the process of methodological convergence (as was mentioned in the literature), but rather computer usage and a combination of the techniques stimulating one another.

The findings represented by Figures 5.6, 5.7 and 5.8 outline the main patterns in software-assisted qualitative projects and the place of QDA software in research designs. Discovery of project modes supported the idea of an emerging and 'methodologically homeless pattern analysis' and a shift away from 'methodological completeness' (Richards, 2002).

The study witnessed the continuing legitimacy of the less-structured analytical techniques and triangulation methods. Although the popularity of QDA software is growing, the resistance towards computer use in qualitative analysis was found to be very strong in commercial research.

The Researcher

Pragmatism in the mixing of qualitative and quantitative techniques was described as the major approach used by researchers, affiliation to which increased with software and research experience.

The unwillingness to perform qualitative analysis by means of QDA software resulted from:

- Poor awareness of software amongst commercial researchers
- Poor emphasis on the commercial market niche
- Consideration of QDA software as a means of 'quantification' paradigm intolerance
- The nature of qualitative research and reliance on the 'best computer in the world' (or human brain) in the analysis
- Commercial researcher education lacking QDA software training, which was not readily available in the past
- The commercial environment, which is characterised by high time pressures and the short-term nature of projects
- A poor reflection in QDA software of the requirements of commercial researchers (for example inadequate manuals and lack of user-friendliness on the part of QDA software).

In employing QDA software, market researchers were driven by the following:

- A desire to handle complex data
- A desire to systematise the process
- A perception of doing more scientific, systematic analysis
- Previous experience with quantitative software

- Specific objectives targeting software use
- Growing popularity and recognition of multi-method research design and QDA software

Findings indicated that the main purpose of software use was data coding and retrieval. The main perceived value of QDA software was in handling complex data and in process systematisation. Data complexity seemed to encourage researchers in dealing with software before they felt the necessity for data systematisation. For experienced researchers data complexity was mostly associated with varied rather than voluminous data and emerged as a result of data triangulation in project design.

Qualitative research experience and knowledge are of major importance for the successful utilisation of QDA software. This conclusion has emerged out of the following findings:

- The average researcher started using QDA software only after ten years research experience
- The necessity of joint instead of separate training in qualitative research and software use
- Concern expressed regarding inappropriateness of software usage by people who do not understand qualitative research.

QDA software knowledge and experience is crucial for an appreciation and proper use of the software. This idea flowed out of the following findings:

- A negative attitude on the part of inexperienced and poorly informed researchers towards software use
- A high level of satisfaction towards QDA software, expressed by experienced researchers
- A main potential problem in software usage emerged, when an inexperienced researcher performed low quality research, which from the client's perspective looked sophisticated
- A long/steep learning curve and the importance of good training/support for researchers in software choice

- Dissimilarities in software perceptions between experienced and inexperienced program users; conscious assessment of the advantages and limitations of software made by experienced software users.

It was revealed that effective use of software could be achieved only when the user reached the highest degree of software familiarisation through experience and training, termed as a 'meta-cognitive shift' (Gilbert, 2002). At this stage the researcher might even doubt the possibility of proper analysis without software.

QDA Software

It was found that qualitative software did change the research process. However, it was not a great disadvantage, but neither was it a significant advantage. Software did not save time, but made the qualitative process more systematic and transparent. It excelled in handling complex data and multi-method research design projects.

QDA software, which is mostly involved in academic, government, and social research, has limited usage in the commercial area. Thus, only 22 out of 504 investigated projects, published in marketing journals were undertaken by QDA software. At the same time, seven out of 38 Irish marketing research companies had ever used software in their practice. It was acknowledged that, in order to satisfy researchers' requirements, software ought to be re-represented and modified to reflect their needs. The question of whether to create specific QDA software for the commercial researcher or just adjust the manuals to their needs remains unanswered.

There were three major groups of software reported in published projects and named by the survey participants: NUD*IST, Statistical Software (SPSS) and standard Microsoft packages, and homemade packages. Although the study revealed the leading position and increasing popularity of NUD*IST, the presence of the other two groups could be evidence of QDA software immaturity. On the other hand, the on-going process of substitution of the homemade and standard packages by QDA software noted in the study, suggests increased CAQDAS recognition.

The major success factor for QDA software appeared to be high quality training and marketing of software products. It was also noted that the collaboration of professionals in qualitative research with computer specialists could bring fruitful results in software development. However, the study pointed out a lack of understanding of the requirements of commercial researchers and poor marketing of the software products in commercial areas.

It was found that software was employed only occasionally and primarily for specific purposes (such as international comparative studies, moving from the qualitative to quantitative phase of research, or capturing a focus group atmosphere). QDA software was mostly employed by research companies using mixed research design and was radically opposed by social researchers involved in traditional qualitative analysis.

6.3 Recommendations

The nature of the commercial environment of marketing researchers and the characteristics of the research process and software have become major sources of conflicts, making researchers reluctant to employ QDA software in commercial projects. Market researchers work under the continuous time pressure of the commercial environment. Commercial research projects are primarily 'one-off' in nature. Specific needs of commercial researchers are associated with highly focused objectives of research projects and a high rate of financial turnover. In this environment the following conflicts can take place:

- Dynamic commercial environment versus long/steep software learning curve
- Short term nature of commercial projects versus necessity to achieve a complete understanding of QDA software in order to use it effectively
- Focused/specific requirements of commercial research versus inadequate reflection on QDA software; poor software marketing and market immaturity
- Complexity of QDA software and qualitative analysis versus low emphasis on software education and training in the past

- Traditional reluctance of qualitative researchers towards software use in analysis versus a lack of methodological understanding of the new approaches in qualitative analysis
- A perception of QDA software as being linked with quantitative thinking and its 'avoidance on principle' by qualitative researchers versus positioning QDA software as a tool for coding and retrieval
- Wider usage of 'immerse style' (Spiggle, 1994) by qualitative market researchers versus CAQDAS facilitation of the 'editing style' in qualitative analysis.

Qualitative data analysis software while accepted by academics, remains primarily unused in commercial marketing research. The qualitative projects undertaken by means of CAQDAS were found to be more 'quantitative like' with a high degree of methodological convergence. QDA software is perceived as being linked with quantitative thinking, involving coding as a main element of data analysis. Although there is no direct connection between the grounded theory approach and QDA software, it was found that CAQDAS primarily facilitates an editing research style, focusing on data categorisation and the exploration of patterns and representing 'grounded theory' like analysis. However, the holistic (or immerse) style in qualitative research providing for intuitive exploration seemed to be a more popular analytical approach.

Another major reason for CAQDAS avoidance was found in the existing conflicts between the nature of the commercial market research environment and CAQDAS characteristics. Long and steep learning curves and the necessity to achieve a high level of QDA software familiarisation in order to use it successfully are major barriers to the commercial environment, characterised by significant time pressure and turnover.

During the decade under investigation it seems that no significant changes in CAQDAS usage have occurred, suggesting that software avoidance will not be overcome unless significant improvements in QDA software are achieved. The changes should allow the researcher to gain increased benefits compared to the costs

of software usage in order to overcome perceived 'quantitativeness' of the software and to find new areas where computers can help the researcher in qualitative data analysis.

Further research is recommended in order to understand the requirements and needs of commercial market researchers, to uncover methodological grounds for software usage in long-term projects in commercial research and to explore CAQDAS applications in international market research.

The study has implications for software producers and sellers, research methodologists and trainers and qualitative marketing researchers. Recommendations for these three groups are outlined below.

For software producers and sellers:

- An emphasis on user-friendliness in software, shortening the time needed for familiarisation with QDA software, producing specific manuals for commercial researchers
- Better marketing of software products, extending the market niche towards commercial marketing research
- Developments in data import/collection facilities, allowing for an immediately available electronic format of the data; avoiding the necessity of data transcription; emphasis on software dealing with different kinds of data
- Better understanding of the nature of commercial research projects as well as requirements of market researchers; designing software which serves a variety of established qualitative research traditions; overcome the perception of QDA software as being designed to facilitate only the grounded theory approach
- An orientation to software development facilitating less structured qualitative analysis and 'immerse style' in qualitative research

For research methodologists and trainers:

- Methodological developments in qualitative research encouraging long-term commercial projects, which allow for cumulative marketing knowledge of a particular business field and for spreading costs over a number of projects
- Methodological understanding of new approaches in research design and software usage, specifically ways of using computers for less structured qualitative exploration
- A shift towards combined qualitative research and software training and education

For qualitative marketing researchers:

- Adoption of the life-long learning approach, emphasis on training and on-going professional development
- An orientation towards long term usage of commercial projects
- An open-minded and pragmatic approach in dealing with new research techniques and methods; overcoming the perception of computerised qualitative analysis as being similar to quantitative coding and counting
- Understanding and dealing with the gap between commercial research traditions and styles and capabilities of QDA software; overcoming the perception of computerised qualitative analysis as being 'quantitative like' and firmly connected with editing analytical style and the grounded theory approach.

6.4 Research Reflections

The contribution of the study can be seen in adding new knowledge to the area of CAQDAS usage in marketing research, which has practical implications for software users and developers. Learning about qualitative research and CAQDAS has been enlightening and has increased my enthusiasm for qualitative research design and software usage. I started the dissertation with an affinity for quantitative research and have constantly developed a strong inclination towards qualitative enquiry. The reason for that is in its focus on an analysis of holistic settings, with attention to nuance, context and interdependence rather than to predication and control. At the

time of designing my primary research methodology I concentrated on utilising the strength of both qualitative and quantitative approaches. The two methods are not diametrically opposed, but rather complement each other, both making a strong contribution to knowledge, although from different perspectives. After the completion of the dissertation I felt, however, that my research could have been significantly enriched if I were more focused on the qualitative component. At this stage, however, I can only recommend further qualitative exploration of the issues outlined in the study.

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Appendices

Appendix (i)

Features of QDA Software

Package	Coding	Search and retrieval	Database management	Memmoing	Data linking	Matrix uilding	Network Display	Theory building	User friendliness
Metamorph	❑	•	❑	❑	✓	-	-	-	❖
Orbis b	❑	•	✓	❑	-	✓ -	-	-	❖
Sonar Professional	-	•	❑	✓	✓	-	-	❑	•
The Text Cllector	-	•	❑	-	-	-	-	-	•
WordCrunch	-	❖	❑	-	✓ -	-	-	-	o
ZylNDEX	-	•	❑	✓ -	✓ -	-	-	-	o
AskSam	-	•	✓ -	❑	✓ -	-	-	-	❖
Folio Views	✓	•	✓ -	✓ -	✓ -	o	-	-	•
Tabletop	-	❖	✓ -	✓ -	-	❖	-	✓	•
Max	✓	o	✓ -	-	✓ -	-	-	-	❖
Hyperqual	✓	o	✓ -	✓ -	✓ -	o	-	❑	❖
Kwalitan	✓	❖	❑	✓ -	✓ -	-	-	❑	•
Martin	✓	o	❑	✓ -	❑	-	-	-	•
QUALPRO	✓	o	❑	❑	-	-	-	-	❖
The Ethnograph	✓	❖	❑	✓ -	-	-	-	-	❖
AQUAD	✓		❑	✓ -	❑	❖		✓	❖
ATLAS/ti	✓	❖	❑	✓ -	✓ -	❖	•	✓	•
Hyperresearch	✓	❖	❑	-	-	o	-	✓	•
NUD.IST	✓	•	✓ -	✓ -	❑	•	❖	✓	•
QCA	-	o	-	❑	-	o	-	✓	o
Inspiration	-	❖	-	✓ -	✓ -	-	•	-	•
MECA	-	-	-	-	✓ -	-	-	✓	o
MetaDesign	-	o	-	❑	✓ -	-	•	-	•
SemNet	-	❖	-	✓ -	✓ -	-	•	✓	•

✓ Designed for this purposes

❑ Not really designed for this purposes

- Can't do this

• Strong

❖ OK

o Weak

- Absent

Appendix (ii)

Characteristics of samples journals and articles

Number	Journals	Abbreviation	Source	Issues examined	Articles Examined	Issues not available	Research Articles	Quant Articles	Qual Articles	% of Quant Articles	% of Qual Articles
1	Journal of Marketing	JM	ABI Electronic Library	40	423	0	198	159	39	80	20
2	Journal of Marketing Research	JMR	ABI Electronic Library	38	491	0	254	243	11	95.6	4.4
3	Journal of Consumer Research	JCR	ABI Electronic Library, European Business ASAP	38	367	0	296	247	49	83	17
4	Journal of Retailing	JR	First Search	36	207	1	120	101	19	84	16
5	Journal of the Academy of Marketing Science	JAMS	ABI Electronic Library, Library of University of Ulster	36	424	3	176	154	22	87.5	12.5
6	Marketing Science	MKS	Library of Dublin City University	36	242	2	32	29	3	91	9
7	Harvard Business Review	HBR	ABI Electronic Library	39	640	0	0	0	0	0%	0%
8	Journal of Business Research	JBR	Science Direct	58	547	27	374	316	58	85	15
9	Journal of Advertising	JA	ABI Electronic Library, European Business ASAP	38	255	0	202	134	68	66	34
10	Journal of Advertising Research	JAR	ABI Electronic Library	55	514	0	301	252	49	83.7	16.3

11	Industrial Marketing Management	IMM	Science Direct, Library of University of Ulster	55	494	0	260	199	61	76.5	23.5
12	European Journal of Marketing	EJM	Emerald Library	83	509	0	172	128	44	74.4	25.6
13	Journal of Consumer Affairs	JCA	European Business ASAP	19	320	0	122	114	8	93	7
14	Journal of Business	JB	ABI Electronic Library	39	207	0	207	207	0	100%	0%
15	Sloan Management Review	SMR	ABI Electronic Library	39	653	0	46	18	28	39	61
16	Journal of Marketing Education	JME	AIB Electronic Library	4	32	25	18	14	3	84	16
17	Journal of International Business Studies	JIBS	ABI Electronic Library, European Business ASAP	38	413	0	237	213	24	90	10
18	Journal of Personal Selling and Sales Management	JPSSM	ABI Electronic Library	38	328	0	125	107	18	85.6	14.4
		Total		729	7066	58	3140	2636	504	84	16

Appendix (iii)

Questionnaire

1. Has your company ever used any type of qualitative research in its practice? ☐ YES ☐ NO

Go to question 7

2. How long has your company been practicing any qualitative marketing research? ☐ Years

3. How often, if ever were the following types of design used?
[*Please, tick all appropriate*]

	Never Used	Used Occasionally	Used Regularly
Pure qualitative research project(s)	❑	❑	❑
Preliminary qualitative stage(s) followed by the dominant quantitative stage(s)	❑	❑	❑
Equal in status qualitative and quantitative stages in one project with separate data collection and data analysis for each stage	❑	❑	❑
Combined design: qualitative data coded for further quantitative analysis (e.g., content analysed textual data used for further statistical analysis)	❑	❑	❑
Hybrid research design: simultaneously employing qualitative and quantitative techniques in data collection (e.g. questionnaire contains open-ended and structured questions) followed by separate data analyses	❑	❑	❑
Other	❑	❑	❑

Please, specify _____

4. How often have the following types of qualitative data been used in qualitative research practice in your company?
[*Please, tick all appropriate*]

	Never Used	Used Occasionally	Used Regularly
Focus groups	❑	❑	❑
In-depth interviews	❑	❑	❑
Open-ended questions	❑	❑	❑
Textual data from secondary sources (e.g., magazines, newspapers, company reports, etc.)	❑	❑	❑
Visual data from secondary sources	❑	❑	❑
Observational data	❑	❑	❑
Other	❑	❑	❑

Please, specify _____

5. How often have the following types of qualitative data analysis been used in qualitative research in your company?
[*Please, tick all appropriate*]

	Never Used	Used Occasionally	Used Regularly
Content analysis	❑	❑	❑
Grounded theory approach	❑	❑	❑
Qualitative comparative analysis	❑	❑	❑
Coding secondary data	❑	❑	❑
Case studies	❑	❑	❑

Other	❑	❑	❑

Please, specify_____

6. Has your company ever used software for qualitative data analysis?

☐ YES (Go to question 9) ☐ NO

7. Are you aware of any software packages for qualitative data analysis?

☐ YES ☐ NO ***Go to question 15***

8. If YES what package are you aware of?_____

_____

Please, answer questions 9 –14 only if you have ever used software packages for qualitative data analysis in your research practice. Otherwise, go to question 15.

9. Please, indicate name of the packages and length of their usage in your qualitative research practice.

Software package	Length of usage (years)	Software package	Length of usage (years)

10. What types of qualitative data have been analysed by the software
[*Please, tick all that apply*]

	Never Used	Used Occasionally	Used Regularly
Focus groups	❑	❑	❑
In-depth interviews	❑	❑	❑
Open-ended questions	❑	❑	❑
Textual data from secondary sources (e.g., magazines, newspapers, company reports, etc.)	❑	❑	❑
Visual data from secondary sources	❑	❑	❑
Observational data	❑	❑	❑
Other	❑	❑	❑

*Please, specify*_____

_____

11. What types of analysis have been undertaken by the software?
[*Please, tick all appropriate*]

	Never Used	Used Occasionally	Used Regularly
Content analysis	❑	❑	❑
Grounded theory approach	❑	❑	❑
Qualitative comparative analysis	❑	❑	❑
Coding secondary data	❑	❑	❑
Case studies	❑	❑	❑
Other	❑	❑	❑

Please, specify _____

_____

12. In which marketing areas have you/your company undertaken the qualitative projects? [Please, tick all appropriate]

- ☐ Consumer behaviour
- ☐ Organisational behaviour
- ☐ Advertising
- ☐ International Business
- ☐ Retailing
- ☐ Other [*Please, specify*]
- ☐ Marketing services
- ☐ Sales Management
- ☐ Buyer-seller relationships
- ☐ Chain management
- ☐ Companies' culture

_____

13. Please indicate the degree of your overall satisfaction with the software you have used.

Not satisfied 1 2 3 4 5 Completely satisfied

Please, comment on your experience of the software usage _____

_____

_____

14. Please, indicate if you have ever used software for ant of the following purposes.

☐ Only for data management ☐ For data coding and retrieval ☐ For theory building

☐ Other [*Please, specify*] _____

15. What do you think is the most important purpose of software usage in qualitative data analysis? [*Please, tick one only*]

☐ Only for data management ☐ For data coding and retrieval ☐ For theory building

☐ Other [*Please, specify*] _____

16. To what extent, if any, do you feel the following represent advantages of using software for qualitative data analysis?

	No advantage	Minor advantage	Major advantage
Facilitates data management	❑	❑	❑
Handles complex qualitative data	❑	❑	❑
Makes the procedure more systematic	❑	❑	❑
Allows for flexibility	❑	❑	❑
Allows for revisions	❑	❑	❑
Saves time	❑	❑	❑
Facilitates the process of methodological convergence between qualitative and quantitative techniques	❑	❑	❑
Enhances creditability by making the analytical process more scientific	❑	❑	❑

Allows for transparency in the research	❑	❑	❑
Other	❑	❑	❑

Please, specify _____

17. Please rate the importance of the following disadvantages of using software for qualitative data analysis?

	No disadvantage	Minor disadvantage	Major disadvantage
Computer programs affect the process of qualitative research	❑	❑	❑
Computer programs can't replace the brain of skilled qualitative practitioner	❑	❑	❑
Computer programs reflect methodological assumptions of the software developers, which may be uncritically accepted by software users	❑	❑	❑
Danger of loss of the process through fracturing data	❑	❑	❑
Computer use may distance the researchers from their data	❑	❑	❑
Computer may tempt a researcher to skip over the process of the study and to do "quick and dirty" research	❑	❑	❑
Using software might encourage researchers to analyse qualitative data quantitatively	❑	❑	❑
Other	❑	❑	❑

Please, specify _____

18. Which of the followings best reflects your attitude to combining qualitative and quantitative techniques in one research project?
    - ❑ Purism (the techniques should not be mixed; difference between qualitative and quantitative approaches should be respected and maintained for sound research design)
    - ❑ Situational approach (combined methods may be complementary as well as contradictory)
    - ❑ Pragmatism (researcher should take whatever seems adequate from each research methodology for better research design)
    - ❑ Other [*Please, specify*] _____

19. Any other comments?

Thank you very much for your participation!

Appendix (iv)

On-Line Questionnaire

Dear all,

I have recently joined the Forum and would be very pleased for any assistance you can give me. I am in the final stage of my two-year MBS research programme titled 'Exploring IT Applications for Qualitative Data Analysis' at Letterkenny Institute of Technology. The study aims to investigate practice and patterns in using qualitative data analysis techniques and computer aided qualitative data analysis software. In the first phase of the research I have examined more than seven thousand articles representing 18 leading marketing journals over a period of 10 years. In the next phase, eighty-eight Irish market research companies were surveyed (a response rate of 52% was achieved). The results provided a profile of published projects and projects carried out by companies and an evaluating of companies attitudes towards qualitative software.

However, lots of questions still remain unanswered. As research professionals working with qualitative software, you are the best people to address these outstanding issues to. I will be very grateful if you could find time to respond to any of them. Please, e-mail me at Elena.Bezborodova@lyit.ie with your comments or for further details and clarifications. Your participation is highly appreciated. Thank you all for your help in this matter!

1. It was identified that there is a shift toward a higher degree of methodological convergence in research projects where analytical software is used. Do you agree with the opinion that computers can facilitate the process of methodological convergence? Will the development of computer technology lead to the emergence of new methodologies, or does it just allow for doing thing simply better rather than differently (i.e. cannot lead to emergence of converged methodologies)?
2. There is an increase in the number of projects affiliated to the qualitative approach and converged design. How would you comment on that?

3. What factors do you think encourage researchers in employing qualitative software? Which one has a greater influence: data attributes (i.e. handling data complexity) or process attributes (i.e. facilitating process systematisation). Are there other drivers?
4. Research pointed towards differences in perception of qualitative software between:
    - Respondents with more versus less experience in qualitative research
    - Respondents with more versus less software experience

   How would you comment on that?
5. It was found that software is employed occasionally (in specific circumstances and on certain stages of analysis) rather than regularly. How would you comment on that? Is this a proper pattern in software use or just an interim stage in development of qualitative software usage?
6. The study revealed that researchers not using software expressed rather negative comments on the role of qualitative packages in qualitative research. They stated that the usage of software is limited due to various reasons. On the other hand, companies who used software expressed overall satisfaction with usage. Why do you think the reluctance towards software use exists?

   Thank you very much.