A GROUNDED THEORY FOR RESEARCH SYNTHESIS OF SELECTED DISTANCE EDUCATION LITERATURE

A dissertation presented to

the faculty of

the College of Education of Ohio University

In partial fulfillment

of the requirements for the degree

Doctor of Philosophy

Tsang-yao “Polo” Chen

June 2005

This dissertation entitled

A GROUNDED THEORY FOR RESEARCH SYNTHESIS OF SELECTED DISTANCE EDUCATION LITERATURE

BY

TSANG-YAO "POLO" CHEN

has been approved for

the Department of Educational Studies

and the College of Education by

Rosalie Romano

Associate Professor of Educational Studies

James L. Heap

Dean, College of Education

CHEN, TSANG-YAO "POLO." Ph.D. June 2005. Instructional Technology

A Grounded Theory for Research Synthesis of Selected Distance Education Literature

(180pp.)

Director of Dissertation: Rosalie Romano

The purpose of this investigation was twofold: 1) in conducting a research synthesis of distance education research studies using grounded theory methodology, this investigation derived a grounded theory from the distance education literature synthesized; and 2) in order to apply grounded theory for research synthesis, a procedure to coalesce grounded theory and research synthesis methods was developed.

Distance education programs have proliferated during this past decade along with the advancement of new technologies. The distance education research community, in the meantime, has sought for better understandings of the field and called for more theoretical explorations to further the field of study. Within these efforts is a line of research which reviews distance education research journal articles to arrive at better understandings about distance education.

Research synthesis, as a family of research methods with diverse theoretical and procedural inclinations, is the analysis of analyses. Research synthesis serves various purposes; one of them being synthesizing primary research studies into more general and theoretical conclusions. With the attempts in creating approaches for research synthesis, however, there is no well-recognized method for including both qualitative and quantitative research studies in one research synthesis effort.

Yin (1991) suggested that grounded theory can be used to conduct the research synthesis of multivocal literature. This investigation aimed for realizing that proposal and used the field of distance education literature as the target of synthesis.

Resulted from this investigation were 1) a substantive grounded theory for distance education as a field; and 2) a procedure for applying grounded theory for purpose of research synthesis. With much of the endeavor putting into synergizing grounded theory and research synthesis, this investigation has been more a journey on methodological discovery than on distance education research.

Approved:

Rosalie Romano

Associate Professor of Department of Educational Studies

Dedication

For my parents, brothers and sisters who gave me the freedom I wanted and the wings I needed to fly high; especially my sister Li-Hua Chen (陳麗華), for her abiding love, encouragement, and support.

and

For my wife Yueh-hsia Chang for the love, the greatest personality, and greatest sense of humor, and the wise whispers that made this long journey seem possible.

Table of Contents

List of Figures

CHAPTER ONE: INTRODUCTION

Personal Statement

The idea of this investigation started in 2001 when my doctoral program advisor Dr. Sandra Turner invited me to write a grant proposal for an Ohio Link Network funded distance learning research grant. The idea then was to conduct a meta-analysis of research literature in Web-based distance learning. With a common interest in qualitative research methodology, we ended up with a qualitative meta-analysis proposal using grounded theory approach to conduct the synthesis. We didn't get the grant but the research experience was wonderful. The grant proposal later on became my proposal for this dissertation.

The original idea of using grounded theory to conduct a qualitative meta-analysis, however, has been modified and expanded during the process of this exploration. The thought of qualitative meta-analysis was elevated to a different level of research synthesis. While in search of a research tool, there were no existing research procedures to follow. The decision was then made to create one as part of this investigation. The use of Yin's (1991) brief proposal of using grounded theory for research synthesis was adopted. The target content area of distance education was preserved but the realm of research synthesis was added to reconcile with grounded theory for the making of a protocol to conduct a grounded theory for the purpose of research synthesis.

In this investigation Chapter Two is a literature review of literature reviews in distance education while the literature in distance education is used as data for grounded

theory development. The result of such investigation and the process is what I call Grounded Theory for Research Synthesis or GTRS.

Since much of this research endeavor has been put into the methodological exploration to synergize research synthesis and grounded theory, this investigation has become more a journey on methodological discovery than on distance education research. With the developmental nature of this attempt to apply grounded theory for research synthesis, there were many confusions and struggles while I strived to reconcile these two research methods, which can be seen along the text flow.

Background of the Study

Teaching and learning at a distance has had a long history as part of the educational industry. Early documented distance education in the form of correspondence education program can be traced back to as early as 1830s (Holmberg, 1995, p. 3). In the United States, the first correspondence program was created at the University of Chicago in the late 1800s (McIsaac & Gunawardena, 1996). One historical observation on distance education is its relationship with the development of technology. Over time, distance education has evolved along with the development of communication technologies, which it uses to deliver instruction. Moore and Kearsley (2005), for example, identified five generations of distance education in parallel to the evolution of technologies: correspondence/home, broadcast radio/television, open universities using combined approaches, interactive teleconferencing, and the current generation of online-based classes.

Early distance education programs primarily used self-instructional text combined with communication in writing between students and instructors (i.e., correspondence) (Holmberg, 1995, p. 3). With the development of radio during World War I and television in the 1950s, instructional activities outside of the traditional classroom started using radio and television to deliver instruction at a distance. One of the early efforts is the Wisconsin's School of the Air (McIsaac & Gunawardena, 1996). The establishment of the British Open University in the United Kingdom 1970 marked the beginning of the use of technology to supplement print-based distance education courses (Holmberg, p. 80, p. 202; McIsaac & Gunawardena, 1996, p. 404). As a large-scale distance education program, outside of traditional educational systems (Holmberg, p. 7), Open University was established as an innovation in contrast to the university-affiliated small-scale distance education systems (Holmberg, p. 7). With the use of technology and the later successful expansion as an independent educational system, the British Open University became a benchmark in the history of the development of distance education (Open University, 2005, ¶1-2).

During the last decade, distance education has further made significant strides. The advancement of communication technologies and the development of the World Wide Web in the early 1990s (Zakon, 2003) have drastically changed the way distance education programs are implemented and how they are perceived by the people that use them.

The latest development of Internet technology has given choices of tools to distance educators: synchronous and asynchronous communication, connections anytime or anywhere, increasingly sophisticated video and audio streaming, interactive

technologies, learning management systems, etc. This development offers distance educators a wide range of possibilities for actively engaging students in the process of learning. It has thus presented educators a new and ever-increasingly popular system that might reconstruct traditional models of learning and education.

The Distance Education Phenomenon

The exponential growth of distance learning options has made a new phenomenon out of the old industry of education. More and more educational institutions, public or private, have chosen to teach and learn online. Postsecondary education institutions are the most interested in developing distance education programs. On the other hand, the private sector has also contributed to the expansion of distance education.

The Condition of Education 2004

Distance education has kept its pace of growth in recent years. According to The Condition of Education 2004 report by the National Center for Education Statistics (Livingston & Wirt, 2004), out of 4,130 postsecondary education degree granting institutions, 56% of these institutions were offering distance education courses in year 2000-2001, which was up from 34% 3 years earlier. For public institutions, 90% of 2-year and 89% of 4-year institutions offered distance education courses. The total number of enrolled students in the 2000–2001 academic year was 3.1 million, an increase from 1.7 million in 1997-98. Those institutions that offer degree programs designed to be completed entirely externally have also increased from 22% to 30% from 1997-98 to 2000-2001.

Sloan Consortium

The growth trend of distance education programs has also been reported in other reports. Sloan Consortium, for one, has conducted consecutive surveys on distance education. According to their survey of 994 responding (out of 3,033) degree-granting higher educational institutions in the United States, their survey statistics confirmed the expansion trends of distance education at the postsecondary level.

In their 2002-2003 survey, the following figures were released:

- Over 1.6 million students took at least one online course during Fall 2002.
- Over one-third of these students (578,000) took all of their courses online.
- Among all U.S. higher education students in Fall 2002, 11% took at least one online course.
- Among those students at institutions where online courses were offered, 13 % took at least one online course.
- The number of students taking at least one online course is projected to increase by 19.8% over the one-year period from Fall 2002 to Fall 2003, to include a total of 1.9 million students. (Allen & Seaman, 2003)

One year later, Sloan Consortium released their consequential report of *Entering the Mainstream: The Quality and Extent of Online Education in the United States, 2003 and 2004*. The 2003 online enrollment projections have been realized. They further added "there is no evidence that enrollments have reached a plateau" (Allen & Seaman, 2004, p. 1). Online enrollments continue to grow at rates faster than for the overall student body, and schools expect the rate of growth to further increase:

- Over 1.9 million students were studying online in the fall of 2003.
- Schools expect the number of online students to grow to over 2.6 million by the fall of 2004.
- Schools expect online enrollment growth to accelerate — the expected average growth rate for online students for 2004 is 24.8%, up from 19.8% in 2003.
- Overall, schools were pretty accurate in predicting enrollment growth — last year's predicted online enrollment for 2003 was 1,920,734; this year's number from the survey is 1,971,397. (Allen & Seaman, 2004)

K-12

In addition to the expansion of distance education in postsecondary institution, there is also a corresponding growth of distance education at the K-12 level. According to a 2002-2003 national survey on public schools by the National Center for Education Statistics, one-third of public school districts have students enrolled in distance education courses, which is 5,500 out of 15,040 public school districts. It is estimated that 8,200 public schools had students enrolled in distance education programs, which represents approximately 9 percent of public school nationwide. As for course offering, 38% of high schools overall were offering distance education courses in various subjects of study (Setzer & Lewis, 2005).

As part of the education horizon, distance education has had a long history of development. One distinct characteristic in the development of distance education is that it parallels with the technologies available for the delivery of teaching and learning at a

distance. The advancement of the Internet technologies after 1990's has brought about the rapid growth and made distance education a phenomenon in the old industry of education.

Statement of the Problem

Along with the abundant expansion and development in distance education programs, there comes along the proliferation of research literature. A significant concern, however, has been raised by many distance educators as the field prospers over time; the need for more understanding of and theoretical development for the field of distance education. As Schlosser and Anderson (1994) reported after a review of theoretical development of distance education, "The development and study of distance education has been hampered by the lack of a generally accepted theory of distance education" (p. 13). Other distance education researchers have also found that the lack of a theoretical framework in distance education research has become a common problem among distance education literature (e.g., Anglin & Morrison, 2000; Garrison, 1993; McIsaac & Gunawardena, 1996; Phipps & Merisotis, 1999; Saba, 2000; Schlosser & Anderson, 1994).

To address this issue, some researchers have long strived to provide a clearer vision for the development of distance education. Holmberg (1987), for example, after reviewing the research literature in distance education, proposed that research in distance education be divided into eight areas:

1. Philosophy and theory of distance education
2. Distance students, their milieu, conditions and study motivations

3. Subject-matter presentation
4. Communication and interaction between students and their supporting organization (tutors, counselors, administrators, other students)
5. Administration and organization
6. Economics
7. Systems (comparative distance education, typologies, evaluation, etc.)
8. History of distance education (p. 20)

Major researchers in distance education, however, have expressed their concerns over the research of the field long after Holmberg gave his proposal. Garrison (1993) expressed a concern that the lack of theoretical investigations might compromise the development of distance education as a discipline. Garrison (1993) warned distance education researchers with the following conclusion:

> If distance education is to continue to develop as a field of study, then theoretical frameworks will have to be developed that recognize and reflect the differences between the dominant and emerging paradigms—not to artificially create a polarization but to ensure that in the complex world of practice decisions are made with awareness as to the ideals we are striving towards. (p. 20)

Schlosser and Anderson (1994), after reviewing various distance education theories, indicated "the development and study of distance education have been hampered by the lack of a generally accepted theory of distance education" (p.13). Similarly, Saba (2000) stated that there is an "absence of theory" in the traditional distance education research. Saba therefore encouraged theory building in distance learning and argued that

research should go beyond experimental methods to use new methods of inquiry such as discourse analysis for theoretical advancement.

McIsaac and Gunawardena (1996) stated “much research has taken the form of program evaluation, description of individual distance education programs, brief case studies, institutional surveys, and speculative reports” (p. 421). They indicated that “literature in the field reveals a conceptually fragmented framework lacking in both theoretical foundation and programmatic research” and that the lack of “a strong base in research and theory” has caused distance education to have “struggled for recognition by the traditional academic community” (p. 406).

In their review of contemporary research on the effectiveness of distance education, Phipps and Merisotis (1999, p. 6) criticized that the overall quality of the research in distance learning needs improvement. They stated that one of the problems with contemporary research in distance education in higher education is that studies did not include a theoretical or conceptual framework (Phipps and Merisotis, 1999, p. 27). They pointed out that this issue of the lack of theoretical components is one of the gaps in distance learning research that requires further investigation.

Saba (2000) also indicated that traditional distance education studies are mostly comparative studies and the “research questions are rarely posed within a theoretical framework or based on its fundamental concepts and constructs” (p. 2). He argued that “although research within a theoretical framework is not a requirement for inductive inquiry, a post facto theoretical discussion of research results would be helpful in making studies relevant to the work of other researchers, and possibly even to the practitioners in the field (Saba, 2000, p. 3).

Anglin and Morrison (2000), after conducting a literature review of 1991-1999 on two distance learning journals, indicated that "Much of the research is not theory-based and many of the results of the reports are not generalizable" (p. 193). They called that, "distance education is a multi-faceted endeavor. ... In order to go beyond developing "pockets" of knowledge concerning distance education, significant additional theory-building must occur" (p. 193). They concluded that "learning at a distance is rapidly becoming a way of life. There is a significant need for the development of distance education theories and programs of research based on the theories" (p. 194).

Moore (2001), the director of The American Center for Study of Distance Education and editor of The American Journal of Distance Education, further pointed out that the quality of distance education research is declining because "most of what is being reported is atheoretical; it is not linked to what is already known" (¶ 41). Moore (2001) stated:

> There is an awful lot of confusion about the theory, about the conceptualisation of distance education, and it is causing considerable problems with regard to both public policy and research. As a basis for public policy, the confusion among those who gather the data on which public policy is based sometimes means that public policy is based on incorrect data. (¶ 39)

As Garrison (2000) put, "theoretical frameworks and models are essential to the long-term credibility and viability of a field of practice" (p. 1). He reviewed significant theoretical contributions to distance education to assess the theoretical challenges facing the field of distance education. However, as Garrison (2000) wrote, "The challenge is to

provide theory that will explain and anticipate distance education practices for a broad range of emerging educational purposes and experiences" (p. 1).

The lack of commonly recognized theoretical and conceptual frameworks, as cited above, is a problem for distance education as a field of study. Over this past decade, researchers have consistently called for theory development or theoretical framework for distance education to further advance the field of distance education. The conceptualization and theorization of distance education, as Moore (2001) indicated, has implications at both research and policy levels, and therefore is worthy of more attention and research devotion.

The calls for more theoretical development have not been answered at least by the researchers who have published in the distance education journals. For example, Lee, Driscoll, and Nelson (2004) conducted a review of four major journals[1] in distance education from 1997 to 2002. The results showed that there are only a total of 383 articles published for the four journals for these 6 years in review. Among these 383 articles, only 78 (20%) are categorized as theoretical inquiry[2] in the research method classification. With the light total volume of published studies and the low percentage of theoretical inquiry, the distance education journals are "thin," physically and theoretically.

Although distance education has become a rapidly growing phenomenon during the past two decades, the theoretical understanding and development has been left behind while the practice continues. Given the various theories proposed (e.g., see Garrison,

[1] They are: The American Journal of Distance Education (USA), Journal of Distance Education (Canada), Distance Education (Australia), and Open Learning (UK).
[2] Lee, Driscoll and Nelson define theoretical inquiry as "a theoretical review of literature and conceptual study for proposing new ideas in distance education" (p. 228).

2000), the lack of more theoretical explorations has hampered the further development of distance education as a discipline.

Purposes of the Study

There are many ways to add knowledge and theoretical understandings to a field of study. One research endeavor to serve this purpose is to review and synthesize what the researchers in the field have done, and to generate knowledge and understanding for the implication of further development of the field[3].

The first purpose of this study is to conduct a research synthesis of the field of distance education using a grounded theory approach. By using contemporary literature as the data source, this study will synthesize the existing distance education research in order to achieve a better understanding in terms of the theoretical perspectives of distance education.

The research method of grounded theory[4] is known to be extremely valuable in developing theories ranging from very local concepts to formal grounded theory. Grounded theory methodology can be used to identify themes and develop theories. The use of grounded theory for research synthesis, however, is a new methodological attempt. The second purpose of this investigation therefore is to develop a research protocol for using grounded for research synthesis as an advancement in both fields of grounded theory and research synthesis.

---

[3] It can be argued that, since the most distance education research studies are atheoretical in nature, it would be logically not plausible to synthesize them into knowledge. However, the purpose of this synthesis investigation aims for "generating" rather than simply "aggregating," which is a feature of grounded theory.

[4] Grounded theory method, grounded theory approach, grounded theory methodology, grounded theory are often interchangeable terms for referring to the research methodology and methods of grounded theory. The result of a study that employs grounded theory research process is a "grounded theory" as a theory "grounded" in data.

Significance of the Study

As Keegan (1993) said, "A theory of distance education … can provide the touchstone against which decisions about distance education can be taken with confidence" (p. 1). Theories (or theoretical perspectives) are the artificial device/lens to help us see things clearly. Without a good body of theoretical investigations, distance education will not be able to further its development.

This study attempts to add understandings to the nascent theoretical development in the field of distance education. As part of the efforts in theoretical exploration in the discipline, this study aims at becoming a steppingstone for advancing theoretical work in the future.

For researchers in distance education and other fields of research community, this study will contribute to the development of the protocol of using grounded theory approach for research synthesis. Currently, research synthesis methods have their limitations. For example, there is not a well-recognized research synthesis method for synthesizing heterogeneous literature. This study will be a methodological exploration in the area of using grounded theory for research synthesis.

For practitioners, as more theoretical issues are explored, the better their daily practices can be guided. Theories serve as the base to organize programs and, therefore, have critical implications for practitioners in the field of distance education. This study will contribute to the theoretical understandings that underlie distance education practices.

For policymakers, theoretical foundations provide guidance for decision-making. As Moore (2001) said, theory is a basis for public policy. Without a sound theoretical development to lead solid research, the policy-making may be misguided and decision-making compromised. This investigation will contribute to the foundational issues of theoretical exploration and research methodology and thus could add to the foundation of distance education research.

Methodologically, the exploration of using grounded theory for research synthesis could benefit researchers in both grounded theory and research synthesis. The nature of this study would provide an example for the synergy of the two. For grounded theorists, this study will be an extended piece of grounded applications. For researchers interested in research synthesis, this study would provide a new protocol for conducting research synthesis.

Delimitations and Limitations of the Study

First, for economic and manageability reasons, this investigation will not have a comprehensive coverage of the distance education literature. With the focus of this research on theoretical understanding and methodological exploration, information from distance education journals will be the major source included in this current study.

Secondly, distance education has evolved congruently with the available delivery technologies. The recent rapid expansion of distance education has been perpetuated along with the development of the new Internet-related communications technologies since the 1990's. Given that the development of distance education is contextual to the evolution of new technologies, this study will use the contemporary distance education

research literature published after the 1990's as the primary source to reflect the recent development of the field.

Third, although distance education has become a global movement (McIsaac & Gunawardena, 1996), the barriers in language and accessibility still exist. For the reason of accessibility, this study will limit the coverage of literature to English language only.

Fourth, the use of grounded theory for research synthesis is a new attempt with no exiting research protocol to follow. There will be related methodological issues to be clarified during this investigation and areas of concern that will need to be addressed after the completion of this study.

CHAPTER TWO: CRITICAL REVIEW OF THE LITERATURE

This chapter includes the review of distance education literature in three areas of study: 1) research synthesis, 2) grounded theory methodology, and 3) exemplar research synthesis works in distance education as a field[5] to provide the context for the proceeding of this investigation.

Research Synthesis

From the viewpoint of research synthesis, there are two types of research: primary research and research synthesis. Research synthesis is a fundamental activity in many fields of study to understand what have been done in the field of study.

What is Research Synthesis?

Research synthesis is, as Rogers (1985) pointed out, "the synthesis of primary research results into more general conclusions at the theoretical level"; and that "the essence of meta-research [research synthesis] is research on research, the analysis of analysis" (p. 14).

It has been emphasized that research synthesis is of importance as a research activity. Glass (1978) stated that, "Determining what knowledge this enterprise has produced on some equation is itself a genuinely important scholarly endeavor" (p. 351).

[5] Literature in distance theories and theoretical development will not be subject to critical review for the purpose of this study is to use grounded theory approach to generate theoretical understandings of the field of distance education. In grounded theory generation, how existing related research literature should be used is an issue. Glaser and Strauss (1967, p.251-257) suggested the use of existing theory as a source of insight for discovering theory but cautioned about that covering too much literature could hinder the generation of grounded theory. Glaser (1998) said later that "do not do a literature review in the substantive area and related areas where the research is done" and that literature could come for constant comparison during sorting and writing up of the grounded theory (p. 67).

Rogers (1985) also said that "An essential activity for any scientific field is to generalize from empirical data to higher levels of abstraction" (p. 14). He argued that research synthesis should receive more scientific emphasis.

Several terms are usually used to convey the idea of research synthesis and sometimes are used interchangeably. Although they might possess theoretical and methodological variations and take different forms and research approaches, they share the prominent characteristic of synthesizing primary research studies. Examples of the terminology include literature review; research review (Light & Pillemer, 1982); research integration (Carlberg & Walberg, 1984); integrative review (Jackson, 1980); meta-analysis (Glass, 1976); metasynthesis (Sandelowski, Docherty, & Emden, 1997); meta-research (Rogers, 1985), systematic review (Cook, Sackett, & Spitzer, 1995); and qualitative meta-analysis (Schreiber, Crooks, & Stern, 1997).

The activity of research synthesis is constantly conducted in most research studies (Weed, 2005, ¶1). When a primary research study includes a section of literature review as the background of the study, a piece of research synthesis effort is included there. When the researcher refers back to the prior studies in his/her results section of the study, a synthesis is furthered in the study. However, this type of basic research synthesis activity usually lacks the systematic procedures to be regarded as an individual prominent research activity.

What is Research Synthesis for?

Jackson (1980) outlined four primary purposes for doing a research synthesis:

1. To appraise new development in a field.

2. To verify existing theories or develop new ones.
3. To synthesize knowledge from different lines of research.
4. To infer generalizations about substantive issues from a set of studies directly bearing on those issues. (p. 438)

Cooper (1988) also listed the goals of research synthesis as including:

1. Integration
    a. Generalization
    b. Conflict resolution
    c. Linguistic bridge-building
2. Criticism
3. Identification of central issues (as cited in Cooper & Hedges, 1994)

As Suri (1999, 2000) pointed out, within social sciences a single study is rarely able to provide a generalizable and definitive answer to a research question given the limitations on sampling characteristics and control of the environment. The comprehensive investigation of an area, therefore, may require a combination of a number of individual studies. The progress of knowledge then may be achieved by recognizing the general trends and underlying principles across a large body of empirical studies.

Another need for review of research comes from the inconsistency of findings from different research. As Davies and Crombie (2001) pointed out, in a single area, it is not unusual to find a large number of research publications. Many of these studies, however, give “unclear, confusing or downright contradictory results” (p. 2). When research publications are seen individually, each research may offer little insight into

effectiveness. It is hoped that when taken together, a clearer and more consistent picture will emerge.

In the educational researcher community, the need for research synthesis has increased because of the 1) new computerized research literature databases, 2) newly developed qualitative techniques (meta-analytical methods) for research synthesis, and 3) the need for researchers and policymakers to stay informed of new developments in their areas of study (Cooper, 1982).

How is Research Synthesis Done?

Davies & Crombie (2001) outlined a general process of research synthesis (which is referred as systematic review):

1. Defining an appropriate question
2. Searching the literature
3. Assessing the studies
4. Combing the results
5. Placing the findings in context.

Cooper (1982) outlined five stages of research synthesis as a research process:

1. Problem formulation
2. Data collection
3. Data evaluation
4. Analysis and interpretation
5. Public presentation (as cited in Cooper & Hedges, 1994, p. 8)

The general process of doing research synthesis is not so much different from conducting a primary research. It is the goals of the methods to summarize, aggregate, integrate, synthesize, verify and develop, which makes research synthesis a unique school of research methods.

The Importance of Research Synthesis

The importance of research synthesis, as discussed by Davies & Crombie (2001), shows where research synthesis is in terms of the different levels of research. They listed a "hierarchies of evidence" and placed research synthesis on the top of the hierarchies:

I–1 Systematic review of several double-blind randomised control trials.

I–2 One or more large double-blind randomised control trials.

II–1 One or more well-conducted cohort studies.

II–2 One or more well-conducted case-control studies.

II–3 A dramatic uncontrolled experiment.

III Expert committee sitting in review; peer leader opinion.

IV Personal experience. (p. 4)

With some cautions, Davies and Crombie (2001) recognized the value of research synthesis in discussion of the hierarchies as: "this reflects the fact that, when well conducted, they should give us the best possible estimate of any true effect." (p. 4)

Research synthesis, as the research of researches, aims at accumulating existing primary research to generate new knowledge. Research synthesis, therefore, is an essential part of research to advance knowledge in any field of study. There is, however, a variation of approaches towards conducting a research synthesis. Each method of

research synthesis has its own tradition or theoretical orientation and is not without weaknesses and criticisms.

Methods of Research Synthesis

Traditional Narrative Review

Narrative review is the most traditional form of research synthesis. Traditionally, it has been practiced in most research projects. Literature reviews have been conducted in a less systematic way. The traditional narrative review type of research synthesis has been under criticism for it's not being thoroughly systematic. Wood (2000) dismisses these reviews as pseudo-synthesis and state that, while not valueless, they "are really a little better than annotated bibliographies" (p. 416).

Narrative reviews are conducted constantly by many researchers. In most research publications, a section of literature review is utilized to provide the background of the research. It is when researchers take a step further to conduct narrative reviews to present an overview of the literature that makes it a more formal type of research synthesis effort than being part of a primary research. The quality of a traditional narrative review of literature, however, has been in question, as it is often subject to the researcher's bias and the review methods are rarely, explicitly described. Usually, the questions are raised around the methods about how studies are selected, assessed and integrated given they are usually implicit and not presented in traditional narrative review type of research synthesis (Davies & Crombie, 2001).

Meta-Analysis

Since the results of traditional reviews can be seen anecdotal and therefore less satisfactory in terms of rigour in methodology, researchers have come up with different approaches to achieve a more objective research synthesis.

Gene Glass introduced the term "meta-analysis" in 1976 to refer to a philosophy that the literature review should be “as systematic as primary research and should interpret the results of individual studies in the context of distributions of findings, partially determined by study characteristics and partially random” (Bangert-Drowns & Rudner, 1991, ¶5). As Glass (1976) said, “Meta-analysis refers to the analysis of analyses...the statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings” (p. 3). Meta-analysis was later developed into a collection of statistical procedures with variations in research foci (including voting-counting, effect size, Homogeneity, and psychometric) to integrate data from independent studies addressing the same hypothesis (Bangert-Drowns & Rudner, 1991, ¶9-15). In summary, Moore (1999) provided an overview on meta-analysis and stated that, in meta-analysis, a collection of independent studies is statistically analyzed to test the same hypothesis and synthesize results across studies.

Meta-analysis is considered to have an advantage over traditional reviews because traditional reviews are often unsystematic and the criteria for including studies are usually, poorly specified (Moore, 1999; Slavin, 1986). Therefore, meta-analysis is often referred to as systematic review, (e.g., Cook, Sackett, & Spitzer, 1995; Davies & Crombie, 2001; Khan, Daya, & Jadad, 1996) as opposed to the traditional narrative

review which tends not to address the procedural issues explicitly in the review. Further, meta-analysis (or systematic review) emphasizes the importance of applying "scientific strategies that limit bias to the systematic assembly, critical appraisal, and synthesis of all relevant studies on a specific topic" as a "systematic review that employs statistical methods to combine and summarize the results of several studies" (Cook, Sackett, & Spitzer, 1995, p. 167).

Davies and Crombie (2001) discussed some characteristics of systematic reviews which include:

1. Systematic reviews are superseding narrative reviews as a way of summarizing research evidence.
2. Systematic reviews attempt to bring the same level of rigour to reviewing research evidence as should be used in producing that research evidence in the first place.
3. High-quality systematic reviews take great care to find all relevant studies published and unpublished, assess each study, synthesize the findings from individual studies in an unbiased way and present a balanced and impartial summary of the findings with due consideration of any flaws in the evidence.

Some aspects that are worth noticing in the development of meta-analysis include:

4. Meta-analysis is an effort to make research synthesis more systematic.
5. Bias is considered as a problem to be addressed in meta-analysis.
6. Later development of meta-analysis methods emphasizes the selective inclusion of studies to stress the significance of the quality of primary research studies.

Meta-analysis methods are well-established and are widely used, yet they are not without critics. Eysenck (1984), for example, suggested that the claimed inclusiveness and objectivity of meta-analysis are not supported by evidence. Eysenck contended that Glass and his associates' method of meta-analysis is an abuse of research integration. Meta-analysis, according to Eysenck (1984), is not able to take into account the complex factors of a good scientist's judgment and argued"no pseudo-objective computerized technique can substitute for the scientific insight and theoretical acumen of the investigator" (p. 41).

Glass (2000) cited two criticisms of meta-analysis after its 25 years of establishment by himself: "The Apples-and-Oranges Problem (¶21)" and "The 'Flat Earth' Criticism (¶27)." The former one refers to the heterogeneity of primary studies and the later one questions the essential existence of fundamental effect of the primary studies. Davis and Crombie (2001, p.7) pointed out the "GIGO" (garbage in, garbage out) principle in referring to the quality of primary studies would affect the results of the meta-analysis research synthesis.

Failing to include qualitative primary studies can be another pitfall of meta-analysis. A noticeable limitation of quantitative meta-analysis is that it cannot be used to take into account the qualitative studies (Hossler & Scalese-Love, 1989). Qualitative research has emerged as a strong trend of research methodology in social sciences in the past two decades, and many researchers have felt the need to include qualitative studies when conducting research synthesis. With qualitative research methodologies gaining ground in social science research, a research synthesis method would not be complete

without being capable of including and synthesizing the huge share of qualitative research in a contemporary research community.

Qualitative Meta-analysis

As Davies and Crombie (2001) said, the major goal of research synthesis is to combine the findings from individual studies to produce an aggregate or bottom line of the studies. The quantitative technique of meta-analysis is usually applied, but such aggregation can be qualitative as well.

The synthesis of qualitative studies is sometimes called qualitative meta-analysis. There have been efforts in developing approaches for the research synthesis of qualitative studies. However, there are not well-recognized methods for synthesizing qualitative primary studies as compared to meta-analysis for quantitative research studies (Woolard, 1997). In contrast with the well-developed and described techniques in quantitative research synthesis (the meta-analysis methods), relatively little attention has been paid towards integrating qualitative findings (Sandelowski, Docherty, & Emden, 1997).

The efforts in synthesizing qualitative studies, on the other hand, have been titled with different terms and associated with different research methodological orientations. For example, Noblit and Hare (1988) proposed meta-ethnography for the synthesis of ethnographic research; Rogers (1985) developed a "propositional inventory" approach of qualitative meta-analysis to synthesize quantitative primary research, and Sandelowski, Docherty, and Emden (1997) took an overview on the issues of qualitative meta-analysis while calling it "qualitative metasynthesis" and defined it as: "the theories, grand narratives, generalizations, or interpretive translations produced from the integration or

comparison of findings from qualitative studies" (p. 366); while Schreiber, Crooks, and Stern (1997) coined "qualitative meta-analysis" and proposed it to be used for theory development.

Turner (1997) proposed a typology for qualitative research synthesis. In his typology, there are three components under the umbrella of qualitative research synthesis: secondary analysis, meta-analysis, and collaboration. Turner further defined qualitative meta-analysis as: "An analysis of the results or original data from multiple studies. The inductive integration of interpretive studies (published or unpublished) so they may be reduced, compared and translated as a way of synthesizing knowledge" (p. 5). For Turner (1997) and Sandelowski, Docherty, and Emden (1997), qualitative meta-analysis is to synthesize knowledge by integrating qualitative studies.

Some qualitative meta-analysis studies have been conducted to integrate qualitative studies (e.g., Caraballo-Olivera, 1994; Stall-Meadows, 1998; Woolard, 1997) as Turner (1997) proposed what qualitative meta-analysis should be; others included only quantitative studies (DeWitt-Brinks & Rhodes, 1992). Some researchers, however, have included both qualitative and quantitative studies (Hossler & Scalese-Love, 1989).

The variations in the approaches for synthesizing qualitative studies reflect qualitative research as a broad approach to the study of social phenomena drawing from multiple methods of inquiry as discussed by Marshall and Rossman (1999) and Bogdan and Biklen (1998).

Best-Evidence Synthesis

Slavin (1986) proposed a best-evidence synthesis method as an alternative to meta-analysis and traditional narrative review and in the meantime tried to preserve the merits of both. Slavin (1986) combined the use of effect size from meta-analysis and systematic study selection procedures from quantitative syntheses; while paying "attention to individual studies and methodological and substantive issues typical of the best narrative reviews" (p. 5).

With the concept of "best evidence", Slavin proposed four criteria for including studies:

1. The germaneness of the topic of research synthesis: The definition of the topic has to be explicitly described.
2. Methodological adequacy of studies: The researcher must evaluate the quality of the research methods in the primary studies to minimize bias.
3. The external validity should be valued at least as highly as internal validity.
4. To mention the best designed studies excluded from the synthesis to give the reader a more concrete idea about the exclusion.

Slavin (1986) argued that the inclusion of data being synthesized should be based on the principle of "best-evidence." A set of criteria must be established to decide what studies should be included or excluded. Slavin also suggested some modifications on the computation of effect sizes. To use the strength of narrative reviews in the best-evidence synthesis, Slavin (1986) also proposed that after presenting the results of study characteristics and effect sizes, there should be a literature synthesis session. In that

session, “intelligent, critical examination of the literature” (p. 10) should be conducted, critical studies be discussed, and important conceptual and methodological issues be explored.

Slavin (1986) suggested a general format for best evidence to be presented. The presentation steps included can also show the process of a best evidence synthesis:

1. Introduction: could include an introduction to the area being synthesized; definition of key concepts and terms; and previous literature, especially previous reviews and meta-analyses.
2. Methods: primarily a discussion of how studies are selected for inclusion, might include three sub-sections:
    a. Best-evidence criteria
    b. Studies selected
    c. Studies not selected
3. Literature synthesis: including a table of study characteristics and effect sizes and discussion of related issues.
4. Conclusions.

Although the use of meta-analysis as the base, Slavin has made some important contribution by introducing the idea of “best-evidence” synthesis and the mechanism of data selection such as external validity.

Propositional Inventory

Instead of using statistical analysis for quantitative research, Rogers (1985) suggested the use of propositional inventory to qualitatively synthesize quantitative

studies. Propositional inventory is "based on synthesizing the verbal conclusions of primary research but not the original quantitative data on which these scientific publications are based" (Rogers, 1985. p. 22).

In a propositional inventory, descriptive narratives given in the primary research are coded using the following guidelines:

1. Determine the criteria for inclusion in the meta-analysis, and search the literature for all possible primary sources;
2. Include studies that support and reject the proposition being studied;
3. Report competing propositions,
4. Display the qualitative data in word tables;
5. Include a description of the degree of support indicated by the primary research;
6. Describe the method used in the meta-analysis;
7. Indicate the results of the primary research;
8. Include a critical review of the primary research;
9. Define the unit of analysis in the smallest terms possible; and
10. Analyze as many qualities of the primary research as possible. (DeWitt-Brinks & Rhodes, 1992, p. 6-7)

Rogers (1985) proposed propositional inventory for research synthesis of primary research studies, with the emphasis on generating "more general conclusions at the theoretical level" (p. 14). Rogers suggested the use of a "word table" of propositions drawn from primary research studies to conduct a content analysis. DeWitt-Brinks and

Rhodes (1992) conducted a qualitative meta-analysis[6] using Rogers's (1985) guidelines to synthesize 24 empirical studies on listening instruction. The propositional inventory is a "qualitative meta-analysis" of quantitative studies. Rogers (1985) saw it as complementary to quantitative meta-analysis and urged the cautious use of the results of meta-research.

Grounded Meta-Analysis

Although there have been discussions on qualitative meta-analysis (e.g., Sandelowski, Docherty, & Emden, 1997; Popay, Rogers, & Williams, 1998), few researchers have proposed operational guidelines for conducting qualitative meta-analysis.

In one study in which research literature was subject to grounded theory process, Hossler & Scalese-Love (1989) used a coding sheet to conduct their coding. Hossler and Scalese called their approach grounded meta-analysis and they developed a set of guidelines for using grounded theory as a "metaphoric context (p. 9)" for research synthesis. Stall-Meadows (1998) then adopted this approach and conducted a grounded meta-analysis on distance education pedagogy. Stall-Meadows (1998) took four qualitative doctoral dissertations and conducted coding and analysis with each dissertation. The categories and themes were identified from each dissertation and integrated. Seven hypotheses were generated from the integration and presented in the format of "Under these conditions this happens; whereas under these conditions, this

[6] For DeWitt-Brinks and Rhodes (1992), qualitative meta-analysis denotes the "non-quantitative synthesis" of quantitative primary studies; rather than the synthesis of qualitative primary studies. In their research, only quantitative studies were synthesized using Roger's (1981/1985) propositional inventory (word tabulation).

happens" (p. 63). These hypotheses were related to distance education instructors' behavior. For example, hypothesis 1 is:

> Under conditions where faculty view teaching at a distance positively, they believe the most important benefit is serving students in remote locations; whereas under conditions where faculty view teaching at a distance negatively, they believe the main drawback is the lack of face-to-face communication with students. (p. 64)

Hypothesis 7 is:

> Under conditions in which faculty teach at a distance, they rely more heavily on support personnel, such as peer coaches, computer experts, technicians or students at receiving sties; whereas when faculty teach in a traditional, fact-to-face classroom, they are more likely to work autonomously.

Hossler and Scalese-Love (1989) developed a procedure for research synthesis using their grounded meta-analysis. With the procedures they developed, both qualitative and quantitative studies were included in their research synthesis of organizational cultures.

The proposal of a procedure using grounded theory for research synthesis is one of the contributions to the field of research synthesis. Hossler and Scalese-Love (1989) described their grounded meta-analysis as including five elements:

1. Developing an open-ended survey or coding instrument that is revised as synthesis proceeds
2. Coding both quantitative and qualitative information in a similar fashion to permit comparisons of findings across studies

3. An overlapping process of gathering the sample (the studies reviewed), coding information, and analyzing the data
4. Evaluating each study in terms of quality and excluding low-quality studies
5. Using a research team and peer debriefers to assure consistency of analysis and objectivity of results. (p. 9)

Another noticeable feature of Hossler and Scalese-Love's (1989) grounded meta-analysis for research synthesis is the use of a team approach. By using a research team as a forum, they intended to address the issue of subjectivity in narrative review. They also noted that grounded meta-analysis is able to answer the "what?" and "why?" questions, while quantitative meta-analysis only seeks to answer the "what?" questions.

However, their effort in trying to develop a procedure is not without drawbacks. One of the foremost problems for Hossler and Scalese-Love's (1989) grounded meta-analysis procedure for research synthesis is the claim of grounded theory, yet not being able to follow some of the fundamental principles of grounded theory methodology.

The first noticeable issue in Hossler and Scalese-Love's (1989) study is the use of a pre-constructed coding instrument. They stated that they "prepared a preliminary survey instrument to track relevant information about each study, and in the course of the study, made three major revisions and several minor ones" (p. 10). For grounded theory, the coding categories are suggested to emerge from data during the coding process. With the use of a pre-constructed instrument, this grounded meta-analysis has compromised the open coding mechanism in grounded theory in which main categories are supposed to emerge during the open coding process.

In regard to research synthesis, Hossler and Scalese-Love (1989) also failed to address the issue of their data collection procedure. They addressed the data collection procedure by stating that "…the data collection process itself is open-ended" (Hossler & Scalese-Love, 1989, p. 10). As for meta-analysis or systematic review methods, it is suggested that the data collection procedure needs to be described.

Based on Hossler and Scalese-Love's (1989) grounded meta-analysis method, Stall-Meadows (1998) conducted a research synthesis of distance education pedagogy from four doctoral dissertations. Although Hossler and Scalese-Love's (1989) grounded meta-analysis approach reflected the essence of grounded theory, it should be noted that they were not concerned with theory development, which was the original purpose of grounded theory. The research team approach, although it has the strength of reducing subjectivity, makes this method harder for individual researchers to use.

The purpose of Hossler and Scalese-Love's (1989) study, as stated in their article, is that their study is not aiming for the development of a new theory. Instead, the research was aimed at examining two sets of knowledge claims. This is viewed as a compromise to grounded theory; since grounded theory was designed to discover or construct theories rather than verifying existing theories. For grounded theory, prior theories are suggested to serve as a source of providing insights (Glaser & Strauss, 1967, p.253) when generating grounded theory, rather than being used for verification of existing theories.

With the absence of basic grounded theory principles, Hossler and Scalese-Love created a set of guidelines for systematically synthesizing research literature (including both quantitative and qualitative) but what they have depicted is not grounded theory.

Yin's Proposal

Grounded theory (Glaser & Strauss, 1967)[7] was originally proposed for generating grounded theories. Yin (1991) proposed that grounded theory methodology has the same characteristics and strengths as a robust research synthesis since grounded theory:

1. Is designed to perform theory-building and identify emerging categories about a substantive topic.
2. Emulates normal science and therefore possesses the notion of rigour in review.
3. Applies to evidence collected in a library or evidence collected in the field or both.
4. Emphasizes qualitative data, because of the focus on identifying emerging categories. (Yin, 1991, p. 303)

As responding to Ogawa and Malen's call for rigour in research synthesis of multi-vocal literatures with an exploratory case study method, Yin contended that grounded theory has all the features needed to reach rigour in the synthesis of multi-vocal literatures.

Yin's proposal was inspiring, yet it did not have many followers. Although Yin recognized and pointed out the value of grounded theory for research synthesis, not too much attention was paid to grounded theory by the research synthesis community.

[7] In this investigation I will draw heavily on the 1967 book of Glaser and Strauss "The Discovery of Grounded Theory: Strategies for qualitative research" since, as Juliet Cobin (2004), the co-author of Basics of Qualitative Research (1990, 1998) said in an interview: "There are now many versions of the method and other than the fact they all share a desire to build theory from data, I don't know exactly what they have in common" (¶ 17).

Section Conclusion

The development of research synthesis methods shows that, in response to the original traditional narrative review form of research synthesis, researchers in research synthesis have pursued rigour by promoting more systematic research methods[8]. The preceding description of research synthesis methods developed after traditional narrative review, all emphasize explicit procedures and discussing conceptual issues such as data inclusion and bias.

Research synthesis is the analysis of analyses and could provide invaluable information to the field of study. Therefore, research synthesis, as the integration and abstraction of primary research studies, is placed high on the research hierarchies (Davies & Crombie, 2001, p. 4). Davies and Crombie (2001), however, also considered the possible drawbacks of research synthesis:

1. Synthesis can be bad in quality just as primary research
2. Inappropriate aggregation of studies
3. The discrepancy between research synthesis results and high quality primary research studies (p. 4)

Although Glass (1976) and Rogers (1985) have called for more attention to research synthesis, not much effort has been devoted into the development of research synthesis methods. For example, long after the proliferation of qualitative research in social science, the inclusion of both qualitative and quantitative in one research synthesis

[8] For example, Cooper and Hedges (1994, p. 6-7) reviewed the development of research synthesis after 1980s and concluded that "[t]he process of elevating the rigor of reviews is certain to continue into the twenty-first century" (p. 7).

still presents some problems. With the capacity of contributing invaluable information to the research community, research synthesis is in need of more research.

Grounded theory, as Yin (1991) proposed, has embedded rigour and the emulation of scientific process. Grounded theory, as a robust and popular research methodology, could have the potential to advance research synthesis.

Grounded Theory Methodology

It is said that "there is nothing more practical than a good theory." However, according to Thomas (1997), there is little consensus about the meaning of theory in educational literature. Boyd (1993) stated "a good theory is predictive, heuristic, economical, understandable, and largely coherent with existing scientific knowledge".

Lynham (2000) reviewed the literature and found out that there was a lack of definitions of theory building. Lynham also found that theory building can have different meanings, depending on one's view or definition of theory. Lynham (2000), therefore, defined theory building as "the process or recurring cycle by which coherent descriptions, explanations, and representations of observed or experienced phenomena are generated, verified, and refined" (p. 162).

Lynham's (2000) description of theory building reflects the essence of grounded theory building. Grounded theory, presented by Glaser and Strauss (1967), is a tool for the creation of grounded theories to generate, verify, and refine theory from social phenomena through a set of iterative techniques.

Grounded theory has become a prominent qualitative research method since its introduction in 1967, and it has been widely used in conducting research in various areas.

For example, a keyword search on August 10, 2003 querying “grounded theory” in the UMI ProQuest digital dissertation database yielded a result of 3,802 entries while the keyword “qualitative research” yielded 4,710 entries.

Grounded theory, as Yin (1991) proposed, has the potential of contributing to the development of research synthesis. According to Yin, grounded theory is designed to perform theory-building and identify emerging categories about a substantive topic; it emulates normal science and therefore possesses the notion of rigour in review; it applies to evidence collected in a library or evidence collected in the field, or both, and emphasizes qualitative data, because of the focus on identifying emerging categories. All these characteristics make grounded theory a viable tool for conducting rigorous research synthesis.

So What Is a “Grounded Theory,” Anyway?

A grounded theory is usually a description of a set of conceptual categories (or propositions) and the relations among the categories. The generation of grounded theory is strictly drawn from data. In other words, grounded theory is “grounded” in the data it is derived from.

Grounded theory is a research method. Grounded theory was proposed by Glaser and Strauss (1967) as a “general method of comparative analysis” for the discovery of theory from data (Glaser & Strauss, 1967, p. 1). In addition to being a research method, grounded theory is coined as a methodology: “Grounded theory is a research methodology and a set of research methods” (Strauss & Corbin, 1998, p. 9)”.

Grounded theory belongs to the qualitative research school of methodologies. Strauss and Corbin (1990) stated: "the grounded theory approach is a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon" (p. 24). Definitively, grounded theory is the product (the generated or discovered theory) of grounded theory methodology.

Since the theory discovered from data using grounded theory methodology is also called grounded theory, to differentiate the product from the process, grounded theory as a research approach is sometimes referred to as "grounded theory method," "grounded theory methodology" or GTM.[9]

Strauss & Corbin (1998) stated that grounded theory is "theory that was derived from data, systematically gathered and analyzed through the research process" and , in grounded theory process, "data collection, analysis, and eventual theory stand in close relationship to one another" (p.12).

Grounded theory is "grounded" in data and, therefore, reflects the reality as to when data is authentic. As Strauss and Corbin (1998) said: "Theory derived from data is more likely to resemble the 'reality' than is theory derived by putting together a series of concepts based on experience or solely through speculation (how one thinks things ought to work)" (p.12).

Grounded Theory and Qualitative Research

Grounded theory is an approach for doing qualitative research as made evident from the title of Glaser and Strauss' 1967 book of "*The discovery of grounded theory:*

[9] For example, Barney Glaser (1994) edited a book of grounded theory applications titled More Grounded Theory Methodology: A Reader. Susan R. Sherman (1994) wrote a book chapter: Commentary: Grounded Theory Methods - Applications and Speculations.

Strategies for qualitative research." Grounded theory is one of the methodologies[10] for conducting qualitative research[11] (Denzin & Lincoln, 1994). As one of the qualitative methodologies, grounded theory shares some attributes with general qualitative methods. According to Bogdan and Biklen (1998) and Merriam (1998), these attributes include:

1. Philosophical view: Reality is constructed by individuals interacting with their social worlds
2. Naturalistic approach: Use of actual settings (fieldwork) as the direct source of data and the concern in context
3. Descriptive data: Qualitative data tends to be collected in text or graphic forms and are not reduced to numerical forms for analysis
4. Concern with Process: Qualitative researchers are concerned with the process rather than just outcomes or products.
5. Inductive: Data in qualitative research tends to analyze inductively. Instead of seeking to prove or disprove prior hypotheses, abstractions are built by grouping the gathered information.
6. Meaning: Qualitative researchers are often concerned with the participants' perspective and how they interpret their worlds.
7. Researcher as the research instrument: Qualitative researchers are usually the major research instrument for qualitative data collection and analysis

---

[10] Here I use the definition of Bogdan and Biklen (1998) on method and methodology: that "methodology" is a more generic term that refers to the general logic and theoretical perspective for a research project; whereas "methods" is a term that refers to the specific techniques in use, such as surveys, interviews, observation –the more technical aspects of the research (p. 31-32).

[11] Denzin and Lincoln (1994) provided instructions on major qualitative inquiry paradigms and approaches. The paradigms listed include: constructivism and interpretivism, critical theory, feminism, ethnic studies, and cultural studies. The approaches included: case studies, ethnography and participant observation, phenomenology and ethnomethodology, grounded theory, biographical method, historical social science, participative inquiry, and clinical research.

The difference between grounded theory and other approaches in the qualitative research family of a variety of methodologies is the sole aim for creation of theory. As Merriam (1998) pointed out:

> As is true in other forms of qualitative research, the investigator is the primary instrument of data collection, and analysis assumes an inductive stance and strives to derive meaning from the data. The end result of this type of qualitative research is a theory that emerges from, or is "grounded in, the data—hence, grounded theory. (p. 17)

Characteristics of Grounded Theory Method

Grounded theory, as one of the of qualitative research methodologies, has some distinctive features. Grounded theory:

1. Is a research methodology and a set of research methods (Strauss & Corbin, 1998, p.9).
2. Aims to create theory as the result of the study; which distinguishes it from other qualitative methods.
3. Emerges from the data (and thus "grounded).
4. Aims for the generation rather than verification of theory.
5. Is a "middle range" theory in between everyday knowledge and "grand" theory.
6. Is conceptual: grounded theory is a construct of conceptualizations from data rather than just description of data.

Mechanisms of Grounded Theory

Glaser and Strauss (1967) illustrated grounded theory with an emphasis on two procedures: theoretical sampling and constant comparative method. Theoretical sampling describes the joint process of data collection, coding, and analysis. Glaser and Strauss (1967) defined theoretical sampling as “the process of data collection for generating theory, whereby, the analyst jointly collects, codes, and analyzes the data and decides upon what data to collect next and where to find it, in order to develop the theory as it emerges” (p. 45).

Two important mechanisms are involved with theoretical sampling: selection of groups and theoretical saturation. In theoretical sampling, groups of a substantive area are selected for comparison to generate categories and properties. This selection is guided by the need of theoretical development, i.e., in accordance with the groups' theoretical relevance. Theoretical saturation, on the hand, denotes the stage where the grounded theorist can deduce that no additional data collection can further develop a category. Theoretical saturation is when the researcher stops theoretical sampling on a category.

It is to be noted that theoretical sampling is about the emerging categories rather than verifying with an external theory. As Glaser (1978) put, "Theoretical sampling is ... used as a way of checking on the emerging conceptual framework rather than being used for the verification of preconceived hypotheses” (p. 39).

On the other hand, in grounded theory development, constant comparative method is the procedure that the researcher uses to compare incidents to categories, integrating categories and their properties, delimiting the theory, and writing the theory. Constant

comparison analysis is the process by which incidents are compared to generate and suggest categories, properties, and hypothesis (Glaser & Strauss, 1967).

The constant comparative method and the coupled theoretical sampling are the center of the technical mechanisms. As Kerlins (1998) said, "Theoretical sampling and constant comparison reflect cyclical processes which are fluid and flexible, but at the same time, they ensure that the analysis is planned, rather than haphazard, and well grounded in the data" (¶27).

Conceptual Nature of Grounded Theory

Glaser and Strauss (1967) discussed the elements of grounded theory generated by the grounded comparative analysis process (p. 35):

- Conceptual categories and their conceptual properties.
- Hypotheses or generalized relations among the categories and their properties.

Glaser and Strauss (1967) further stressed that both categories and properties are "concepts" indicative to the data and not the data itself (p. 36). By the level of conceptualization, Glaser and Strauss (1967) differentiated the difference between two kinds of grounded theories: substantive and formal grounded theory (p. 32). They explain that substantive theory is theory that is "developed for a substantive, or empirical area of sociological inquiry, such as patient care, race relations, professional education, delinquency, or research organizations" (p. 32). Formal theory, on the other hand, is developed "for a formal, or conceptual, area of sociological inquiry, such as stigma, deviant behavior, formal organization, socialization, status congruency, authority and power, reward systems, or social mobility" (Glaser & Strauss, 1967, p. 32).

Grounded theory is a qualitative research method utilized for the generation of theory. Grounded theory method contains several procedures and tactics to conduct a grounded theory project.

Research Syntheses on Distance Education

Research literature reviews are used to examine what has been done in a field of research. As discussed earlier in this chapter, research synthesis can serve many purposes ranging from identifying trends, generalizations, and verifying and developing theories. For the most basic and practical purposes, research synthesis looks retrospectively for cumulative information which gives implications for future directions in a area of study.

In the field of distance education, a number of reviews have been conducted to clarify the "big picture" and to provide some integration of research for the discipline of distance learning.

Schlosser and Anderson's Review

Schlosser and Anderson (1994) conducted a narrative literature review of distance education based on Holmberg's (1987) categories and addressed a number of additional operational issues. They presented some tentative conclusions that were supported by the research literature:

1. Students learning at a distance have the potential to learn just as much and as well as students taught traditionally. The factors that determine learning are the same for distance students as they are for traditional students.

2. In spite of the fact that students perform as well in a distance education environment as in a traditional classroom, and appreciate the flexibility and convenience offered by distance education, students prefer the traditional classroom.
3. Good distance teaching pedagogy is not fundamentally different from good traditional teaching technique.

Schlosser and Anderson (1994), in summarizing the findings of their research literature review, also reported several reasons that make research summarizations difficult in distance education (p. 27):

1. Distance education literature is largely anecdotal. Authors tend to publish reports of the results of a specific distance education project, which makes generalization difficult.
2. Distance education literature is dominated by comparison studies in which students learning at a distance are compared to students learning in a traditional classroom. This approach to research is widely criticized and is suspect. Generalizations about comparison study research are difficult.
3. There are many approaches to the practice of distance education, and the techniques used (e.g., print-based correspondence versus interactive television) are so different, that comparing them and summarizing the results is problematic.
4. Much of the research in distance education has involved adult, off-campus students, as well as college-bound high school students. Conclusions reached with such populations may not generalize well to other populations.

5. Distance education is an emerging discipline that is practiced most often by non-researchers who either do not publish, or do not provide documents that "fit the mold" of traditional research.

This review is a verification of Holmberg's (1987) research agenda. The authors especially addressed the distance education theory issue. After reviewing the various theories of distance education, Schlosser and Anderson (1994) reported that the lack of a generally accepted distance education theory had hindered the development and study of distance education. They further pointed out that the problem was not a lack of proposed theories. Various theories had been proposed using two approaches: theories drawing on existing theories of education and communication, which try to explain distance education; and theories created "from scratch" (Schlosser & Anderson, 1994, p. 13). Schlosser and Anderson (1994) pointed out that "these theories have been shaped by the experiences of the researchers, who have approached distance education from their own angle," which is a "particular paradigm of distance education" (p. 14).

The results of the research review showed that not all of Holmberg's eight categories were researched evenly. The authors also discussed the issue of the difficulty in integrating research literature in distance education. It is noted that the research methodology (such as data selection and analysis) of Schlosser and Anderson's study was not explicitly described. Given the stated difficulties in integrating studies, the authors provided limited synthesis at the end of the study.

Sherry's Review

Based on Schlosser and Anderson's (1994) review, Sherry (1996) conducted another narrative review of distance education literature as an expansion and update to Schlosser and Anderson. Sherry (1996) expanded the base of research literature by including additional sources and concluded with a list of 15 factors impacting the effectiveness of distance education systems (p. 337):

1. Influence of distance learning theory on instructional design and delivery
2. Salient characteristics of successful delivery systems
3. Redefining the roles of distance education partners
4. Media-based challenges and design considerations
5. Technology selection and adoption
6. Effective communication
7. Strategies to increase interactivity
8. Visual imagery
9. Active learning
10. Learner characteristics and models of learning
11. Mentoring and learner support
12. Change implementation
13. Operational issues
14. Policy and management issues
15. Cost/benefit tradeoffs

In this literature review, Sherry (1996) indicated that the issues and factors were identified from multiple sources with an anecdotal approach. The data collection method stated was unstructured. The number of research studies to support each issue seemed low in number. Although Sherry (1996) claimed this review was to expand on Schlosser and Anderson's (1994) work, the review does not reflect the structure of Holmberg (1987), which Schlosser and Anderson's review was based on.

Berge and Mrozowski's Review

Using the issues Sherry (1996) identified, Berge and Mrozowski (2001) reviewed research articles published from 1990 to 1999 to identify the research trends in distance learning. The methodology reported in this review included the following:

- The review was based on Sherry's (1996) classifications as the framework for data coding.
- Prominent, peer-reviewed, English-language distance education journals and dissertation abstracts were reviewed. Journals included in the review were The American Journal of Distance Education (USA), Distance Education (Australia), Journal of Distance Education (Canada), and Open Learning (UK).
- Only articles that reported a research methodology were included.

In ten years, 1,419 articles were published, and 890 were identified as research articles and were coded according to a classification modified from the issues in distance education suggested by Sherry (1996). The ten research issues described include:

1. Redefining roles of key participants
2. Technology selection and adoption
3. Design issues
4. Strategies to increase interactivity and active learning
5. Learner characteristics
6. Learner support
7. Operational issues
8. Policy and management issues
9. Equity and accessibility
10. Cost/benefit trade-offs

In terms of methodology used in the studies reviewed, three-fourths of the journal articles and dissertation abstracts (74.83%) used descriptive research, while only 6% used an experimental approach. Out of four journals reviewed, three had research articles with research methodology described in approximately 40-50% of the articles, while Open Learning had only 17%.

The analysis showed that design issues, interactivity and active learning, and learner characteristics are the dominant themes, while some categories such as equity and accessibility or cost/benefit trade-offs are seldom addressed. The pedagogical issues within Sherry's categorization, as opposed to institutional or policy issues, were more often discussed in the journals. This is partly in accordance with Schlosser and Anderson's (1994) review in that it was reported that Holmberg's (1987) category of "distance students, their milieu, conditions and study motivations" was one of the two categories that dominated the literature.

Berge and Mrozowski's (2001) study differed from their predecessors in addressing the methodological issues. The methodology used in the study was reported and research goals stated (identifying research trends and content themes) and reported, accordingly. The difficulty in categorizing the research methodologies of the reviewed studies was also discussed.

Anglin and Morrison's Review

Anglin and Morrison (2000) reviewed all the articles in *The American Journal of Distance Education* from 1987 to 1999 and *Distance Education* from 1991 to 1999 with the objectives to identify the types of research published in these two journals and to seek implications for future research. They identified a number of types of articles included in these two journals: primary research, conceptual/theory, review, evaluation, lessons learned, how to, and others.

The results of the review showed that 38% (138 out of 383 articles) of the studies analyzed were classified as primary research studies including comparative-experimental, descriptive, or qualitative studies. Survey was the most frequently used method for data collection. The primary population represented was students in higher education. The other prominent category of research was conceptual and theoretical paper; which represented 30% (115) of the 383 studies reviewed. Issues discussed in this category included approaches to defining distance education, distance education theories, cost-benefit analysis, specific emerging delivery technologies, programs in specific universities, learner independence, distance education policies, and teacher education.

The review also included 14 reviews of literature. Research areas reviewed included educational television, leadership, and professional development in distance education, management, personalized system of instruction, computer-assisted instruction, computer conferencing, distance education in the United Kingdom, faculty resistance to instructional technology, and distance education in the military.

The authors indicated that when it was not clear which category an article should fit; they tried to classify according to the primary purpose of the study. It can be noted that, however, at least in the conceptual and theoretical papers category, the authors used a broad definition of the conceptual/theory category.

It is also noted that none of the 14 reviews were a theoretical investigation. The authors indicated that much of the research was not theory-based and contended that there should be more theory-based research.

Like Schlosser and Anderson (1994), Anglin and Morrison (2000) also noted the difficulty in summarizing the research literature. They stated "summarizing across the articles analyzed--even within a particular category (i.e., primary research) was very difficult. Summarizing across categories was even more troublesome" (p. 192).

Lee, Driscoll, & Nelson's Review

Lee, Driscoll and Nelson (2004) conducted a review of four distance education journals from 1997 to 2002, with a focus on analyzing research topics, methods, and citation trends. The total number of studies selected was 383.

Their research topics classification consists of six topics including: design-related, development-related, management-related, evaluation-related, institutional and

operational-related, and theory and research-related. The theory and research-related topics category includes distance education theory building, review of literature, introduction to new research methods, culture and gender issues, learning style, history of distance education, and copyright law (Lee, Driscoll & Nelson, 2004, p. 227).

In terms of the classification of research method, Lee, Driscoll and Nelson (2004) used seven categorizations: theoretical inquiry, experimental research, case study, evaluation research, developmental research, survey research, and a combination of inquiries. Of the interest of this investigation, the theoretical inquiry was defined as "a theoretical review of literature and conceptual study for proposing new ideas in distance education" (p. 228).

The results of the analysis shows that, in research topics, 118 (31%) of the 383 articles are classified as theory and research-related topics. While in the research method classification, 78 (20%) of the 383 articles included theoretical inquiry.

It is noted, Lee, Driscoll and Nelson (2004) have broad definitions for the topic category of theory and research-related topic and research method of theoretical inquiry. Based on their definitions and classifications, Lee, Driscoll and Nelson (2004) reported that "many studies focus primarily on describing a case rather than the description of unique theory supporting the distance education" (p. 237). In addition, they questioned the lack of theory development in distance education as: "Given the comparatively small number of theory-based studies in the filed of distance education, why there have not been more theory-based studies remains unanswered" (p. 238-239). They concluded their study with a call for a critical examination of research methodology and "more contemplation of results that evolve more complex theories" (p. 240).

Summary of Literature Review

Research Synthesis

Research can be classified into two major categories: primary research and research synthesis. Major methods for research synthesis include traditional narrative reviews, meta-analysis/systematic review, synthesis of qualitative research (qualitative meta-analysis); best-evidence synthesis; propositional inventory; and grounded meta-analysis. In response to the traditional narrative review type of research synthesis, researchers have proposed that research synthesis to be conducted systematically and with rigour.

Each method of research synthesis has its strengths and weaknesses and different methodological focuses. Traditional narrative review of research is intuitive, yet not systematic enough to produce persuasive research synthesis. Meta-analysis has the strengths of objectivity and rigour in terms of synthesizing quantitative data, yet has the limitation of not taking into account qualitative studies. The research synthesis of qualitative studies reflects the variety of qualitative approaches and is not a well established method.

Meta-analysis and its related research synthesis methods have focused on the systematic perspective of the synthesis procedure and offer a set of techniques, including statistical procedure, for synthesizing research literature. However, the strengths and focuses of meta-analysis are on accumulating research results statistically, rather than dealing with highly heterogeneous information and a broad range of literature.

One major drawback of major research synthesis methods, as reviewed herein, is the failure to include both qualitative and quantitative studies[12]. Given the fact that both quantitative and qualitative research are both popular in distance education research, it is critical to develop more robust research synthesis methods to advance the field of research synthesis.

Research Syntheses of Distance Education Literature

The research synthesis efforts on reviewing distance education as a field by analyzing research literature are discussed. As can be seen, these research syntheses either try to build a factual typology or verify an existing typology. By aggregating superficial information, these research syntheses have done very little in providing in-depth information to the field of distance education.

Distance education researchers have completed a variety of research synthesis reviews. The selection of distance education research syntheses reviewed in this chapter are exemplary efforts of such reviews in distance education as a field, by examining literature mainly from research journals. However, these syntheses tend to lack the rigour that would increase the validity of the research syntheses. In these reviews, for example, typological presentation of content topic and research methods is usually used to present the final outcome of the synthesis (Berge & Mrozowski, 2001; Lee, Driscoll & Nelson, 2004; Schlosser & Anderson, 1994; Sherry, 1995). In other words, research literature is reviewed and categorized but that the level of synthesis does not go much further beyond

[12] Qualitative meta-analysis by Hossler & Scalese-Love (1989) has not become a major research synthesis method.

a typology. The syntheses, therefore, are general and only present a categorization of content of research literature.

It is noted that different ways of classification can indicate a conceptual discrepancy among distance education researchers. For example, Schlosser and Anderson (1994) established their classification of topics and was expanded by Sherry (1995). Sherry's (1995) topic classification was followed by Berge and Mrozowski (2001) for another review of journals. Lee, Driscoll, and Nelson (2004) created their own content classification based on Sherry (1995), Phipps and Merisotis (1999), and Khan (1997). The change of classification (maybe for the lack of clear definition) may have made communication among researchers difficult. Taking the analysis of research method for example, Lee, Driscoll, and Nelson (2004, p. 229) reported that the difference of their analysis results from previous similar studies was largely caused by the difference in the classification system.

Some of the research syntheses reviewed also have an oversight on the methodological issues when conducting reviews. Some reviews did not even include a description of the research methodology (e.g., Schlosser & Anderson, 1994; Sherry, 1996) or describe the rationale for categorization (e.g., Anglin & Morrison, 2000; Schlosser & Anderson, 1994).

Grounded Theory

As a field in rapid development, distance education researchers have produced a considerable amount of research. Like any other fields of study, as the practices in the field progress and primary research proliferates, the need arises to summarize the

research in order to better define the field and clarify issues. When more and more themes and underlying principles emerge in the discipline, knowledge will be created. Research synthesis, in the process of knowledge creation, can serve as a way of understanding what has been done and what needs to be done in the future so as to facilitate the progress of an area of research.

Grounded theory methodology is a methodology for theory development and identification of themes. It was developed with the purpose of generating theories and identifying emerging themes and patterns and, therefore, is suitable for the purpose of this research.

In the synthesis attempt by Anglin and Morrison (2000), the researchers point out a critical issue faced by the researchers who try to synthesize the field of distance education research. They noted that "In order to go beyond developing 'pockets' of knowledge concerning distance education, significant additional theory-building must occur. Otherwise, it will be difficult for researchers to develop research programs to test the theory" (193). This call for theory-building echoed both research synthesis and grounded theory for their common application in theoretical development.

Grounded theory, therefore, will be used to conduct a research synthesis of distance education research literature, given its potential in offering a data analysis method for identifying themes and patterns, and the possibility to go beyond typology for theorizing.

Although grounded theory has become a popular qualitative research method in social science research, it is not well developed for the purpose of research synthesis. Yin's (1991) proposal gives a direction for this study. Yin's idea shows it is possible to

build on the methods of research synthesis and grounded theory to synthesize the research literature in the field of distance education.

CHAPTER THREE: A GROUNDED THEORY FOR RESEARCH SYNTHESIS PROCEDURE PROPOSED

For the developmental nature of this study, this chapter is a proposed procedure of how I planned to use GTRS in Chapter Four. In Chapter Five I will describe a revised GTRS protocol after the implementation of GTRS.

As Pillemer (1984) pointed out, every scientist attempting to draw overall conclusions from research invariably combines the results of independent studies, whether informally, narratively, or use meta-analysis approaches. The real issue in research synthesis is "not *whether* but how *best to*" accomplish the task (Pillemer, 1984, p. 28). In this study, I proposed to use grounded theory methodology for research synthesis (GTRS) approach for the synthesis of distance education primary studies.

Although the use of grounded theory for research synthesis was proposed by Yin (1991), it has not been elaborated or practiced. The use of grounded theory for research synthesis, therefore, is still a new application of grounded theory methodology. There are methodological issues to be considered and its viability to be tested.

In later chapters, I will implement GTRS for the synthesis of distance education literature and document the process to develop a more complete protocol. This is to study with research synthesis of distance education as a goal and grounded theory as its method for synthesis. However, grounded theory, as a methodology and a set of methods, has mechanisms that might not be totally compatible with elements and principles of research synthesis.

In sketching out the process of applying grounded theory for the purpose of research synthesis, this chapter will describe the proposed technical procedures with some conceptual issues addressed. For more discussion on theoretical issues, Chapter Four will be the documentation of the process of the implementation of this GTRS investigation. Chapter Five will summarize the procedure of this GTRS investigation from this research experience, and Chapter Six will discuss some highlighted issues of GTRS and this study.

GTRS: A Synergy of Grounded Research and Research Synthesis

Research synthesis is the aggregation and integration of primary studies. As seen in Chapter Two, there are various methods of conducting research synthesis. The research synthesis methods developed after Glass's (1976) meta-analysis, basically are responding to the lack of rigour of the traditional narrative review. Those efforts are devoted to making research synthesis more procedurally systematic and theoretically sound.

Grounded theory provides a promising solution for research synthesis. As proposed by Yin (1991), grounded theory has the potential to add to the realm of research synthesis. Grounded theory, according to Yin (1991), has strengths in performing theory-building and identification of emerging categories; emulating of normal science (and thus the possession of the notion of rigour in review); applying to evidence collected in a library or evidence collected in the field or both; and emphasizing qualitative data because of the focus on identifying emerging categories.

Supported by both research synthesis methods and grounded theory method, a research synthesis will be conducted in synthesizing the research literature of distance

education as a field. Mainly this is to give an overview on distance education as a substantive area, instead of focusing on one single specific topic. Grounded theory provides a sound methodology for synthesizing research, identifying categories, and generating theories.

Grounded theory methodology is a qualitative research tool with much potential. This study will use grounded theory as the research methodology and will take into consideration the major theoretical concerns and strategies from both research synthesis and grounded theory to perform a grounded theory investigation on the field of distance education. I hope to achieve this objective by using grounded theory methodology.

By using grounded theory for research synthesis, the strengths of both research methods can be preserved. It can be foreseen however, that there will be conceptual and methodological conflicts since GTRS will be an interplay between grounded theory (which is a well-developed methodology with a set of procedures) and research synthesis (as a group of methods with same class of research purpose, yet using various approaches).

Problem Reiterated

As discussed in Chapter One, distance education is rapidly growing and in need of more understandings and theoretical development. Research synthesis, as a research of researches and analysis of analyses, has the capacity to provide such understanding and development. However, the existing research synthesis works on distance education as a field are superficial and have not provided such knowledge and insights to the field, as examined in Chapter Two.

One possible reason that research synthesis is not providing a substantial contribution to the field of distance education might be the non-existence of good research methods for research synthesis on a field with such a broad range of publication and given its rapid rate of development with such volume of multi-a vocal literature.

Among the variations of research synthesis methods, meta-analysis techniques are systematic and robust, but are not able to accommodate qualitative studies in the synthesis. As qualitative research methods have become more prominent in the educational research community, it is critical to develop a research synthesis approach that could synthesize both quantitative and qualitative studies, yet is systematic and rigorous.

As reviewed in Chapter Two, a number of research synthesis methods have been proposed to synthesize qualitative studies. The foremost drawback of these qualitative meta-analysis techniques is that they are designed to synthesize only qualitative studies, and quantitative studies are excluded[13].

With the existing research synthesis methods (both qualitative and quantitative), there presently is a problematic issue about how to synthesize a field like distance education, which has a broad range of heterogeneous research literatures. The development of GTRS is, therefore, favored as Yin (1991) has proposed.

Research synthesis methods provide the functionality of accumulating research literature to generate new knowledge and, therefore, can provide invaluable information for distance education as a field of study. Grounded theory, as proposed by Yin (1991), is robust and able to include both qualitative and quantitative research studies. Informed by

[13] For example, Sandelowski, Docherty, and Emden's (1997) discussions on three approaches of qualitative metasynthesis include only qualitative studies.

grounded theory and research synthesis, this study will take into account the procedural and theoretical considerations in both methods. The proposed procedures for doing GTRS will be discussed in this chapter as the start of an attempt for a robust research synthesis to accommodate both qualitative and quantitative studies for the field of distance education.

General Process of Grounded Theory

Since grounded theory method is the major research backbone for this study, it seems plausible to delineate the general process of grounded theory when proposing the procedures of using grounded theory for research synthesis. As seen in Figure 1, on the left is the general process of research synthesis as proposed by Cooper (1982, as cited in Cooper and Hedges, 1994); on the right is the general process of grounded theory. The dotted lines represent the resemblance in terms of the research processes. The boxed area represents the cyclic process of theoretical sampling and constant comparative analysis for the emergence of theory, which also serves as the mechanism of GTRS synthesis.

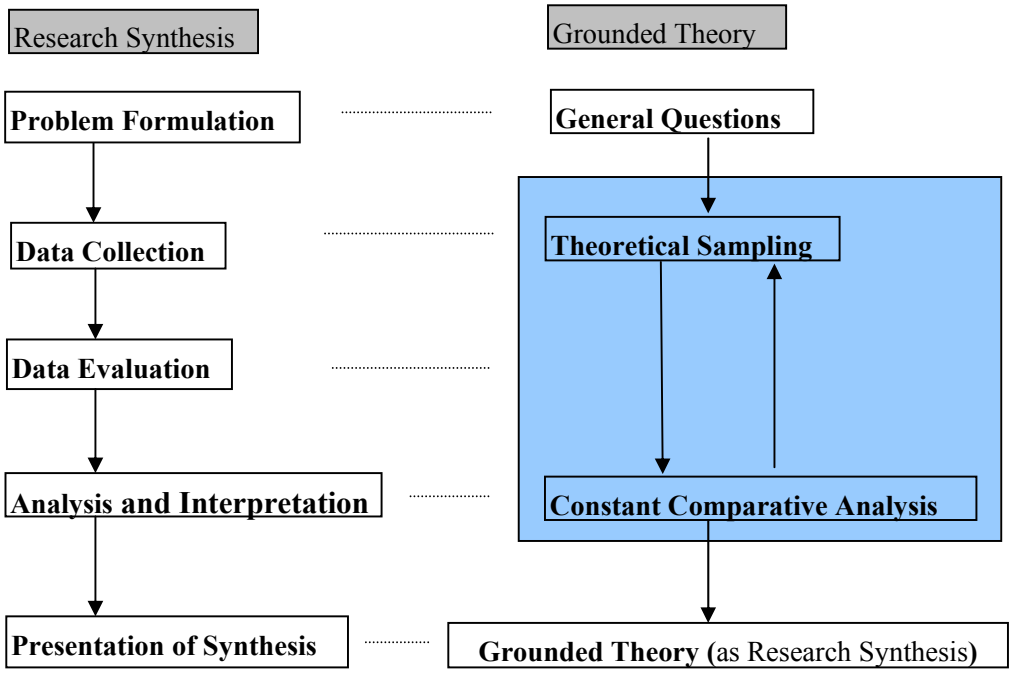

Figure 1. An illustration of the parallel processes of grounded theory and research synthesis

Glaser and Strauss's (1967) grounded theory is a tool for theory building. Kelle (1997) elaborated on "theory building" in qualitative research, and stated that theory building is parallel to grounded theory. Kelle (1997) pointed out that the assumption of theory building is that "the 'codes' used to organize the data material represent those theoretical categories which the researcher uses or develops through the ongoing process of analysis[14]" and that "a theory can be regarded as a network of categories" (¶ 20).

Although Glaser and Strauss (1967) did not provide step-by-step guidelines for how to conduct grounded theory research, a general process of grounded theory's constant comparative method for theory building was described in four stages (p. 105):

1. Comparing incidents applicable to each category
2. Integrating categories and their properties

[14] Dey (1999) offered a good definition of analysis: "Analysis: Resolution into simpler elements; after due consideration" (p. 99).

3. Delimiting the theory
4. Writing the theory

The mechanism of theoretical sampling suggests that data be collected, analyzed, and coded at the same time. It is stated that this process is a "continuously growing process" that "each stage after a time is transformed into the next" and that "earlier stages do remain in operation simultaneously throughout the analysis and each provides continuous development to its successive stage until the analysis is terminated" (Glaser & Strauss, 1967, p. 105).

In the initial open coding, the grounded theory process would inductively build categories based on the incidents observed and compared (therefore comparative analysis). As the data collection and coding progress, "lower level categories emerge rather quickly during the early phases of data collection" while "higher level, overriding and integrating, conceptualizations—and the properties that elaborate them—tend to come later during the joint collection, coding and analysis of the data" (Glaser & Strauss, 1967, p. 36). Categories therefore emerge from grouping emerging concepts together.

The integration of categories and their properties comes from the constant comparative method when incidents contribute to the further definition or construction of the categories and the properties of the categories. The constant comparison of observed incidents may then accumulate knowledge pertaining to a property of the category and resulting in a unified or integrated category. Integrated categories and their properties will then approach the emergence of a theory. The core categories are derived in this stage of analysis.

To delimit the theory is a task of reduction. The analyst may "discover underlying uniformities in the original set of categories or their properties, and can then formulate the theory" (Glaser & Strauss, 1967, p. 110). It is in this stage that the analyst starts to achieve two major requirements of theory: 1) parsimony of variables and formulation, and 2) scope in the applicability of the theory and in the mean time the close correspondence between the theory and data (Glaser & Strauss, 1967, p. 111). Coding and analysis will become more and more selective due to the reduction of theory will further focus coding activities on each of the constituent categories. When additional coding does not modify the core categories, the analysis has reached its theoretical saturation.

As illustrated in Figure 2, the theoretical sampling procedure of grounded theory including the joint process of data collection, coding, and analysis. Through constant comparative analysis and theoretical sampling, a grounded theory can be generated with a grounded theory development process. Figure 2 represents an integration of the dual processes of grounded theory and research synthesis with the initial data collection from research synthesis and the synthesis of research studies operated by grounded theory methodology.

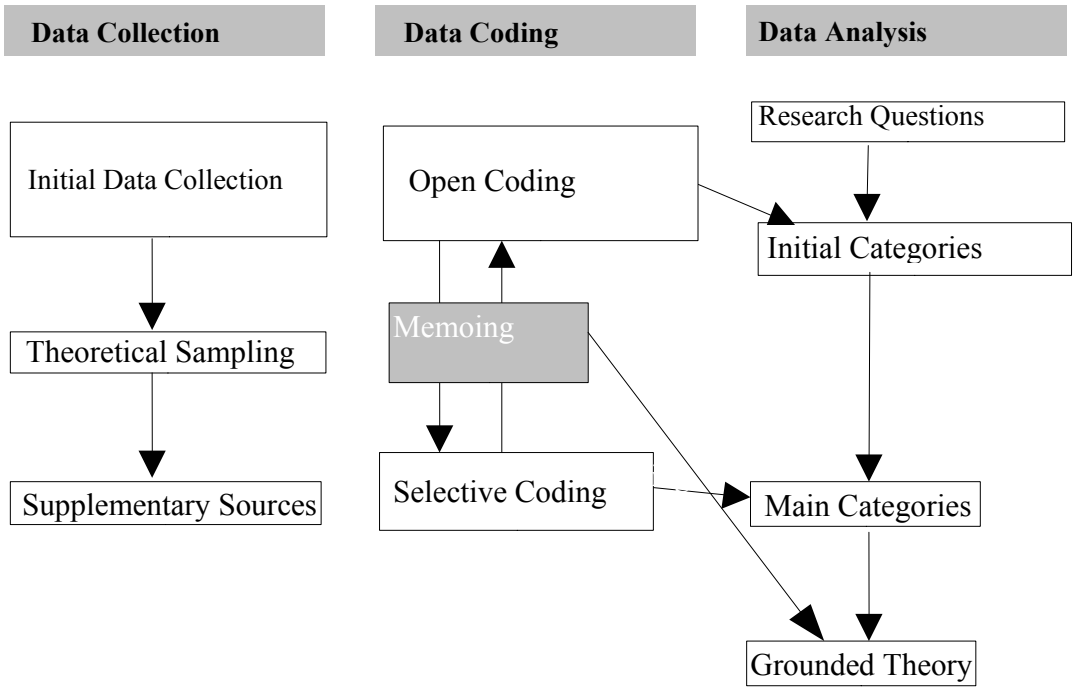

Figure 2. Conceptualization of grounded theory process in a grounded theory for research synthesis project

Emergence of Theory

Grounded theory is inductive rather than deductive. Glaser and Strauss (1967) stated that "generating grounded theory is a way of arriving at theory suited to its supposed uses" as contrasting to the form of theory generation by "logical deduction from *a priori* assumptions" (p. 3).

This methodological position leads to one foremost concept in grounded theory: the emergence of theory from data. Emergence of grounded theory from data is an essential feature of grounded theory. Strauss and Corbin (1998) stated that "A researcher does not begin a project with a preconceived theory in mind (unless his or her purpose is to elaborate and extend existing theory). Rather, the researcher begins with an area of

study and allows the theory to emerge from the data" (p. 12). Glaser (1992), on discussing the importance of emergence, stressed that grounded theory to be "emergent", as opposing to a "forced, preconceived, full conceptual description" (Glaser, 1992b, ¶2).

Glaser (2002) became very vocal about the issue of dealing with existing theories and the grounded theories that are to be discovered through the emergent grounded theory process. He stated that "the researcher can use his or her own concepts generated from the data instead of using, and probably forcing, the received concepts of others, especially those concepts of unduly respected theoretical capitalists" (Glaser, 2002, ¶3).

The characteristic of emergence has important implication in this study, since the previous research synthesis works in distance education tend to use a preconceived category for coding needs. For grounded theory, it is important to let the data speak for itself: to code the data with an open mind while seeking categories and properties and the generation of a theory.

Data Collection

Library Procedures as Fieldwork

For research synthesis, it is by default that library resources be the major data source. However, for a grounded theory researcher, a non-traditional source of data such as published literature would need some justification.

Anthropologist Radcliffe-Brown (1951) argued the importance of "arm-chair anthropology." Arm-chair anthropology was defined as a library method using comparative analysis to seek regularities and generate general propositions for the

theoretical study of human social phenomena. Radcliffe-Brown (1951) stated that the field studies method had been over-emphasized and that "arm-chair anthropology" had been neglected. This had a negative influence on social anthropology as students were taught to look at the features of social life in context only. The wider context of human society that might be obtained through library work was then often overlooked. Radcliffe-Brown (1951), therefore, called for more studies to be done with comparative analysis using library sources in social anthropology.

Similarly, Glaser and Strauss (1967) stated that, "We wish particularly to get library and field research off the defensive in social research, and thereby encourage it" (p. 18). Glaser and Strauss (1967) explained that collecting data in libraries is analogous to collecting data through fieldwork or interview:

> There are some striking similarities—sometimes obvious, although often overlooked—between field work and library research. When someone stands in the library stacks, he is, metaphorically, surrounded by voices begging to be heard. Every book, every magazine article, represents at least one person who is equivalent to the anthropologist's informant or the sociologist's interviewee. (p. 163)

Given that grounded theory belongs to the family of qualitative research methods, it seems methodologically sound to emulate the use of grounded theory for research synthesis as a naturalistic study with a "field" to work in. That is, metaphorically, the library and the data sources are analogized as the field and doing this grounded theory study has the fieldwork component just like most qualitative studies.

Library Materials as Sources of Data.

As library procedures are regarded as fieldwork, the materials in the library would be seen as field-notes. Turner (1983) stated in a grounded theory study that "... documentary sources were treated like sets of field-notes" (p. 342). Ogawa and Malen (1991) proposed the use of research literature bases as data sets. Yin (1991) further pointed out the possibility of the use of grounded theory for research synthesis, which is all about documents as data sources.

Although Glaser and Strauss (1967) highly praised the use of library materials as a data source and devoted a whole chapter to the topic (p. 161-183), library materials have not been the mainstream data in qualitative research. Instead, they are mostly seen as supplementary to major data sources such as participant observation and interviewing (e.g., Bogdan & Biklen, 1998; Marshall & Rossman, 1999). This study, as using grounded theory for research synthesis of distance education, will use the research literature as primary source of data.

The Initial Data Pool

There are many primary research studies in the "field" of education that can be subject to synthesis and, therefore, could become the source of this GTRS study. In terms of distance education literature, the whole pool of data ("field-notes" in grounded theory's sense) could include:

- Distance education journals;
- Electronic databases;

- Books on distance education;
- Reports on distance education;
- Official documents, and
- Monographs.

For grounded theory, the source of data has no limitation as long as the data is of theoretical relevance. The data sources, therefore, can be further expanded to artifacts and participants in the field of distance education, or data sources of any nature. To make this study a research synthesis, however, the grounded theory's flexibility has to be confined within the "field" of distance education research literature.

With the enormous amount of distance education research literature available, it is necessary to define the data pool to make this GTRS experiment project manageable. Major distance learning journals might provide most of the relevant and direct sources of primary research studies. I would use the research journals as the data pool. There are many peer-reviewed English-language distance education journals. A brief list of the representative journals includes:

- The American Journal of Distance Education (USA)
- Distance Education (Australia)
- Journal of Distance Education (Canada)
- Open learning (UK)
- The International Review of Research in Open and Distance Learning (Canada)
- Journal of Asynchronous Learning Networks (USA)
- Indian Journal of Open Learning (India)

While systematic research synthesis methods emphasize the importance of exhausting the literature in the defined topic area, and some stress the mechanism of being selective in data collection to ensure the quality of the primary studies included, grounded theory has a different way of handling data coverage. As discussed by Glaser and Strauss (1967), grounded theory "does not require the fullest possible coverage on the whole group except at the very beginning of research, when the main categories are emerging" (p. 69). After the emergence of categories, the grounded analyst collects only on categories. This is the mechanism of theoretical sampling in grounded theory to have a broad coverage of data for the generation of categories in open coding stage. After the open coding stage, the categories become saturated and the coding and data collection becomes selective.

In terms of data collection, research synthesis requires the selection of data to be prescribed according to the research problem specified; while grounded theory requires the flexibility to allow the mechanism of theoretical sampling to lead the data collection in accordance with theoretical relevance of data. Therefore, I propose that, for the purpose of this GTRS, to prescribe an "initial data pool" to include prominent peer-reviewed distance education journals. This initial data pool should meet the requirements of research synthesis as being systematically selected with enough representative data included. On the other hand, this initial data pool would serve to provide a virtual area for the broad (although not exhaustive) coverage of data to start theoretical sampling. In the case of the initial data pool being insufficient for theoretical sampling to reach theoretical saturation, however, the process of theoretical sampling should go beyond this initial data pool for data collection.

Theoretical Sampling

Theoretical sampling, coupled with constant comparative method, is at the center of the grounded theory procedure. The concept of theoretical sampling includes three defining characteristics of grounded theory:

1. Theoretical sampling is an integrated process of data collection, coding, and analysis where these activities occur congruently.
2. The initial data collection decisions are based on a general perspective and on a general subject or problem area rather than on a preconceived theoretical framework.
3. The proceeding of the process of data collection (along with coding and analysis) should be directed by the emerging theory.

As Glaser and Strauss (1967) described:

> Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges. The process is *controlled* by the emerging theory, whether substantive or formal. The initial decisions for theoretical collection of data are based only on a general sociological perspective and on a general subject or problem area (such as how confidence men handle prospective marks or how policemen act toward Negroes or what happens to students in medical schools that turn them into doctors). The initial decisions are not based on a preconceived theoretical framework. (p. 45)

In accordance with the grounded theory mechanism of theoretical sampling, the data collection after the initial stage would depend on emergence of categories. The initial data collection will start with the data pool that is defined after reviewing the major distance education journals and then begin by identifying the emerging categories. It is hoped that, however, the data pool should have enough data for the discovery of a grounded theory since the defining of data scope is a principle tool in research synthesis.

Quality of Data Included

In grounded theory method, data collection is defined by theoretical sampling. For research synthesis, however, the efforts on making it more systematic have called for rigour in its processing.

Drawing from discussions in the research synthesis literature, it is preferred to have a set of criteria to assure the quality (thus indicate "rigour") of the studies included. However, for grounded theory methodology, a set of prescriptive criteria is not favored, as it is a violation of theoretical sampling.

As reviewed in Chapter Two, the inclusion of high quality primary studies is essential to the quality of the research synthesis. This is, however, not a concern of grounded theory. For grounded theory, as long as the data is theoretically relevant, it can be used as a source for theoretical development.

To reconcile this issue of the quality of data included, I proposed to rely on the naturalistic nature of data collection in qualitative research. Qualitative research usually involves fieldwork and interviews as an important source of data. As can be imagined, there are good informants and not-so-good informants. To use a set of explicit criteria for

enhancing the quality of data included for synthesis could be analogized to having better informants in fieldwork in qualitative study. A data selection criteria, therefore, is proposed to be implemented.

Inclusion of both Qualitative and Quantitative Data

One of the goals of this study is to explore the possibility of the inclusion of both qualitative and quantitative studies in a research synthesis effort using grounded theory. The inclusion of both qualitative and quantitative data would be a breakthrough for research synthesis if it is proven to be done well. With grounded theory method, it is possible to achieve this goal.

Existing research synthesis approaches have their commitment in the inclusion of qualitative or quantitative research. A meta-analysis research synthesis, for example, will only include quantitative research studies because of the use of statistical procedures for integration. On the other hand, some researchers using meta-ethnography (Noblit & Hare, 1988) will include only qualitative data.

According to Phipps and Merisotis's (1999) review on the effectiveness of distance learning in higher education, 51% of distance learning studies are experimental, 31% are descriptive, and case studies comprise15% of the literature. Since the literature itself is mixed with both qualitative and quantitative data, the inclusion of both qualitative and quantitative information is essential for a thorough analysis of the literature.

For the purpose of advancing the research synthesis using grounded theory method, it is, therefore, necessary to include information from both quantitative and

qualitative research studies for a complete state-of-the-art understanding of the domain researched (Crismore, 1985).

However, the combination of both quantitative and qualitative data in a research synthesis has been a challenge for research synthesis researchers. For example, Hossler and Scalese-Love (1989) developed their grounded meta-analysis approach to synthesize research literature with an attempt to include both qualitative and quantitative literature. To include both types of data, separate coding sheets were created for coding purposes. Open-ended questions including qualitative information such as interventions, key findings, other effects, implications, and plausible explanations were also used to gather more information for synthesis. Rogers' (1985) propositional inventory, with the use of content analysis to build propositions from research results, should not have the limitation in data type inclusion[15]. However, it does not have a robust research approach as a grounded theory method would for synthesizing the primary studies.

In grounded theory methodology, all relevant data can be included as long as it informs the generation of theory. As Glaser and Strauss (1967) indicated, "…the process of generating theory is independent of the kind of data used" (p. 18). After all, quantitative and qualitative data in grounded theory method are used for the same purpose of theoretical indications. As Glaser and Strauss (1967) stated, they are "both used as supplements, as mutual verification and, most important for us, as different forms of data of the same subject, which, when compared, will each generate theory" (p. 18).

Since the problem for research synthesis to include both quantitative and qualitative studies is a procedural issue (as in Hossler and Scalese-Love, 1989), grounded

[15] Rogers (1985) focused his propositional inventory (using word tabulation technique) on the synthesis of the results of quantitative studies in the form of proposition. The data subjected to synthesis, as the results sections of the studies, hence are qualitative in nature.

theory procedures will be used to address the issue of the inclusion of both quantitative and qualitative studies in a research synthesis.

Data Analysis: Constant Comparative Method

In qualitative research, data collection and analysis are usually inseparable iterative processes. As Goetz and LeCompte (1984) indicated, data collection and analysis in qualitative research are not separate processes but concurrent and interdependent. As one of the qualitative research methods, grounded theory development is true to this principle as well.

The heart of grounded theory is the constant comparative method coupled with theoretical sampling. As aforementioned, Glaser and Strauss (1967) described their constant comparative method in four stages: (1) comparing incidents applicable to each category, (2) integrating categories and their properties, (3) delimiting the theory, and (4) writing the theory (Glaser and Strauss, 1967, p. 105).

In this process of grounded theory development, data collection, coding, and analysis are completed simultaneously. The relationship among these activities, as Glaser and Strauss (1967) stated, is a "continuously growing process" (p. 105). Each stage, after a time, is transformed into the next; while "earlier stages do remain in operation simultaneously throughout the analysis, and each provides continuous development to its successive stage until the analysis is terminated" (Glaser & Strauss, 1967, p. 105).

Glaser (1978) suggested that, in constant comparative method, the researcher should start with open coding until a core category emerges (p. 39). The researcher therefore starts with inspecting data for generating theoretical ideas to yield categories.

The researcher, at the same time, analyzes the data for new properties of the theoretical categories and writes memos on the properties. When the researcher has a set of core categories, the data collection will become more selective. The constant comparison of incidents to incidents, incidents to categories, and incidents to properties is what makes grounded theory method a comparative analysis method.

As Glaser and Strauss (1967) explained, the purpose of the constant comparative method of joint coding and analysis is to generate theory more systematically (p. 102), and to allow for flexibility to aid the creative generation of theory with discipline (p. 103).

The data collection and data analysis will, therefore, continuously be intertwined operations throughout the research process. In conjunction with the notion of theoretical sampling, data coding and analysis will in turn affect the collection of data as well.

Coding

As discussed by Bogdan and Biklen (1998, p. 177), in qualitative evaluation research, pre-assigned coding systems are sometimes employed to explore particular problems or aspects of a setting or subject. Given its emphasis on the emergence of theory from data, in grounded theory, the use of a preconceived instrument for coding is discouraged.

Glaser and Strauss (1967) discussed the mechanism of coding clearly. They stated: “Coding need consist only of noting categories on margins, but can be done more elaborately (*e.g.,* on cards)” (p. 106).

A defining rule that added to the simple activity of coding, however, makes the constant comparative method of coding a mechanism of grounded theory: "*while coding an incident for a category, compare it with the previous incidents in the same and different groups coded in the same category*" (Glaser & Strauss, p. 106).

Coding is, by nature, the process of categorizing and sorting data. As Charmaz (1994) stated, codes are used as a device to "label, separate, compile, and organize data" (p. 97) and "summarize, synthesize, and sort many observations made of the data" (p. 98). In qualitative research, a researcher develops codes out of the field notes, interviews, or any other collected materials. While this study uses research literature as data, codes will be developed from reading through the primary studies.

Strauss and Corbin (1998) discussed a set of guidelines for doing grounded theory coding:

1. Build rather than test theory.
2. Provide researchers with analytic tools for handling masses of raw data.
3. Help analysts to consider alternative meanings of phenomena.
4. Be systematic and creative simultaneously.
5. Identify, develop, and relate the concepts that are the building blocks of theory (p.13). [16]

Strauss (1987, p. 27-28) suggested the use of a "coding paradigm" that "functions as a reminder to code data for relevance to whatever phenomena are referenced by a given category":

---

[16] Although Strauss and Corbin refer to this set of statements as "coding procedures," it is more about a set of guidelines that explain the basic operations of coding in doing grounded theory.

- Conditions: can be discovered easily or hinted by words like “because,” “since,” “as,” or phrase like “on account of.”
- Interaction among the actors
- Strategies and tactics
- Consequences: can be easily found or pointed to by phrases like “as a result,” “because of that,” “the results was,” “the consequence was,” and “in consequence.”

It has to be noted that, grounded theory coding is conceptual, rather than factual. As Glaser (1978) said:

> The essential relationship between data and theory is a conceptual code .... There are basically two types of codes to generate: substantive and theoretical. Substantive codes conceptualize the empirical substance of the area of research. Theoretical codes conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into the theory. (p. 55)

During the substantive coding process, the researcher seeks to “generate an emergent set of categories and their properties” (Glaser, 1978, p. 56) toward the integration of a theory as in the open coding stage; and then delimit the theory using selective coding by coding on only on the core category (or “core variable” as in, e.g., Glaser, 1978) and the subcategories of the core category (Glaser, 1978, p. 61).

In open coding, the researcher would ask questions such as “*What is this data a study of*?” and “*What category does this incident indicate*?” (Glaser, 1978, p. 57) to generate conceptual codes instead of counting the factual information from data. For example, in a hospital setting, the category of “social loss” would include the nurses’

response to the dying patients such “He was so young,” “He was to be a doctor,” or “She had a full life” (Glaser & Strauss, 1967, p. 105-106). That is, these responses will be coded as “social loss” since they all indicate the concept of social loss.

Theoretical coding, on the other hand, refers to the implicit theoretical relationship among the categories which is used to “conceptualize how the substantive codes may relate to each other” for the generation of grounded theory (Glaser, 1978, p. 72). Glaser (1978) offered a list of 18 coding families. One of the families is The Six C’s: Causes, Contexts, Contingencies, Consequences, Covariances, and Conditions (p. 74). Using the theoretical coding families, the researcher brings up the implicit relations among the substantive codes for integrating them into theories (Glaser, p. 72-73).

Conceptual coding is a feature and requirement of grounded theory. As opposed to the general coding strategies of qualitative research (e.g., Biklen & Bogdan, 1998) in which incidents are coded comprehensively, it is concepts that are coded in grounded theory. Glaser and Strauss (1967) stated:

> This is an inductive method of theory development. To make theoretical sense of so much diversity in his data, the analyst is forced to develop ideas on a level of generality higher in conceptual abstraction than the qualitative material being analyzed. (p. 114)

Open Coding

Open coding is “the process through which concepts are identified and their properties and dimensions are discovered in data” (Strauss & Corbin, 1998, p. 101). Open coding involves the analysis of data and assigning categories. Open coding starts with

comparison of incident to incident (comparative analysis) to generate categories (codes). The aim of open coding is to open up the inquiry (Glaser, 1978, p. 29). Glaser described a set of three questions that should guide the open coding, the first level of grounded theory coding:

1. What is this data a study of?
2. What category does this incident indicate?
3. What is actually happening in the data? What is the basic social psychological problem(s) faced by the participants in the... scene? (1978, p. 57)

By asking these simple analytic questions in the open coding stage of data analysis, Glaser (1978) stated that "The analyst compares incident to incident with the purpose of establishing the underlying uniformity and its varying conditions" (p. 49).

Again, coding in grounded theory aims for concepts. Strauss (1987) indicated that open coding is the initial type of coding and it is the "unrestricted coding of the data" that aims to "produce concepts that seem to fit the data" (p. 28).

Strauss (1987) suggests the researcher to start open coding by "scrutinizing the field-note, interview, or other document very closely: line by line, or even word by word" (p. 28). Strauss (1987) further explained that, by scrutinizing the data, provisional concepts and their dimensions will emerge. Yet, in doing this, the researcher's thinking about the concepts and their dimensions will result in "a host of questions and equally provisional answers" will immediately lead to further issues pertaining to "conditions, strategies, interactions, and consequences" (p. 28).

Strauss (1987) further characterized the "snowballing" feature when the analyst goes on with the iterative open coding process of scrutinizing, generating concept codes

and dimensions, thinking about the generated codes and dimensions, asking questions and providing provisional answers,; and, in the meantime, naturally binding to the coding paradigm. Open coding would then result in the emergence of provisional categories. Strauss described that: “as the analyst moves to the next words, next lines, the process snowballs, with the quick surfacing of information bearing on the questions and hypotheses, and sometimes even possible crosscutting of dimensions” (p. 28).

Open coding is the beginning point of a deeper level of coding; selective coding. Glaser (1978) discussed that "These beginning codes, no matter how conceptually primitive, quickly start theoretical sampling and constant comparisons of incidents. How relevant these concepts are to the basic problem and basic social process becomes a question of further analysis" (p. 45)?

During open coding, the analyst codes each incident into as many categories (codes) of analysis as possible. As categories emerge, some coding would fit into the existing category while others would generate new categories (Glaser & Strauss, 1967, p. 105). Categories and properties (a higher level conceptual code) could be from the data being coded or from the researcher's abstraction.

Strauss and Corbin (1998) suggested a three-stage coding strategy of open, axial, and then selective coding instead of a two-stage coding of open and selective coding. They stressed that, however, the breaking-down of the analytic process is an “artificial but necessary task” for the analysts to “understand the logic that lies behind analysis” (p. 101). Researchers are also cautioned not to use the procedures and techniques in a rote manner. Strauss and Corbin (1998) explained the middle layer coding strategy of axial coding and said that “although axial coding differs in purpose from open coding, these

are not necessarily sequential analytic steps" (p. 124). As Strauss and Corbin (1998) put, for axial coding, "no more than labeling is distinct from open coding (p. 124)" except for the requirement of some categories. But again, "often a sense of how categories relate begins to emerge during open coding" (p. 125).

In this investigation, instead of Strauss and Corbin's (1990, 1998) three-stage coding strategy, I will follow the original strategy of open and selective coding by Glaser and Strauss (1967) and Glaser (1978) since axial coding presents to be an extension of open coding.

Selective Coding

In the process of constant comparative analysis, open coding looks to compare incident to incident for the generation of categories and their properties. As the constant comparative analysis goes on, the comparison turns into the between the incident with the properties of the categories resulted from the initial comparison of incidents, i.e., open coding (Glaser & Strauss, 1967, p. 108). The core categories then emerge from the saturation of each categories being modified and solidified through comparative analysis.

Selective coding involves "to cease open coding and to delimit coding to only the variables that relate to the core variable" (Glaser, 1992, p. 75). The core categories are used to organize other categories and properties and are higher in conceptual level. The emergence of the core categories from open coding will lead the coding into selective coding and therefore to delimit the process of constant comparative analysis and theoretical sampling. With the core categories emerging, the data collection, analysis, and

coding will focus on the core categories. A theoretical framework of interrelated core concepts and their relationships can therefore be developed.

Selective coding on the core categories until the collection of further data and coding do not modify the category; it is when theoretical saturation is met (Glaser & Strauss, 1967, p. 61).

Memoing

Dick (2002) described memoing in the following way:

> As you code, certain theoretical propositions will occur to you. These may be about links between categories, or about a core category: a category which appears central to the study. As the categories and properties emerge, they and their links to the core category provide the theory. You write yourself notes about it – memoing. (¶13)

Memoing is one of the important mechanisms in grounded theory. Memos are a type of code that is created by the analyst throughout the coding for the purpose of analysis. According to Douglas (2003), types of memos could include theoretical memos, coding summaries, and hypotheses.

Memos are theoretical notes about the data. They link the properties and connect concepts, and at the end, put together the entire theory. Glaser (1978) refers to memoing as "the theorising write-up of ideas about codes and their relationships as they strike the analyst while coding" (p. 83).

Memos are critical for the writing of a grounded theory. As Glaser and Strauss (1967) stated, "To start writing one's theory, it is first necessary to collate the memos on

each category, which is easily accomplished since the memos have been written about categories" (p. 113). The sorting of memos for summarizing possible further analysis is the last step before writing up the grounded.

Presentation of a Grounded Theory

Glaser and Strauss (1967) indicated that theory generated with grounded theory methodology "can be presented either as a well codified set of properties or in a running theoretical discussion, using conceptual categories and their properties" (p. 31).

The results of a grounded theory development (a grounded theory) includes the categories, properties, and the relationship among the categories. As Glaser and Strauss (1967) put, "The elements of theory that are generated by comparative analysis are, first, conceptual categories and their conceptual properties; and second, hypotheses or generalized relations among the categories and their properties" (p. 35).

Chapter Summary

Drawing from discussions in Chapter One and Chapter Two, there are justifications for the need of a GTRS procedure:

1. Existing research synthesis methods have their limitation in the types of data included.
2. Current research syntheses of distance education as a field present superficial synthesis of the primary studies.
3. Grounded theory is considered to be appropriate for research synthesis as suggested by Yin (1991).

With a field of research literature heterogeneous like distance education, this proposed GTRS procedure tries to use the capacity of grounded theory to derive a theory for distance education that goes deeper than current typological types of research synthesis of the field. This proposed procedure tentatively addressed some of the methodological issues in both grounded theory and research synthesis, including:

1. Elaboration of the general procedures and major mechanisms of grounded theory as for the purpose of this study.
2. Justifying the use of literature as data for grounded theory development with a general qualitative research context.
3. Inclusion of both quantitative and qualitative studies in a research synthesis study from the grounded theory perspective.
4. Use the idea of a data pool to accommodate the requirements of data collection for both research synthesis (defining scope of data collection) and grounded theory (theoretical sampling).
5. Setting up of criteria for the inclusion of data (as to elevate rigour for research synthesis) to ensure the quality of data being synthesized with grounded theory.

Since there is no existing research protocol for GTRS, in this chapter, I proposed the procedure of using grounded theory for research synthesis and addressed some of the conceptual issues that would pave the way to start Chapter Four, which is the implementation of GTRS. The results of the GTRS attempt will then be further discussed in chapters Six and Seven.

CHAPTER FOUR: THE DOING OF THIS GTRS INVESTIGATION

Introduction to the Chapter

A general presentation of the result of a qualitative research usually involves advancing the research thesis, presenting the theme, and illuminating the topics (Bogdan & Biklen, 1998, p. 194). This general form of presentation would serve the purpose to communicate with the audience the end results of a qualitative research. Due to the nature of this investigation, a general form of presentation is insufficient for demonstrating the process of experimenting the use of grounded theory in research synthesis.

Therefore, it was my intention to document the process of my conducting the research project to present practicing of the idea and use of grounded theory for research synthesis. The reason is that a time series presentation would provide descriptions of the research activities as "artifacts" to help the reader to follow how grounded theory for research is implemented in this investigation.

Included in this chapter will be the process and descriptions as to how I went through this research experience. I have attempted to justify my thoughts, my judgments, and my decisions; the problems I had, the challenges I faced, and how I steered the data collection, analysis, and coding. The generated memos and categories will also be presented along with the descriptions and discussions. These items, in total, are what I mean by "artifacts" in this investigation, and they are the evidence of the development of this GTRS.

The idea to document more than just the results/findings of the study came from my dissatisfaction as a reader of grounded theories on the presentation of grounded

theories. Albeit, grounded theory might include different aspects for presentation and "the form of presentation can be independent of this [grounded theory] process by which it was generated (Glaser & Strauss, 1967, p. 31)", many grounded theories are presented in the forms of categories and discussions on the categories[17] without an account on the process of doing the studies (e.g., Strauss & Corbin, 1998).

As Anfara, Brown, & Mangione (2002) said, the "privatization" of qualitative research analysis has been a dilemma for the qualitative researchers. They suggested "assessing and publicly disclosing the methodological rigor analytical defensibility" (p. 28) is critical to the research's accountability. In terms of qualitative data analysis, they proposed the use of code mapping to make the research process more public. In this chapter, the presentation of the artifacts is aimed to serve the same methodological concern.

To document the process of this research also serves to provide the context for the presentation of a GTRS protocol in Chapter Six, which will be a summary of the experience here in Chapter Four and some further discussions on the procedural aspects of GTRS.

GTRS Rationales Reiterated

Before getting into the documented description and arguments of this research process, I would like to reiterate the major rationales of using grounded theory for research synthesis. Distance education programs have proliferated during the last decades

[17] Glaser and Strauss (1967) described two forms of grounded theory presentation: discussional and propositional. Propositional presentation means a "well-codified set of propositions" (p. 31). Either form of presentation, without an explicit presentation of the process, seems to me is an oversight of an important aspect of grounded theory—process—which is promoted by Glaser and Strauss.

as the development of new media technologies (Lee, Driscoll, & Nelson, 2004, p. 239) and so have distance education research publications. However, a review of distance education literature showed that distance education researchers have called for more understandings and theoretical development for the field.

Research synthesis, by aggregating and synthesizing primary research studies, is one way of providing such understandings and theoretical development. However, existing research syntheses of distance education have offered very limited contribution in this regard.

Yin (1991) proposed that grounded theory could be a robust tool for research synthesis. Grounded theory in itself is a methodology and a set of methods for conducting qualitative research with the sole aim of generating "middle range" theories that are "grounded" in data.

Grounded theory is a well-developed research methodology with a set of elaborated research procedures and tactics. It has been widely used and published since its introduction in year 1967. Research synthesis, on the other hand, did not receive much attention until the 1980s after meta-analysis was introduced to systematically and rigorously synthesize research studies. Among the existing research synthesis methods, none has been seen as rigorous, and yet at the same time, robust enough to synthesize both qualitative and quantitative studies.

A Substantive Theory

Upon the onset of this GTRS investigation, a question emerged and a decision had to be made for the study to carry on: What type of theory should I aim for generating?

The answer to this question would reflect the nature of distance education literature and would guide the GTRS development.

Glaser and Strauss (1967) discussed about substantive and formal grounded theory. They stated that a substantive theory is theory that "developed for a substantive, or empirical, area of sociological inquiry" (p. 32) and that a formal theory is "developed for a formal, or conceptual, area of sociological inquiry" (p. 32).

A formal grounded theory is distinguished from a substantive grounded theory in terms of the degree of generality. Although Glaser and Strauss (1967) do not exclude each other and may hint or point into each other, it is stressed that the researcher "should focus clearly on one level or other, or on a specific combination, because the strategies vary for arriving at each one" (p. 33). Since this study is about the synthesis of distance education research studies, it seems that the subject area fits the description of a theory as "developed for a substantive, or empirical, area of sociological inquiry, such as patient care, race relations, professional education, delinquency, or research organization" (p. 32)[18].

The goal of this study, therefore, is to derive a substantive area of distance education. This clarification is important, since substantive grounded theory and formal grounded theory differ only in degree of generality (Glaser & Strauss, 1967, p. 33), a formal grounded theory would require the comparative analysis to be made among data from "different kinds of substantive cases and their theories, which fall within the formal area, without relating the resulting theory to any one particular substantive area" (Glaser

[18] Example topics given by Glaser and Strauss (1967) for formal grounded theory are: "stigma, deviant behavior, formal organization, socialization, status congruency, authority and power, reward systems, or social mobility" (p. 32).

& Strauss, 1971, p. 178). Therefore, this grounded theory for research synthesis of distance education will methodologically aim for the discovery of a substantive theory.

Data Collection

As discussed in Chapter Three, data collection is governed by using grounded theory for research synthesis. However, there are conceptual conflicts to be reconciled before and during the data collection process.

General research synthesis starts with defining research questions. In some cases, the scope of research synthesis is very specific on a variable or topic. In other cases, the scope can be broad, as reviewed in Chapter Two of this study. The collection of data, hence, will be confined in accordance with the predefined scope. In addition, to achieve the requirement of rigour in research synthesis, it is necessary to define what will be included for synthesis.

The process of research synthesis and the pursuit of rigour, however, lead to a possible methodological conflict in terms of data collection, when trying to use grounded theory for research synthesis.

Negotiating GTRS Data Collection

Several considerations are taken into account for the methodological issue of data collection when trying to use grounded theory for research synthesis:

1. Theoretical sampling: In grounded theory, data collection has to be guided by the mechanism of theoretical sampling. That is, the data collection will follow the development of the categories from data analysis.

2. Data coverage: Glaser and Strauss (1967) suggested that the grounded theorist start the data collection with the fullest possible data coverage first, to seek the emerging of main categories, and then follow the principle of theoretical sampling to collect data only on categories for the generation of properties and hypotheses (p. 69). After the emerging of main categories, the idea of full coverage is no longer applicable (p. 70).
3. Selection of Groups: In theoretical sampling, the choosing of groups or sub-groups for proceeding of data analysis is a basic issue (Glaser & Strauss, 1967, p. 47). The criterion of choosing of groups is "theoretical purpose and relevance" (p. 47-49); and that those groups to be included in data collection should not be "definite, prescribed, preplanned" (p. 49). They went on further to point out that the researcher "cannot cite the number and types of groups from which he collected data until the research is completed (p. 50).
4. Theoretical saturation: The grounded theorist would stop his data collection upon the point of "theoretical saturation" (Glaser & Strauss, 1967, p. 61). When the collection of additional data (sampling) on a category does not generate new properties, the researcher has the confidence that the category is "saturated". Theoretical saturation is evidenced by the repetitive occurrence of similar instances and solidified by the outreach for more diverse groups for comparison.

A researcher who conducts a study of research synthesis, on the other hand, has different ways of seeing the process of data collection. With the dissatisfaction on the non-systematic data collection approach of narrative review, researchers of research

synthesis have promoted the concept of rigour as a guiding principle for conducting research synthesis:

1. Inclusion of data: In response to traditional narrative review, later development of research synthesis methods stresses the importance of the explicit description of criteria for data inclusion to elevate the degree of rigour. Slavin (1986) suggested to present samples of studies, both included and excluded.
2. Exclusion of data: Given the vast amount of data (research studies) usually available for research synthesis, the exclusion of data becomes one foremost issue for research synthesis researchers to deal with. It is not only for the reason of manageability but also for the validity of the results of research synthesis (Ogawa & Malen, 1991, p. 276-277).
3. Data coverage and bias: While primary researchers usually have relatively well-defined data sampling schemes, literature researchers see that "any single source of primary reports will lead them to only a fraction of the relevant studies, and a biased fraction at that" (Cooper & Hedges, 1994, p. 10). Since the sources of literature can range from large non-evaluative databases such as ERIC, PsycINFO, and Social Science Citation Index to personal communications with researchers, this issue of multiple channels of data resources and the introduced bias requires careful consideration for research synthesis researchers (Cooper & Hedges, 1994, p. 10). Furthermore, the issue of underrepresented research literature (Reed & Baxter, 1994, p. 65) adds another aspect of complexity into the issue of massive data and bias.

4. Quality of research studies included: The coverage of data and the introduction of bias from data is a major issue for the enterprise of research synthesis. One important aspect involved with bias and data coverage is the mechanism of the quality of data included for research synthesis. As Glass said, "Many weak studies can add up to a strong conclusion" (1977, as cited in Rogers, 1985). Khan, Daya, & Jadad (1996), for example, demonstrated that the inclusion of poor-quality research studies produced a false effect that was not present while only high-quality studies were included. They, therefore, concluded that the quality of included literature would influence the results of a meta-analysis study.

Reconciliation #1: The Data

For the purpose of research synthesis, the methodological issues are made explicit at the very early stage of this study. Grounded theory and research synthesis have fundamental differences in terms of how data collection should be implemented.

The nature of this study is a grounded theory for research synthesis of distance education. As this study is using grounded theory as the research methodology, the major methods and mechanism should be followed in order to utilize the power of the methodology. In the meantime, considerations and issues in the area of research synthesis also need to be accounted for to make this study a research synthesis rather than simply a grounded theory of distance education.

In regard to data collection for this study, boundaries of data must be defined in some way for the purpose of starting the project. For grounded theory, the mechanism of

theoretical sampling subscribe to both an outreach to a broad range of data, then focus on the theoretical relevant data for generation of properties on the emerging categories.

Research synthesis, as an under-developed realm of study with various approaches, has had mixed ways of handling data collection. With the concept of rigour, the data coverage has to be explicitly defined. The literature search is usually exhaustive although the inclusion can be selective with criteria specified in research design.

To meet the requirements of rigour in research synthesis, I would like to specify the scope of target literature explicitly for data inclusion.

As sources of data, I would like to use the major research journals in the field of distance education. This set of journals would be used as the starting point of the data collection pool. The journals I would like to include are:

- The American Journal of Distance Education (USA)
- Distance Education (Australia)
- Journal of Distance Education (Canada)
- Open learning (UK)

These journals are peer-reviewed and have been the subjects of some research reviews. Lee, Driscoll, and Nelson (2004), for example, conduct a content analysis of these four journals. They stated their reason for selecting these four journals for review as, “These journals were selected because of their recognition among researchers as the most prominent in the distance education field, and because they had been used as data sources in previous studies” (p. 226). The data from these four journals, therefore, is assumed to be representative of the field of distance education research.

To include the studies with good quality (good informants in qualitative research; best evidence in research synthesis), I would further narrow down the scope of the data inclusion to only studies with a section with research methodology or research design specified. Journal articles such as opinion papers, editorials, book reviews, commentaries and announcements are not included in the data pool.

Since the field of distance education has been under rapid development, I would focus on the recent two years of issues from 2002-2003.

The assumption here is that these criteria would provide a sufficient pool of data for a grounded theory development, since theoretical sampling suggests a broad scope of data coverage to start the data collection. It has to be noted that these specifications are tentative since, with the integration of literature being handled by grounded theory, the mechanism of theoretical sampling would follow the emergence of the theory and thus will not be limited within the initial data pool when theoretical relevance and saturation require data collection beyond the data pool.

Reconciliation #2: Selection of Groups

To meet the requirement of rigour in research synthesis, I have defined a pool of journals to start this grounded theory for research synthesis investigation. The concept of the selection of groups in theoretical sampling would provide justifications for such inclusion of these four journals in addition to having good informants.

Glaser and Strauss (1967) talked about the selection of comparison groups. They noted that the selection of groups for comparison is made by, “comparing diverse or similar evidence indicating the same conceptual categories and properties” (Glaser &

Strauss, 1967, p. 49). Group comparison, however, is conceptual and by no means meant to limit theoretical sampling. With this selection of the four journals, however, each research journal would give good representation of the whole field of research and provide a volume that includes diverse and similar voices from the field. Furthermore, each research journal has its own preferences and focus in the type of studies to publish (Rourke & Szabo, 2002), thus they represent a level of diversity for comparison.

Glaser and Strauss (1967) gave an example of selecting groups:

> …one could write a substantive theory about scientists' authority in organizations, and compare very different kinds of organizations to develop properties associated with the divers categories that might emerge: authority over clients, administration, research facilities, or relations with outside organizations and communities; the degree or type of affiliation in the organization; and so forth. (p.50)

The selection of the four journals, therefore, can serve as the selection of comparison groups and the pool of studies as a starting point of grounded theory development data collection. It is to be noted that, although with the specified pool of data, the preplanned data collection will ultimately be guided by the theoretical relevance of the grounded theory analysis. On the other hand, the use of the journals as the groups denotes the assumption that different journals possess different qualities and, therefore, can be used to generate, develop, or confirm the properties in a grounded theory development.

There are, of course, more research studies than those published in certain research journals. Glaser and Strauss (1967) reminded the grounded theory researchers that:

> …he must remember that he is an active sampler of theoretically relevant data, not an ethnographer trying to get the fullest data on a group, with or without a preplanned research design. As an active sampler of data, he must continually analyze the data to see where the next theoretical question will take him. (p.58)

As a research synthesis, however, it is hoped that the data pool would provide enough "groups" for comparison for the discovery of a theoretical construct of distance education research. In other words, although it can not be pre-planned, I expect that this data pool would have enough incidents and similar or different groups "built-in" for the grounded theory process to reach theoretical saturation.

Approaching Data: Pilot Coding

With the data pool defined, I decided to do a pilot coding for the reason of the nature of the data.

As reviewed earlier, Glaser and Strauss (1967) have suggested the use of published library materials for grounded theory (p. 163) and to treat them as "anthropologist's informant or the sociologist's interviewee" (p. 163). Plus Turner's (1984) suggestion to treat documents as field-notes and Yin's (1991) proposal to use grounded theory for research synthesis, there are enough proposals, but there are no existing guidelines for it. With all the advices to treat research literature as field-notes

and the substantive area of interest as the field, the degree of resemblance that exists between field-notes from a naturalistic setting and research literature remains unknown.

To take a slice of coding to have a "taste" of the "field-notes," I started with a set of research articles from the Journal of Distance Education. This is a Canadian journal dedicated to distance education. It's a renowned peer-reviewed journal and has been under several reviews. I randomly picked ten articles from the stack of printouts. They include two articles from volume 11, number 2 (1996); four articles from volume 17, number 2 (2002); three articles from volume 18, number 1 (2003); and one article from volume 11, number 1 (1996). I consciously picked theses articles randomly. For me, to start this pilot coding was like entering the field for fieldwork. Upon the entering, the decision on the point of entry could be arbitrary.

Start with Simple Questions

To start open coding, Glaser (1978, p. 57) proposed the use of three guiding questions:

1. What is this data a study of?
2. What category does this incident indicate?
3. What is actually happening in the data? What is the basic social psychological problem(s) faced by the participants in the... scene?

Similarly, to facilitate the emergence of grounded theory in the open coding stage, Glaser (1992b, ¶4) suggested that grounded theory researchers ask two simple "formal, neutral, not preconceived" questions to start coding:

1. What is the chief concern of the people in the substantive area under study and how is it processed?
2. What category or what property of what category does this incident indicate?

Glaser (1992b, ¶4)) went on with: "The researcher asks these questions while constantly comparing incident to incident, coding and analyzing. He uses the constant comparative method of analysis. Soon categories and their properties emerge which fit, work, and are of relevance to the processing of a problem."

I sat down and started reading through the articles and asked simple questions and jotted down codes. Mostly my questions went like this: What is this about? What does this mean?

Coding Instrument

For grounded theory coding, Dick (2002) suggested a coding sheet like this (see Figure 3):

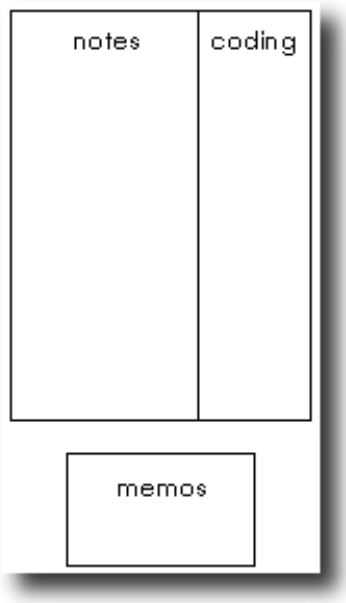

Figure 3. Sample grounded theory coding sheet

This is a simple coding instrument which seemed helpful. It contains a sheet of paper with a notes section and codes section, and a separate card for memoing. At the coding of the first three articles, I created this form format in my word processing software to do the coding. For the notes part, instead of treating each article directly as field-notes, I had the idea to read through the articles and put down the reading notes in the notes section. I was hoping that, by doing this, I would be emulating the fieldworks such as observation and interviewing; except, only I would be observing and interviewing the research articles, independently.

With each article, I prepared a coding sheet; put basic information such as bibliography and research type on the top of the coding sheet; read through the whole article to do my "fieldwork"; wrote down my notes in the notes section, and then wrote the codes in the coding section. To thoroughly scrutinize my work, I wrote down the paragraph number on each article, since I perceive that paragraphing is the way the

authors chunk their ideas. While I was adding my codes, I wrote down memos whenever I found something interesting. Some memos are theoretical memos when, for example, similar incidents coming up to catch my attention as a possible category. Some memos are operational memos as reflections of my doing this coding. Some memos are questions raised during the coding and analyzing. Part of my coding sheet #3 looks like this (see Figure 4):

9. the province has a long tradition of using DE but the growth of technology use was behind. The reason being: the use of cost-recovery model and limited funding in postsecondary education.	Cost
10. technology: participants associated DE with Internet or on-line learning. Appropriate technology was emphasized by experienced DE. There was an overall optimism about the role of DE in increasing access and addressing educational needs.	Technology: Internet is most perceived. DE seen promising
11. **Methods of Distance Delivery** Media include: print, computer-based technologies (including internet), AV, teleconferencing, email.	
12. Web-based technologies are seen strong (with interactivity and multimedia capacity).	Internet potential

Memo

?? how do u come up with the interview questions? It is not mentioned in the report. If it's used as a tool, then how do you know if the tool is good enough or not?

Paragraph 9 talked about the convergence between DE and traditional classroom-based education and use the emergence of terms like distributed learning as the evidence. Interesting!!

DE is seen as the new education: a new teaching-learning paradigm.

Comparison between DE and Traditional on-campus education programs is DIFFERENT from comparison between STUDENTS in the two programs.

Figure 4. Sample of pilot coding (double coding): Coding sheet with notes, codes, and memos

I carried on coding like this for the first three articles and had to stop after reviewing my codes. The attempt to use this coding sheet came from the idea of treating

each article as an interview or field observation; as to simulate the common practice of qualitative research fieldwork. However, with the extra layer of work of translating from the research article to "field-notes" then coding, I found that it was laborious and, most importantly, it did not help with the coding since this was merely a translation and I was not able to "interact" with the writing since it was a data source really different from interviewees or informants. Another drawback that I felt about adding this layer of work was that it is a reduction of information, which didn't seem to help with the generation of codes. Furthermore, to me, it included analysis and coding already, so I was doing double coding with a possible loss of information for the sake of coding.

Therefore, I decided to give up on the form of "interviewing" or "interacting" with the articles, instead, to treat, as Turner (1984) suggested, the documents as field-notes and code them directly. I, therefore, wrote my code directly on the margin of the articles and my memos on the bottom of them. This strategy went well at the beginning, and I was able to code a lot faster in this fashion since I was coding the documents directly. However, after coding through article three to article eight, I found myself getting a lot of good codes, but they did not seem to 'come together' in shaping up categories that are "conceptual" enough. All I had were codes running over on the margins of the articles and some very general themes like (see Figure 5):

- Distance education programs vary -->
- Technology seems to be a central theme
- Distance education components could be thought of as a system

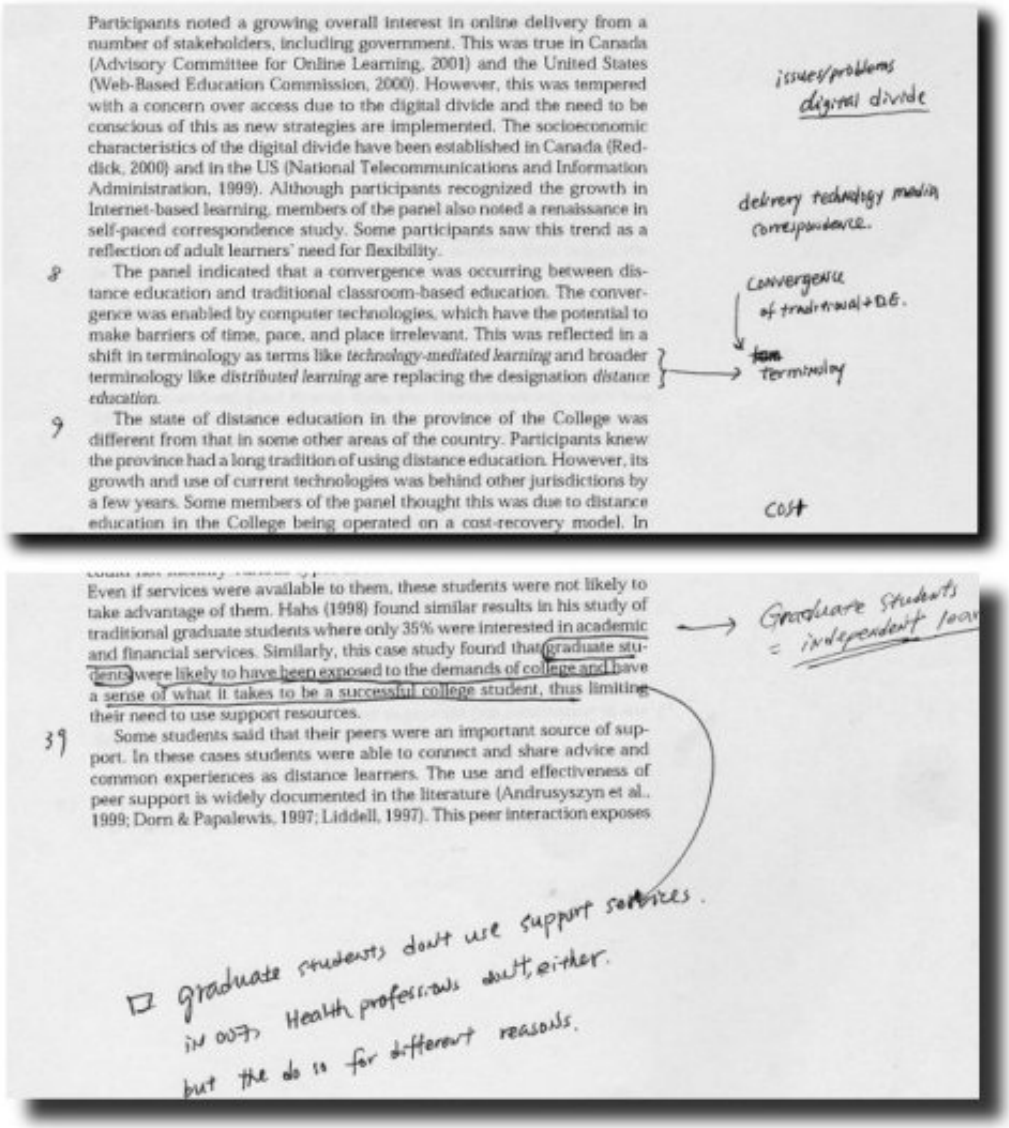

Figure 5. Sample of coding directly done on articles with codes and memos

While doing grounded theory coding, I also found that the basic information of each article (such as topic information and research method information as seen synthesized in the content type research syntheses), on the other hand, seemed very tempting. It is easy to come up with a coding scheme or take or modify an existing one

and code the articles in accordance with. However, it is not grounded theory in which categories and themes should emerge from the data, rather than being verified.

Code Mobility[19]

This pilot coding strategy, although it came up with the themes that seemed valuable and with potential for further development, however, had to be stopped for another technical coding issue: the mobility of the codes. In grounded theory, the use of constant comparative analysis requires comparison from incidents to incidents. While the coding starts with some local concepts that are low at the conceptual abstraction level, the comparison between incidents (and the codes associated with them) would force the researcher to generate higher level concepts through the comparison process. However, the problem I found with this nature of data was that it was extremely difficult to carry a set of codes over to the next article for comparison. While more and more codes were generated, I found myself going back and forth to find the previous codes for comparison purposes. With ten articles, I would have around one hundred pages to browse to make this comparison possible. This mechanical movement impeded the coding process too much, and it was not plausible to code the articles directly, anymore. Therefore, I stopped at the coding of the eighth article and decided to seek help from using a qualitative data analysis (QDA) software.

Another aspect has to do with the issue of coding mobility is the field of distance education research being heterogeneous. Since this GTRS uses distance education as the field of study, the characteristic of incidents scattering around has to be taken into

[19] This is the term I used to describe the level of difficulty to carry the codes coded from one document to the next document for comparison.

consideration. As compared to research synthesis focusing on one specific topic area or proposition or even one variable, the number of incidents/codes in this type of research synthesis can be more difficult to manage. While this use of pre-constructed coding scheme is not compatible with grounded theory, GTRS has to deal with the scattering of the incidents' concepts.

In addition to the heterogeneity of research articles, the abstract nature of research studies as data might have contributed to this code mobility issue. One aspect of social science and educational research is data reduction. The process of doing research requires the researcher to reduce the data for results for the purpose of presentation. Since research articles are refined by the researchers, they tend to be well organized and contain only contextual information deemed "necessary" for the study. This could have caused the loss of "rich" contextual information which provides the "links" among the incidents, and later the concepts. As in initial open coding, the generated codes are individual incidents that might indicate concepts to generate codes that are higher in concepts. The contextual information, (if existing) might serve as properties of initial codes to link the codes together for integration. This loss of contextual information should be less of a problem for general qualitative studies with a naturalistic setting, but it was difficult to make the link among codes, and thus caused the code mobility issue.

As far as Glaser and Strauss (1967) were concerned, "Coding need consist only of noting categories on margins" (p. 106). They further noted that, "since coding qualitative data requires study of each incident, this comparison can often be based on memory. Usually, there is no need to refer to the actual note on every previous incident for each

comparison" (p. 106). However, with the unique nature of data in GTRS, the use of QDA software might be beneficial.

In addition to the code mobility issue, this pilot coding experience brought up at least two other coding issues: level of conceptualization and unit of analysis.

Level of Concepts

One issue that I was concerned about throughout this pilot coding was the level of conceptualization of the codes. As grounded theory stresses the importance of coding be conceptual, being conscious about it kept me alerted during this process, and I started to explore on this issue in the middle of the pilot coding period.

This problem is a subtle one, since the definition of "concept" as to be indicated by incidents, to be labeled in the form of code, as to be developed into category, can be vague.

The American Heritage Dictionary of the English Language (4th edition) defines concept as:

con·cept

NOUN:

1. A general idea derived or inferred from specific instances or occurrences.
2. Something formed in the mind; a thought or notion. See synonyms at idea.
3. A scheme; a plan: "*began searching for an agency to handle a new restaurant concept"*.

Seeing from the above definition and reflecting on what Glaser and Strauss (1967) gave as an example of concept:

> The sociologist may begin the research with a partial framework of "local" concepts, designating a few principal or gross features of the structure and processes in the situations that he will study. For example, he knows before studying a hospital that there will be [DOCTORS, NURSES, AND AIDES, AND WARD AND ADMISSION PROCEDURES]. These [CONCEPTS] give him a beginning foothold on his research. (p. 45)

Concept, as discussed by Glaser and Strauss (1967), therefore, could denote very concrete ideas. The term "concept" from the above passage seems to resemble the first definition of The American Heritage Dictionary of the English Language (4th ed.) as "A general idea derived or inferred from specific instances or occurrences." Concept, in grounded theory, can be interpreted as to being used in contrast with instances or occurrences. Glaser and Strauss (1967) even warned for over-abstraction of conceptual level by saying that,

> … in deciding upon the conceptual level of his categories, the sociologist generating theory should be guided by the criteria that the categories should not be so abstract as to lose their sensitizing aspect, but yet must be abstract enough to make his theory a general guide to multi-conditional, ever-changing daily situations. (p. 242)

The level of conceptualization for a grounded theorist, therefore, should not become an issue. Grounded theory coding looks for incidents for comparison. The incidents (or, instances or occurrences) are indicators of concepts. Upon analyzing the indicators, the grounded theorist would code the incident, and thus give it a label which is higher at the level of conceptualization than the incident. The grounded theorist, as in

control of the coding process, can decide at what level he wants to work on in generating theories. Therefore, level of conceptualization should not become an issue, as it simply is a contrasting idea to incident and is in control of the grounded theory researcher.

In regard to the level of conceptualization in this GTRS coding, there is one significant aspect to be noted: that much information in research articles are high at conceptual level as research involves abstraction of data rather than just accumulation of incidents. As opposed to the data sources such as interview transcripts, field-notes, or personal documents, research literature as a data source is unique in this regard; that is, the use of concepts as incidents for grounded theory analysis.

Unit of Analysis

In the pilot coding, I coded in two fashions. In the first three articles, the strategy was 1) using a coding sheet; 2) maintaining paragraphs structure as possible indication of concept and took notes from each paragraph; 3) coding the notes while coding through the text, line-by-line. From article four to eight, I coded the article directly with the paragraph numbers marked and put the codes on the margins of the article.

I was not too comfortable with what I experienced in terms of the coding strategy. So I stopped coding and started reading more about coding. With the coding of line-by-line and paragraph, I turned to see what grounded theory experts were saying about the unit of analysis.

Glaser (1992) discussed how to start coding and stated:

> There are a few different ways of approaching the process of open coding. But none can be preconceived. Whether in constant comparative coding during open

> coding [sic] the analyst starts with (1) line by line analysis, closely examining phrases, words or sentences, (2) sentences or paragraphs, or (3) entire documents, depends. (p. 48)

Holding a naturalistic view of conducting grounded theory, Glaser (1992) suggested "upon starting the constant comparative coding, the type of data collected will soon dictate the most generative units to code and analyze" (p. 48).

Strauss & Corbin (1998) also discussed in some details on the open coding process, and they discussed in more detail about the "micro" aspect of open coding: "There are several different ways of doing open coding. One way is line-by-line analysis. This form of coding involves close examination of data, phrase by phrase, and sometimes word by word ..." (p.119). Glaser and Strauss (1998) further illustrated the possible later stages of open coding in terms of a unit of analysis as:

> Moving on with different ways of coding, the analyst also might code by analyzing a whole sentence or paragraph. While coding a sentence or paragraph, he or she might ask, "What is the major idea brought out in this sentence or paragraph?" Then, after giving it a name, the analyst can do a more detailed analysis on of that concept. This approach to coding can be used at any time, but is especially useful when the researcher already has several categories and wants to code specifically in relation to them. (p. 120)

The third strategy of open coding of an entire document as explained by Strauss and Corbin (1998) is:

> … to peruse the *entire document* and ask "What is going on here?" and "What makes this document the same as, or different from, the previous ones that I

> coded?" Having answered these questions, the analyst might return to the document and code more specifically for those similarities and differences. (p. 120)

These readings confirmed my strategy of reading through the articles in a line-by-line fashion. However, as discussed in the code mobility and level of concepts sections, this GTRS investigation deals with data with a different nature from general qualitative research with naturalistic settings. The research documents are presented in a form that is more organized than field-notes would be. They are structured into certain forms of presentation: with sections and paragraphs. By starting with paragraphs in the first three articles was based on the noticeable feature that paragraphing is how the authors "chunk" their ideas. In addition to paragraphs, research documents have structured sections. They usually start with an abstract section, followed by the research background or introduction; then a description of methodology utilized; the results of the study; and finally the conclusions and discussions.

When reading these, Glaser (1992) and Strauss and Corbin's (1998), I understood that their description on unit of analysis in the open coding stage of research would definitely apply genuine qualitative data, but I was not able to figure out whether they would affect my open coding in this GTRS study. It was, however, confirmed that a "microanalysis" was a good strategy for starting open coding. Since I had scrutinized the articles with a line-by-line coding and finding that it had not much problem except the code mobility issue, I decided to try QDA software and see if it would help with the code mobility issue before I went on with more coding.

Use of QDA Software Package

Mangabeir, Lee and Fielding (2004) reported that there is a trend that Computer-Assisted Qualitative Data Analysis, (CAQDAS, or Qualitative Data Analysis Software, QDA) is gaining greater software sophistication. With its development since the late 1980s, qualitative packages have went beyond an aid to code-and-retrieve. There have been, however, concerns regarding the methodological implications of the use of qualitative packages, especially in grounded theory. Researchers have expressed that QDA is "promoting convergence on a uniform mode of data analysis and representation" (Coffey, Holbrook, & Atkinson, 1996).

Kelle (1997) cautioned about the use of qualitative data analysis software and argued that there are epistemological and philosophical conflicts between QDA software packages and qualitative research approaches, in general, and grounded theory in specific.

With the difficulties in handling the codes, I decided to seek help from qualitative data analysis software for coding. However, to avoid adding an additional layer of complexity to this investigation, I chose to use the QDA software for facilitating my coding only. In other words, I would use it to "mobilize" my codes for comparison of incidents only. For analysis activities beyond simple coding (e.g., memoing; coding tree building), I decided not to use the QDA software. With this rudimentary aim, most available software packages would satisfy this need. After evaluating and testing several commercially available software packages, the software package I chose was HyperRESEARCH (version 2.6).

The Data Pool

With the experience from the pilot coding and the known conceptual issues (level of code conceptualization and unit of analysis,) and technical issues (using QDA software to facilitate coding), and data pool defined, I started to collect the initial pool of data for analysis. The journal articles are collected according to the criteria set: 1) published on the four journals in 2002-2003 and 2) with a description of methodology or research design. In total, 70 articles out of the four journals were collected (see Appendix). The numbers of articles from each journal are indicated below:

- Journal of Distance Education: 15
- The American Journal of Distance Education: 22
- Distance Education: 18
- Open learning: 15

I was aware that the articles excluded (e.g., announcement, editorial, publication review, viewpoint among others) might contain good information. However, the definition and collection of this data pool is to serve both requirements from research synthesis (rigour) and grounded theory (theoretical sampling) to start the open coding. The bias introduced by data inclusion/exclusion, as inevitable in research synthesis, is intended to be canceled out through constant comparative analysis.

Open Coding

All 70 articles of this data pool were loaded into HyperRESEARCH in full text format. The articles in PDF format were formatted into plain text format then imported

into HyperRESEARCH for processing. To start the open coding of the selected data pool, I began with the simple questions as in the pilot coding (see Figure 6). While I read through the text, I asked questions like: “what is this about?” and “what is this referring to?” When I saw an indication of concept, I assigned a code to it. Each indicator is used only once to avoid over-emphasis on one incident. Some codes were annotated to clearly identify what each code meant.

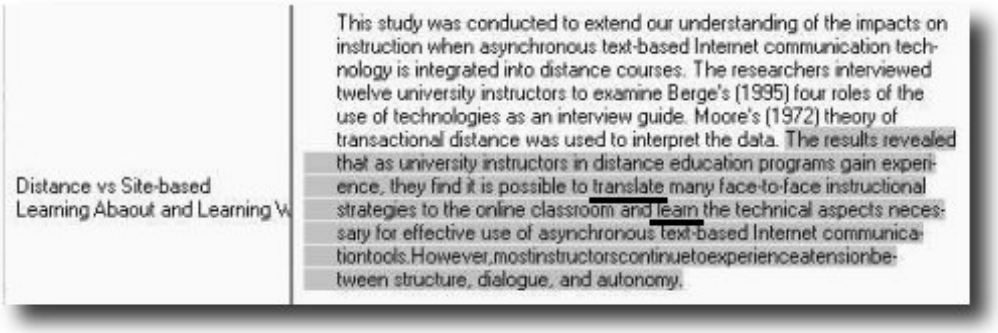

Figure 6. Sample of open coding

In HyperRESEARCH, there are two types of code lists: master code list and case code list. The master code list is the code list for the whole study and the case code list contains only the codes of the study (case) under analysis. The master code list was helpful when I moved from one document to another. With the character of scattering of incidents of the documents, the number of codes coded grew fast but they seemed heterogeneous at the initial coding stage. A master coding list kept a record of all the codes assigned and I felt more confident being able to keep track of what I had coded in previous documents.

Without knowing how the structure of the articles would affect the emergence of data, I started with line-by-line coding on the articles. Each section of the articles were accounted for equally, without focusing on certain section(s) of the articles, with the assumption that they were all voices from the field. However, after several articles, I soon found that sections of abstract, introduction, and conclusion and discussion sections offered were richer in information than other parts of the articles. Turner (1984), in his grounded theory synthesis of reports used only the first paragraphs of the reports to generate categories. Rogers (1985) proposed propositional inventory which uses only the results sections of the research studies to conduct research synthesis. Their strategies were found pragmatic in this study since those sections were more informative than other sections.

The Code List

First batch. The first 16 articles generated 167 codes and a number of memos. Seeing in Figure 7 is a partial code list with annotations following the codes.

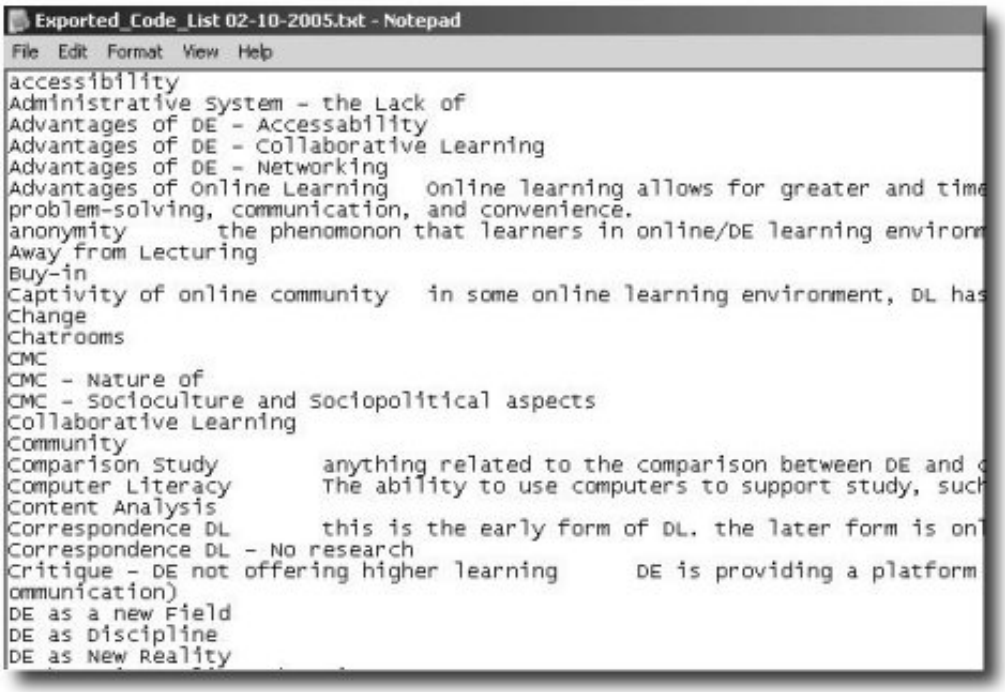

Figure7. Open code list

Grouping and revising codes. While open coding, categories started to emerge. As the open coding continued, a revision of codes occurred as a conduit to clarify the categories. This is organization, not forcing, since open coding is still an ongoing process.

After grouping the codes together, a set of tentative categories developed and the coding became more focused on the categories. Seeing in Figure 8 is a partially grouped code list.

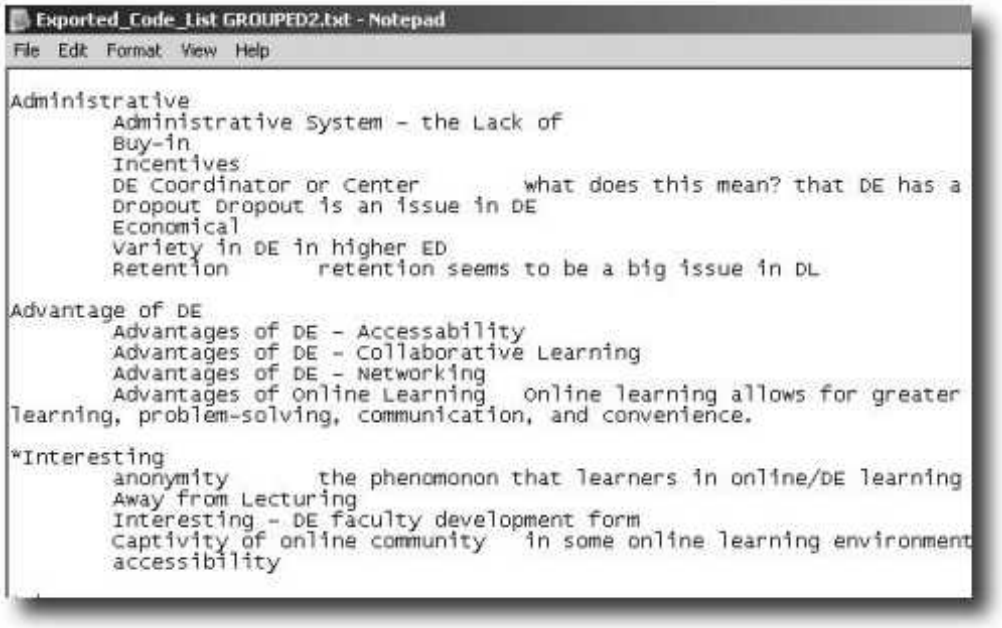

Figure 8. Revised code list

The purpose of grouping this code list is to further theoretical sensitivity in coding. While the coding went on, I continued revising codes. The revision of codes actually was an ongoing process throughout the open coding period.

Some initial categories started to emerge from the open coding process. Administrative, for example, is one theme that shows a system perspective of distance education during the coding process.

The code list shows that the coding is still low at “conceptual level”. What this means is, the codes themselves looks high at concept level, but they are INCIDENTS. Although it is not discouraged to use the terms from the data source as code/category, I still strived for something higher at conceptual level.

Along with the process of more analysis and coding, the codes were revised, expanded, deleted, grouped, and regrouped. For example, the code “virtual community”

was later recoded (renamed) into “online community” and virtual community was deleted. Another code “Variety in DE in higher ED” was deleted because it is a statement from a researcher rather than indicated from the incidents. Variety of distance education programs is observed to be an existing theme but it has to be built on the incidents rather than statement to be considered conceptual. All the “Topic title” codes were discarded because they don't serve indicating concepts but present accumulation of information towards a descriptive typology.

The way to revise these codes is to use the code lists in HyperRESEARCH. The master code list is what I used to carry forward a set of codes from one article to another without having to memorize all the codes. But as the code list grew longer, it was necessary to revise it for the purpose of clarifying the concepts. Some of the codes were discarded.

“Time - Administrative Staff”, “Time - DE Instructor” “Time – Student” “Time-Saving - a Myth” were recoded to “Time.” The code “DE becoming Online Education” was coded and soon discarded since an overwhelming majority of articles evidenced this phenomenon, and it becomes a property (in the form of a memo) of the code “Online Learning.”

The code revision process helped reduce the number of codes on the master code list and made the coding process more focused. The end result was the emergence of the core categories.

The conceptual level issue was a strange one since I am coding concepts as incidents for concept. In many incidences, I could directly take the terms from the excerpts, and it would suffice to describe the idea.

With a few exceptions, most studies analyzed discussed distance education within higher education.

Main Categories. While the coding proceeded, revision and integration of codes played an important role in the emergence of the core categories. For example, the code "subject – agriculture" was first coded for the application of distance education was new. Later on, with more coding, I found that distance education was used in diverse program areas, and it was recoded into "Program Areas" with other similar subject areas.

This process of code integration went on in the process of coding. While new codes were still being added, the previous codes were gradually integrated into categories higher at conceptual level. Some codes sounded strikingly familiar at once instance, but later did not become substantive enough (I called them orphan codes), and were eventually discarded. In general, the number of codes decreased when more integration was completed.

Along with the delimitation of codes, the categories started to emerge:

1. Technology is the main theme that runs through the field of distance education research literature. The Internet technologies are dominant in terms of mode of delivery.
2. The concept of online community is used to describe the environment where distance teaching and learning occur as opposing to on-site education.
3. Interaction/interactivity is assumed as an underlying theme for distance education programs. It draws a lot of discussions and is the center of research in distance education.

4. The Online “learning environment” is treated as an overarching term to refer to the online distance learning environment.
5. Learners in distance education are under study with perception being the focus.
6. Online learning has become the mainstream of distance education. Other forms of distance education have not been discussed. Variation of distance education programs in higher education shows the wide-spread adoption and implementation of distance learning.

Selective Coding

Saturation

While the above discussions in the theoretical sampling and selection of groups in grounded theory data collection seem to make the process of data collection infinite, the mechanism of theoretical saturation, however, put a barrier in the process of theoretical sampling. As pointed out by Glaser and Strauss (1967), “when to stop sampling the different groups pertinent to a category is the category's theoretical saturation” (p. 61). In other words, when a category and its properties are fully constructed by the researcher and further sampling of incidents can not refine the category, the level of saturation is reached. To assure saturation, sampling of different groups needs to be utilized. The exhaustion of all the available data, on the other hand, is not a major concern of the researcher. Theoretically, it is not possible to go through “all” of the literature. The use of the initial data pool, therefore, is the substantive area in interest.

In this investigation, when the main categories emerged, the coding and analysis became selective. With the categories becoming more solid, I started to code only on the categories and stopped looking for new categories. Some revisions and refining were used but the main categories stayed.

Online community later became the core category of this coding and analysis activity. The code lists are integrated into the main categories. Each category became more solid when selective coding went on. The core category of online community preceded other categories and other categories were seen as subcategories (see Figure 9).

Figure 9. The code map

The Memos

Memos are taken during the process of the course of study. There are operational memos that document what I did and how I proceeded with this research, which are the source of Chapter Five. There are theoretical memos that are used to constitute the theory itself, which is presented in Chapter Four.

Memos were produced throughout the data analysis process. Most memos are theoretical in nature as dealing with the emergence of categories and the discovery of the theory. Theoretical memos are notes, which deals with the conceptual codes (codes generated from as indicated by incidents), categories (a group of conceptual codes), properties (discussions on codes), and relationship among the codes.

Whenever a code started to repeat itself, I jotted down a memo to note it. If there is a conceptual conflict between or among codes, I jot down a memo. When I see codes coming together, thus becoming a category, I jot down a memo. When I have questions regarding a code or category, I jot down a memo.

In addition to theoretical memos, when I notice myself operating on the process of data analysis, I jot down a memo. These are operation memos as in regard to how I proceed with this grounded theory investigation process.

The end result of a grounded theory research is a theory that "emerges" from data (the distance education research literature) and thus is "grounded" in the data. Glaser and Strauss (1967) noted that "The major difference between this methodology and other approaches to qualitative research is its emphasis upon theory development" (p. 274). As Merriam (1998) put, "Rich description is also of importance but is not the primary focus of grounded theory development" (p. 17). Since it's a "theory"[20], it is inclining to conceptual rather than descriptive as in contrast to the content analysis type of research synthesis as reviewed in chapter two. The creation of another typology, as has been done with previous reviews, is not the goal of this study.

[20] "Middle-range theory" as falling between the everyday life "minor working hypotheses" and "all inclusive grand theories" as discussed by Glaser and Strauss (1967, p. 33)

The presentation of a grounded theory can be “discussional” or “propositional” (Glaser & Strauss, p. 115). Discussional theory denotes a grounded theory analyst covering many properties of a category and is often useful at the exploratory stage of theory development. The reader of a discussional theory, however, can easily translate it into a propositional theory. Glaser and Strauss (1967) gave an example of this translation:

> Two related categories of dying are the patient’s social loss and the amount of attention he receives from nurses. This can easily be restated as a proposition: patients considered a high social loss, as compared with those considered a low social loss, will tend to receive more attention from nurses. (p. 115)

A grounded theory is usually a description of a set of conceptual categories (or propositions) and the relations among the categories. The generation of grounded theory is strictly drawn from data. In other words, grounded theory is “grounded” in the data it is derived from.

The Grounded Theory: Distance Education

The aim of this investigation was to conduct a research synthesis of the field of distance education and to explore the application of grounded theory in research synthesis. The grounded theory derived from the investigation is presented in this section with the main categories in **bold font face**.

Observation: Online learning has become the mainstream mode of distance education. Other forms of distance education have not been discussed among the articles in the data pool as synthesized in this GTRS investigation. Variations of distance

education programs in higher education indicated the wide-spread adoption and implementation of distance education programs.

The development of the new communications **technologies** has enabled distance education to be brought up to a different level. With the new technologies, especially the advent of the Internet during this past decade, the **online community** has become the virtual reality of distance education. With this new online community in place, the learners, the instructors and the technologies **interact** among each other in ways analogous to the face-to-face instruction world.

It is the development of technologies that has made this all possible. The key to this new technological phenomenon in distance education is **accessibility**. It is the accessibility that connects distance education constituents together interactively with one another. The connectedness has enabled this online community.

This phenomenon is still too new and distance educators are still trying to understand it. The legitimate questions with pragmatic purpose so often asked are: Who are the learners? Why do they come to this distance education program? What are their **characteristics**? Will they stay? How do students feel about the program? How do they **perceive** this new online **learning environment**? What are their **attitudes** towards their learning in this environment?

The **interaction** from increased accessibility brings up the social dimensions of the online community just like in the face-to-face classroom setting. **Social presence** is evident in **group discussions**. The social presence is seen in the sense of security that results from learners' anonymity; the frustration with the new difficulties from these new

technologies; the participation in the group discussions, and ironically, the isolation learners feel in the online community.

Reflecting on this GTRS of Distance Education

What this grounded theory entails is the "nature" of the field of distance education. As stated in the Purposes of Study in Chapter One, this GTRS aimed for conducting a research synthesis of the field of distance education using a grounded theory approach. As in contrast to the research synthesis efforts on distance education as reviewed in Chapter Two, this GTRS investigation has achieved a research synthesis different from the prior research synthesis studies. With the target of research synthesis as a whole field, it is easy to accumulate factual information as prior research syntheses have done. However, the content analysis type of research synthesis, although comprehensive and representative enough to voice for the field of distance education, lacks the theoretical depth to further the study of the field. Instead of accumulating and building typology of the research methods employed and content categories, this GTRS sought to step into the theoretical perspectives of distance education research community by using grounded theory as the tool.

With grounded theory, the "discovered" theory is grounded in data. In other words, this GTRS does not speculate on building a theory from what I see as appropriate or what I think a distance education should be like. Instead, the grounded theory was derived inductively from the data, which are the articles in the research journals and thus represent the "voices" of the distance education research community.

As a substantive theory, this GTRS is local to the field of distance education and it reveals the nature of the field of distance education by identifying the dimensions that weaving this field of study. From this aspect, this GTRS is a step further into the in-depth theorization of distance education that has been called for in the research community as reviewed in Statement of Problem in Chapter One.

In one of my early memos, I noted that the field of distance education is a field in struggle. The memo came from both my prior knowledge of distance education before I started this investigation and from reviewing the literature in preparation of this investigation. The "struggle" denotes the phenomenon that, along with its development, the tribe of distance education has sought for recognition as a field of study and has called for theoretical development. This observation in the end did not come up as a category in this GTRS investigation but it brought to my attention back to the "thinness" of distance education research studies. For example, although the overwhelming interests in interaction or interactivity in the online community, I did not find a good definition of interaction or interactivity during this investigation. This too applies to other dimensions identified in this GTRS of distance education. For example, with a fairly large amount of research on student perceptions, the nature or the definition of learner perceptions did not attract much attention from distance education researchers either. This is at least true in this GTRS investigation.

The line of the struggles of distance education could lead to future research in the appraisal of the field. For example, why are some of the topics repeatedly researched and why are others not paid much attention; how do the distance education researchers feel

about their research? These types of questions could lead to better understandings in the field of distance education albeit not directly a theoretical development.

While this investigation addressed the theoretical exploration of the field of distance education, the methodological aspect of this GTRS too has its complex facets that are worth additional attention. The field of research synthesis has a history of development and has come to the point that further clarifications are needed. Research synthesis, with the exception of meta-analysis methods, has proliferated into a variety of approaches over time though most of them have stayed in the form of proposals as reviewed in Chapter Two of this investigation. This GTRS, as the realization of Yin's (1991) proposal, has used grounded theory for research synthesis to achieve theoretical development of a field of interest.

In additional to the contribution as an experiment of using grounded theory for research synthesis to advance the theoretical development of the field of distance education, this GTRS investigation has also added a new application of grounded theory methodology. Although a novel research method, this GTRS has made an effort in developing the procedures for this use of grounded theory for research synthesis and can be used as a step stone for future research endeavors in this regard.

CHAPTER FIVE: A GTRS PROTOCOL

In this chapter, I will present my grounded theory for research synthesis protocol. This is a summary of what I have done during this investigation. As in comparison with Chapter Three which is a proposed procedure for conducting a GTRS research, this chapter is a description of the GTRS process after the experiment, as demonstrated in Chapter Four. The form of presentation here in this chapter would be to explain the general process and procedures of conducting a research synthesis using grounded theory methodology, which I refer to as GTRS. This is to formalize, with my experience from going through Chapter One to Chapter Five, a protocol or framework of how I implemented this GTRS investigation. In addition to "what I did," I would also include some of what I deem could be done better. This chapter, therefore, is a summary of experiences of and reflections on the technical, procedural, and methodological issues.

Two major perspectives will be discussed in this chapter; the mechanism perspective (the technical-inclining parts of the process including procedures and methods) would be laid out in a step-by-step format as proposed,; while the methodological perspective would be discussed along with the running descriptions of the protocol.

The purpose of creating this GTRS protocol is to formalize the process of applying grounded theory for research synthesis as this investigation is a new attempt. This protocol would be a contribution to the development of methods in research synthesis.

The protocol presented here in this chapter is based on the research experience from this investigation as implementing a GTRS for the synthesis of selected research journals of distance education. The viability of using grounded theory for research synthesis beyond synthesizing research journals would require further exploration and some other possibilities.

The Interplay between Grounded Theory and Research Synthesis

This GTRS protocol is to use grounded theory to synthesize primary research studies as proposed by Yin (1991). The field of distance education is under investigation with distance education research journals as the representation of the field.

As an application of grounded theory for research synthesis, this GTRS is an interplay between grounded theory and research synthesis. Grounded theory itself is a well established methodology with specific research methods. Research synthesis, on the other hand, is a research enterprise with an umbrella of various approaches with the same purpose of synthesizing primary research studies.

In chapter Three, I proposed that the data collection in GTRS should satisfy the requirements of both research synthesis and grounded theory; that a pool of data collection should be defined to follow the principle of rigour in research synthesis; and yet the mechanism of theoretical sampling should start with the data pool, but not limited within. Since GTRS is research synthesis using grounded theory as the tool for analysis and synthesizing, grounded theory provides the major methodological guide toward the aim of research synthesis with some ground rules of research synthesis followed, mainly the concept of rigour and being systematic.

This GTRS is aimed at generating a "substantive theory" of distance education as discussed in Chapter Four. To create a formal grounded theory, a higher level of comparative analysis would be required, and that can be achieved by using grounded theory to analyze multiple substantive areas.

Research synthesis is a research area with various approaches. As Rogers (1985) pointed out, research synthesis is to synthesize research studies into "more general and theoretic conclusions" (p. 13). The content analysis type research synthesis of research journals as reviewed in Chapter Two, although low at conceptual synthesis, can serve theoretical implications by providing descriptive and evaluative information (Rourke & Szabo, 2002) about the field of distance education.

Grounded theory, with the aim of theory generation, use comparative analysis to analyze data, derive concepts from incidents, further concepts to categories, and to elaborate the categories and the relationship among hypotheses or propositions to generate theories.

When grounded theory and research synthesis come into play, I will take account each of the research approaches and describe the procedures of the GTRS protocol described below.

Specifying a Problem Area for Research Synthesis

To define what to synthesize is the first step of doing a research synthesis. Depending on the purpose of the research synthesis, different synthesis goals would require different synthesis approaches. For example, a medical researcher synthesizing the treatment effect of a new medicine would probably want to use meta-analysis for a

comparison or correlation study, rather than conducting a propositional inventory. For GTRS, given the well-established research tool set of grounded theory, it is especially appropriate in exploring less-understood or problematic substantive areas. For example, Yin (1991) suggested the use of grounded theory for the synthesis of multi-vocal literatures which are comprised of "all accessible writings on a common, often contemporary topic. The writings embody the views or voices of diverse sets of authors" (Ogawa & Malen, 1991, p. 265).

For research synthesis, problem formulation is the first step of the research synthesis process (Cooper & Hedges, 1994, p. 8). The formulation of the process involves the next step of data collection as for what data to include or exclude. For grounded theory, to start a grounded theory process, a researcher needs only begin with a perspective, a general subject, or a problem area (Glaser & Strauss, 1967, p. 45). Theoretical relevance would later guide the direction of data collection without a preconceived theoretical framework.

Data Collection

Defining Initial Data Pool

As long as the problem area is defined and the purpose of synthesis justifies the use of GTRS for theoretical exploration, an explicit set of criteria for the collection of the initial data pool needs to be specified. The explicit explanation of criteria used for defining the data pool is to meet the requirement of rigour from research synthesis. This defining ensures that the scope of data collected matches the purpose of synthesis. This

information is also useful for readers of the GTRS report to judge the quality of the GTRS.

As LeCompte and Preissle (1993) indicated, data collection procedures raise the issues of credibility, authenticity, trustworthiness, and comprehensiveness of information (p. 329). This definition of initial data pool in GTRS makes sure the quality of data collection is accounted for and, therefore, rigorous.

In Chapter Four, I discussed the negotiation between grounded theory and research synthesis on the issue of data collection. There is, fundamentally, a conflict between these two research methodologies. Grounded theory requires a very open approach of starting data collection and then let theoretical sampling direct the data collection with the only criterion of theoretical relevance.

Theoretical Sampling

Since grounded theory is the directive methodological perspective in GTRS, the initial data pool, therefore, would serve to provide a starting point for the grounded theory analysis (synthesis) process. In case the data pool provides enough data for theoretical sampling and constant comparative method to reach the stage of theoretical saturation, there will be no need to go beyond the data pool for additional data collection.

Theoretical sampling, as Glaser and Strauss (1967) stated:

> The depth of theoretical sampling refers to the amount of data collected on a group and on a category. In studies of verification and description it is typical to collect as much data as possible on the "whole" group. Theoretical sampling, though, does not require the fullest possible coverage on the whole group except

> at the very beginning of research, when the main categories are emerging—and these tend to emerge very fast. Theoretical sampling requires only collecting data on categories, for the generation of properties and hypotheses. (p. 69)

This is to say, that with a data pool defined comprehensively as to fully cover the whole group at the beginning of theoretical sampling, the researcher starts the open coding, seeking the emergence of categories, and lets theoretical sampling guide how much data to code in order to build the categories solidly through selective coding to reach saturation.

Inclusion of Comparison Groups

While theoretical sampling requires a more open approach on the collection of data, the selection of comparison groups is a strategy of grounded theory theoretical sampling that needs to be taken into consideration when defining the initial data pool.

For theoretical sampling, the purpose is to analyze as many possible groups of diversities and uniformities until the emerging theoretical categories cannot be modified by the process of grounded theory analysis. That is, the theoretical sampling stops at theoretical saturation and the theoretical selection of groups is an important part of theoretical sampling. The initial data pool, therefore, should have the coverage of all possible relevant data that meet the criteria as to provide a breadth of data for the theoretical selection of groups. Note that this is a pre-planned data collection consideration, which conceptually violates the principle of theoretical sampling. The way I negotiate this strategy, however, is to envision the data pool as a virtual field (like a

tribe for an anthropologist) to collect data within and only go out of the village when the research necessitates.

For theoretical sampling, Glaser and Strauss (1967) stated that:

> Beyond the decisions concerning initial collection of data, further collection cannot be planned in advance of the emerging theory (as is done so carefully in research designed for verification and description). The emerging theory points to the next steps—the sociologist does not know them until he is guided by emerging gaps in his theory and by research questions suggested by previous answers. (p. 47)

In designing the selection of comparison groups, it is possible to assign the groups that represent “theoretical differences” from the researcher's theoretical sensitivity. In this GTRS investigation of the field of distance education, the use of different journals provides such possible diverse groups for theoretical sampling.

The selection of the initial data pool, therefore, should take into consideration the selection of comparison groups in grounded theory and the possible additional data collection that theoretical sampling might require to reach theoretical saturation.

This conceptual conflict in data collection between grounded theory and research synthesis is, therefore, reconciled through the design of the initial data pool. For research synthesis topics that do not provide such breadth of data, GTRS probably should not be used for such synthesis.

Inclusion of both Qualitative and Quantitative Studies

One viable reason to develop a new protocol for research synthesis is to include both qualitative and quantitative primary research studies in a synthesis effort. Not being able to include both quantitative and qualitative studies in research synthesis has been a problem for the researchers who engage in research synthesis. In contemporary educational research, quantitative and qualitative studies provide no less contribution to the research community. Grounded theory, as introduced by Glaser and Strauss in 1967, embraces the use of both quantitative and qualitative data as data sources. As long as the data provides theoretical relevance, it can be used for grounded theory analysis. One of the strengths of using GTRS for research synthesis is being able to include both qualitative and quantitative studies in synthesizing research studies.

It is to be noted that, in quantitative studies, much qualitative information is provided as well. Light and Pillemer (1982) argued that qualitative information is equally important as quantitative information. They gave an example of reviewing qualitative information in quantitative studies may provide important information; “descriptive information in one or several studies can provide clues that a different feature of the treatment, not formally built into a study's experimental design, may be more important than the original planned treatment” (p. 11) In addition, some research results are difficult to measure numerically and some studies just don't include enough information to be synthesized. Further more, as Light and Pillemer (1982) said, “Quantitative research studies usually report much information beyond statistical summaries” (p. 15). Glass, McGaw, and Smith (1981) therefore suggested “all of this 'other' information be coded

when possible and brought into the formal quantitative analysis" (as cited in Light and Pillemer, 1982, p. 15). For research synthesis approach such as propositional inventory (Rogers, 1985), only qualitative information is used for synthesis (p. 18).

For GTRS, since grounded theory focuses on conceptual elaboration aiming for theory generation, it is the conceptual indicator that GTRS looks for in analysis. GTRS is, therefore, data type-independent.

Data Analysis

Data analysis in grounded theory employs the mechanism of constant comparative method. As the researcher goes through the data, incidents are identified and coded with conceptual labels. The conceptual level elevates when categories emerge as the upper level conceptual, assuming sub-categories and concepts. The constant comparative method compares incident to incident, concept to concept, and category to category. After the main categories emerge, the coding process becomes selective as to code on the main categories only.

As the data analysis goes on, the selective coding would further solidify the category. At the end of data analysis, the researcher would have a theory with categories saturated theoretically that are not able be modified by further coding. The relationships among the categories are coded in the form of memos.

It is important to note that, in grounded theory, coding, analysis, and data collection are a joint activity. The researcher does not collect the data first and then start the coding process. For GTRS, this is another methodological conflict between grounded theory and research synthesis since, when collecting the initial data pool, the researcher is

conducting a research synthesis activity without involving the grounded theory coding and analysis.

To reconcile this conflict, the idea of using the data pool as a fieldwork activity becomes important. Since the researcher is not obligated to exhaust, nor limited within the data pool for data analysis and coding, the data pool can be seen as an entry point of the fieldwork to start the joint activity of data collection, coding, and analysis.

In this investigation, the process of grounded theory data analysis process is basically followed. However, the conflict remains that theoretical coding is limited within the initial data pool, at least at the beginning of analysis.

Coding with QDA Software

QDA software packages are welcomed by some researchers, while others caution their use. The use of QDA software in this GTRS investigation was limited to simple code management: coding, code revision, and exporting code list for further analysis. The reason for using QDA software in this investigation is code list mobility, because of the unique nature of documents as data. Two of the reasons for not using QDA software more intensively came from my evaluation of the software packages; their methodological orientation and the mechanical operation might lead the researcher to stray away from the data.

During my evaluation of QDA software packages, I found that the QDA package ATLAS.ti is designed for grounded theory development. However, it has its methodological inclination towards Strauss and Corbin's version of ground theory (Prouty, Thomas, Johnson, & Long 2001). Another reason to not use QDA software is for

the mechanical operations of some of their advanced features. HyperRESEARCH (v. 2.6), for example, has an auto-code function. In evaluating it, the use of keywords would generate codes in which many are unnecessary. For grounded theory, the target of coding is indication (rather than text), which needs to be analyzed to generate. In addition, even with the same text, the researcher's judgment would be needed to decide whether it's theoretically relevant.

Some researchers have expressed philosophical concerns about using QDA software. As Kelle (1997, section 1.3) discussed:

> Philosophical approaches, which play an important role within qualitative research, such as Phenomenology, the Oxford Philosophy of Language and continental Hermeneutical Philosophy (cf. Giddens, 1976), had always stressed that ambiguity and context-relatedness have to be regarded as central characteristics of everyday language use. Following this argument - which has been further elaborated by contemporary postmodernist approaches (Denzin and Lincoln, 1994: pp.10f.) - it is impossible to make sense of written or spoken messages in everyday contexts - an operation which forms the core of hermeneutic *Verstehen* - without a 'tacit knowledge' which cannot easily (if at all!) be formalized.

The use of QDA software in this investigation is, therefore, limited to the basic code management. For GTRS, given the unique nature of the data, use of QDA software is recommended.

Memoing and Writing up the Grounded Theory

Memoing is the ongoing documentation of the conceptual thoughts during the coding process on properties, categories, and the relationship among these categories. Memos are records of concepts. As discussed by Glaser and Strauss (1967), "Memo writing on the field note provides an immediate illustration for an idea" (p. 108). To write up the grounded theory, Glaser and Strauss (1967) suggested "it is first necessary to collate the memos on each category, which is easily accomplished since the memos have been written about categories" (p. 133).

The content of the memos is transferred to the writing of the grounded theory as the major themes of the theory. Summarizing the memos and conducting needed further analysis are the major activities of the writing up of the grounded theory. Glaser and Strauss suggested that the researcher can go back to the data for validation or use the codes for illustrations (p. 113).

CHAPTER 6: CONCLUSION AND DISCUSSIONS

Conclusion

This investigation aimed for a grounded theory exploration for research synthesis of distance education research literature. As a developmental project, this investigation addressed theoretical and conceptual issues in both grounded theory methodology and research synthesis. Much of the research effort was devoted to methodological reasoning and justifications for decision-makings, while approaching and negotiating the plausible use of grounded theory for research synthesis.

This GTRS investigation started with the general idea of distance education as a field being in need of more theoretical explorations (as reviewed in Chapter Two of this investigation). While theoretical exploration should be one of the goals of research synthesis (Rogers, 1985, p. 13), existing research syntheses of distance education research journals have not contributed to the aspect of theoretical development (as reviewed in Chapter Two). Rather, they tend to limit the level of synthesis at identifying or verifying typological constructs in terms of research methods and research topics.

The previous research synthesis efforts have identified or verified themes and issues in the field of distance education with very limited theoretical exploration. Grounded theory, with its capacity in identifying emergent categories and theory building (Yin, 1991, p. 303), should be able to bring the research synthesis of distance education to a higher level of conceptualization.

For the research context set up in this investigation, with this experiment and demonstration, the proposed GTRS protocol and the resulted GTRS for distance

education have pointed out a possible direction for the theoretical development of the distance education research community.

Research Synthesis, Grounded

The idea of this study is to try out the possibility of using grounded theory to perform research synthesis. I had this idea of doing a grounded theory-related project when I read about it, and thought it was an appropriate tool for conducting social science research. My observations on distance education as a field of study brought research synthesis to my attention. Research synthesis served as an additional layer that made this investigation a methodological contribution to both grounded theory and research synthesis. Technically, research synthesis is an aspect to get this study focused in terms of scope of data collection.

In this investigation, I used grounded theory methodology to conduct a research synthesis. Therefore GTRS is an application of grounded theory for research synthesis. Note that it is grounded theory *for* research synthesis rather than a grounded theory *of* research synthesis. Research synthesis, as in this investigation, is not the substantive area subjected to grounded theory analysis. Rather, this investigation aimed for the methodological blending and negotiation between grounded theory and research synthesis.

As Glaser and Strauss (1967) stated, the general notion of comparative analysis was developed by Weber, Durkheim, Mannheim and other social anthropologists (p. 22). Using this tool of comparative analysis, the forefathers of sociology have developed the most striking theories: Weber's (1968) theory (ideal type) of bureaucracy and Durkheim's

(1951) theory of suicide. Grounded theory, as developed by Glaser and Strauss (1967), formalized this comparative analysis method and furthered it into a methodology and a set of methods.

While grounded theory is a well-recognized methodology[21], research synthesis is a research enterprise striving for clarification and recognition[22]. Research synthesis varies in the approaches and levels of abstraction; narrative review is good for description, but lacks rigour and systematic procedure; meta-analysis is robust in synthesizing general conclusions (Glass, 1981, p. 22) quantitatively; the synthesis of qualitative studies is yet under development (as reviewed in Chapter Two); content analysis type of research synthesis, on the other hand, identifies research trends; Rogers' (1985) propositional inventory aims for synthesizing propositions from research results; Yin (1991) proposed the use of grounded theory for identifying emergent themes for synthesizing multi-vocal research literatures. All these research synthesis approaches can generate new knowledge with theoretical implications. Among them, grounded theory is designed to identify categories and further aggregate the categories into theories. For distance education, as an area of study that is going through rapid changes due to the advancement of new technologies, and thus in need of conceptual clarifications, a combination of grounded theory and research synthesis principles seem to have the potential for theoretical contributions.

The research synthesis principles used in this investigation are rigour and being systematic. A research synthesis of a field of study sounds too aggressive of a goal to achieve and might be a task better left to veteran researchers in the area of study. Content

[21] Glaser and Strauss later developed different opinions about grounded theory. See Babchuk (1997).
[22] Cooper and Hedges (1994, p. 7) discussed scholars' seeking of rigour in research synthesis since the 1980's and stated that this pursuit will continue into the twentieth century.

analysis types of research synthesis in distance education usually accept research journals to represent the field of study. These synthesis efforts, for the lack of methodological devices, tend to stop at the factual accumulations with a very low level of conceptualization. GTRS, therefore, could come into fill the methodological void. However, the negotiations made to make grounded theory viable for research synthesis deserve attention for future research.

Back to Yin's Proposal

While Yin (1991) proposed grounded theory's use for the synthesis of multi-vocal research literature, it has not been further developed or implemented. To use grounded theory for research synthesis in this investigation, therefore, necessitates the creation of a procedure for this purpose.

Can a grounded theory methodology be used for research synthesis? There are common recognized grounded theory methodologies for conducting a grounded theory study, among them are grounded theory by Glaser and Strauss (1967) and Strauss and Corbin (1990, 1998). Research synthesis, on the other hand, is a field of study with various approaches and proposals for different types of synthesis--with Yin's (1991) proposal being one of them. This investigation has used grounded theory for research synthesis and provided an example of the realization of Yin's idea.

Grounded theory is all about concepts[23]; and concepts leads to theories. Codes are labels of concepts indicated by incidents from data; categories (themes) are the elevation of concepts; and properties are the elaboration of concepts, categories, and the relationship among them (in the form of propositions or hypothesis). As an inductive

[23] e.g., Glaser and Strauss (1967, p. 114); Corbin and Strauss (1990, p. 7)

method of theory development, grounded theory develops ideas “on a level of generality higher in conceptual abstraction than the qualitative material being analyzed (Glaser & Strauss, 1967, p. 114)” and thus leads to concepts, categories, and theory. In the process of comparative analysis bearing conceptual abstraction, the diversity and uniformity of data are accounted for. Grounded theory is “emergent” from and “grounded” in data. The purpose of GTRS, therefore, has its methodological inclination in theoretical exploration.

Existing Theories in Distance Education

Two different types of grounded theories can be derived from grounded theory: substantive and formal. This GTRS investigation aimed at the generation of a substantive theory with its power of explanation within the substantive area of distance research literature in the research journals as in the existing research synthesis efforts reviewed in Chapter Two. The existing theories in the field of distance education, such as Moore's (1993) theory of transactional distance and Saba's (1999, 2003) system approach for distance education theory, are not equivalent to this investigation for comparison since they are not generated through comparative analysis. As a substantive theory generated from the data, this GTRS is local to the area from which it is discovered/constructed. The power of generalization hence is not claimed as it is a grounded theory.

Moore’s theory of transactional distance argued that the separation between the instructors and the learners is a feature variable of distance education. This separation causes a psychological and communications space to be crossed. This psychological and communications space is called transactional distance. Although transactional distance also exists in face-to-face instruction, the transactional distance in distance education is

significant enough to distinguish distance education as an area of educational practice. The extent of transactional distance, as Moore described, is a function of three sets of variables of interaction: instructional dialogue, program structure, and learner autonomy. In other words, it is these variables decide the degree of transactional distance (i.e., the psychological and communications space) in distance education.

Saba (1999, 2003) proposed the use of systems theory to encompass Moore's theory and other theorists' and researchers' theoretical contribution. Saba's proposal aims for "setting a stage for a systems view of distance education and provides the foundation for employing systems philosophy, methodology, and technology to establish and epistemology capable of serving the field in the foreseeable future" (p. 17). With the ambition of making distance education a pragmatic educational paradigm, Saba proposed that "distance education theory must explain the whole of education and not only when teacher and learner are separated in space and time" and that distance education should subsume other forms of education, including what is generally known as face-to-face or traditional education" (p. 17).

The results of this GTRS investigation, as can be seen from the above description of two prominent distance education theorists, operate at different level of the distance education construct. For Moore, to explain interaction and what affects the interaction (i.e., the variables) is the focus of his theory. Saba, on the other hand, is more ambitious with the goal to turn distance education into a new and overall educational paradigm by using systems theory. This GTRS, with its derivation from the data, is substantive to the area studied and thus is expected to work within which the area it is grounded.

It is to be noted that, the existing theories of distance education have not satisfied the need of distance educators, as evidenced in the problem statement in Chapter One of this investigation. Furthermore, during this GTRS investigation, their proposed theories have not come up as a theme within the literature synthesized. This shows that their theories have not provided the theoretical foundations for the field of distance education. This is at least true for the research studies synthesized in this investigation.

Strengths and Weaknesses of GTRS

As a research tool, GTRS has its strengths and weaknesses. The first strength of GTRS comes from grounded theory. As Hutchinson (1988) pointed out, grounded theory "offers a rich and complex explanatory schema of social phenomena" (p. 126). Grounded theory is strong in accounting for complex phenomena. GTRS, therefore, possesses the same explanation power.

The capacity of inclusion of both qualitative and quantitative studies in a research synthesis is a prominent feature of GTRS. Although quantitative research studies can be synthesized using meta-analysis methods, there has been a call for the inclusion of more qualitative information than quantitative information in quantitative studies in research synthesis. Light and Pillemer (1982), for example, argued that "qualitative information is equally important for explaining conflicting or puzzling outcomes" (p. 1). Grounded theory, as a data type-independent methodology[24], is able to be used to synthesize both quantitative and qualitative research literature.

[24] Use of quantitative studies for theoretical elaboration is proposed by Glaser and Strauss (1967, p. 15-18, 185-220). An example of using quantitative data for grounded theory development is can be seen in Haeworth-Hoeppner (2000).

With the procedures of constant comparative analysis, theoretical sampling, coding and memoing, grounded theory is rigorous in terms of the research process. The constant comparative analysis of data from diverse data sources (intentional selection of groups with diversities and uniformities) brings in triangulation from within the data source. As Glaser and Strauss (1967) said, upon saturation, a category has been under multiple-faceted investigation (p. 65).

As an application of grounded theory, GTRS has the same limits in its use. Generalizability, for example, is intended cautiously. For Glaser and Strauss (1967), the universality of grounded theory is not claimed. They stated “no attempt is made by the constant comparative method to ascertain either the universality or the proof of suggested causes or other properties” (p.104). Interpretation of GTRS results, therefore, has to be careful although the theory is usually grounded and would fit the context it was derived from and work for the purpose of its generation.

One obvious drawback of GTRS is that it is a new development and there are no existing procedures before this investigation, according to my knowledge. With an experiment and exploration like this investigation, there must be methodological issues in need of further review.

Another confusing issue of GTRS is its relations with existing theories in the same field of study. In this regard, it would be helpful to remind oneself what Glaser and Strauss (1967) said about grounded theory, “Both types of [substantive and formal grounded] theory may be considered as 'middle-range.' That is, they fall between the 'minor working hypotheses' of everyday life and the 'all-inclusive' grand thoeries [sic]” (p. 32-33). Haig (1996) related grounded theory with “model” and Weber used the term

"ideal type" to refer to a similar construct. These elaborations should be helpful for interpreting grounded theory and GTRS.

The Data

In comparison with general qualitative studies with a "real" field for research activities, this "dryness' characteristic of data source in this GTRS is apparent. There is no real informant/interviewee and, therefore, no interviews; there is no real field and activities to observe and participate; there is no conversation or personal correspondence. Summarily, there is no personalized interaction. The data in this GTRS investigation is relatively "dry." Wolcott (1988) discussed the use of written resources and said that anthropologists use all kinds of written records, "without limiting themselves to what is available in libraries (p. 198);" Glaser and Strauss (1967) talked about the data-type independent nature of grounded theory (p. 15-18, 185-220). It seems that using primary research studies as data is justified by the scholars, but its unique nature requires further acknowledgment and clarification if it's to be used as the sole source of data.

The lack of contextual information and interaction, I believe, is the cause of the dryness. With my experience in qualitative research, I have enjoyed the discovery of "interesting" ideas and phenomena, and the feeling of "freshness" and "richness" while exploring the context under study. Besides the difference in the context information, the data collection methods and the nature data collected would be different as well. For example, the common employed collection methods such as interviewing, participatory observation, or focus group are not available for GTRS for the lack of human content. In

other words, GTRS is the conduct of grounded theory without the presence of human interaction within the process.

One example of a qualitative study would give an example of how much the differences could be. In his ethnographic research, "*Adequate Schools and inadequate education: The life history of a sneaky kid*" by Wolcott (1988), under the section of "In the Chute," Wolcott has paragraphs of quotes (and quotes only) under the topics of On the Lose, Getting Busted, Second-Rate Jobs and Second-Rate Apartments, A New Life, 'Picking Up' What Was Needed, The Bicycle Thief, Being Sneaky, I Don't Have to Steal, But…., Breaking and Entering, Inching Closer to the Chute, I am Not Going to Get Caught, Home Is the Hunter, Growing Up, Getting Paid for Dropping Out, Hiding Out from Life. Under all these headings are quotes from the interviewee. By using quotes and quotes only, Wolcott let the data (interviewee's own words) speak for itself. In GTRS, there's no such opportunity as getting the quotes. When reading Wolcott's list of topics from the example aforementioned, we can see a characteristic of "richness" of data, and thus reflects the "dryness" of data in GTRS.

Another data-related issue has to do with the purpose of the investigation. Since this investigation aims for exploring the field of distance education research as a phenomenon with research journals as representing the field, it is the not so certain specific variables or hypotheses that this investigation is looking for to study. The goal is broad and the data collected and used are not to be synthesized in depth the same way, for example, as synthesis of certain propositions would be.

For the issue of the scope of data collection, a research synthesis would necessitate the scope of data to be defined. For example, Glass (1981, p. 22) suggested

that meta-analysis would not prejudice any research studies in terms of their quality and exclude certain types of literature. In GTRS, however, a totally pre-planned data collection would be a violation to the mechanism of theoretical sampling. In this GTRS, I proposed to define an initial data pool from the field of interest or problem area to accommodate this need for defining data collection, while leaving theoretical sampling to take care of the collection procedures beyond the initial data pool.

The initial data pool, for grounded theory as a qualitative research approach, is to emulate the field entry in general qualitative study. If the researcher's data needs are satisfied with the first site he studies, then he will probably not insist on going through all the sites available. When the researcher does need to acquire more data, then it is necessary to continue collecting such data. In other words, theoretical sampling relies on the theoretical relevance to decide the path of data collection, and to stop when theoretical saturation on the categories has been reached.

One issue to be dealt with while defining the initial data pool is the selection of groups. In theoretical sampling, the collection of data and selection of groups are up to their theoretical relevance. In this GTRS investigation, however, it is to a certain extent a "pre-planned" data collection, although theoretical sampling is not constrained by it. The assumed "groups" (different journals in this investigation) is a research design technique to provide an assumed variety of data sources for the grounded theory. It is the base of the data subjected to synthesis and needs to be carefully and objectively chosen.

Data reduction is another aspect of GTRS data. Educational research, whether qualitative or quantitative, involves the process of data reduction. This leads to a point that, in GTRS, I was dealing with data that already had been "reduced" to a form for

presentation and publication and, therefore, are “distant” from the original data (along with much of the contextual information from the real field). The reduction of data also attributes the information to containing a higher level of abstraction, when compared with the data received directly from participants through observation or interviewing.

The structure issue presents another characteristic of using primary research studies as data. Research articles usually are structured into sections. They are laid out with an abstract, the introduction of the research, literature review, the methodology and research design, and the results and conclusive sections. The issue of data structure is not handled in this GTRS investigation, and may need more clarification in future research.

The criteria for data inclusion and exclusion can be another area deserving more attention. Data inclusion involves the sampling procedure and the bias introduced by data included. In grounded theory, the theoretical sampling and constant comparative analysis are hopefully able to cancel off the bias. Observed from the perspective of naturalistic qualitative research, all data are the voices from the field. Although, good informants would provide desirable information from the researcher's point of view. A description of criteria for data inclusion of better quality is usually favored (e.g., Slavin, 1986). In this GTRS, an arbitrary set of criteria is used for the sampling of data; within the journals included, only primary research studies published between 2002 to 2003, with an explicit description of research methodology, would be included in the initial data pool. The reason for the methodological criteria is the assumption of methodological adequacy would, to a degree, ensure the quality of the information being synthesized. It can be, however, argued that methodological inadequacies do not always introduce bias (Jackson, 1980, p. 439). For this GTRS investigation, criteria for initial data inclusion is used as an

attempt to indicate rigour--although the issue of data inclusion is far more complicated than practiced in this investigation.

For this GTRS investigation, given the goal to generate a theoretical exploration that is conceptually higher than a general description of the substantive area of interest, the bias burden that is carried is less than those research synthesis efforts aiming for inference or generalization of primary research studies. The issue, however, still deserves more consideration in future research.

Echoing Holmberg

After I was done with the grounded theory process and came up with my theory, I felt that my theory was very "thin" and conceptually not very well interweaved. But, since it's the result of this GTRS investigation, I decided to leave it like that, given that I had reached theoretical saturation within the substantive area of the data pool.

However, I still felt very uneasy about the grounded theory for research synthesis of distance education. So I went out and read other distance education theories in the hope that I would find some other theories that might provide some theoretical relevance to me.

What I found was Holmberg's (1994) theory of distance education:

> Distance is based on deep learning as an individual activity. Learning is guided and supported by noncontiguous means which activate students, i.e. by mediated communication, usually based on pre-produced courses. This constitutes the teaching component of distance education for which a supporting organization is responsible.
> An individual study requires a certain amount of maturity, self-discipline, and independence, distance education can be an application of independent learning at the same time as it is apt further to develop study autonomy. Central to the learning and teaching in distance education are personal relations, study pleasure, and empathy between students and those representing the supporting organization.

> Feelings of empathy and belonging promote students' motivation to learn and influence the learning favourably. Such feelings can be developed in the learning process independently of any face-to-face contact with tutors. They are conveyed by students' being engaged in decision making; by lucid, problem-oriented, conversation-like presentations of learning matter that may be anchored in existing knowledge; by friendly, non-contiguous interaction between students and tutors, counselors, and other staff in the supporting organization; and by liberal organizational-administrative structures and processes. (p. 175)

As I compare my grounded theory to Holmberg's theory, I found that there are similarities and differences. Holmberg mainly talked about two themes here: individual learning and perceptions. The characteristics of learning individually, probably due to the interaction brought by the new communication technologies, has not been seen stressed in this GTRS. On the other hand, it is interesting to note that, ten years after Holmberg wrote his theory, the distance education research community is still focusing on the learners' perceptions and trying to understand what they are.

This GTRS investigation put the online community at the top of the study while a Holmberg's put personal relations at the center. Both theories can be analyzed to identify the similar components. In Holmberg's theory, however, personal relations and perceptions are stressed while interaction being one component. In this GTRS, the online community reflects a collective and often real time interaction among students and instructors. In that regard, this GTRS has reflected the deep involvement of contemporary distance education with development of new technologies which enable the communications and therefore the online community.

REFERENCES

Allen, I. E. & Seaman, J. (2003). *The Quality and Extent of Online Education in the United States, 2002 and 2003: Sizing the Opportunity*. Needham, MA: Sloan Consortium.

Allen, I. E. & Seaman, J. (2004). *Entering the Mainstream: The Quality and Extent of Online Education in the United States, 2003 and 2004*. Needham, MA: Sloan Consortium.

Anfara, V., Brown, K., & Mangione, T. L. (2002). Qualitative analysis on stage: Making the process more public. *Educational Researcher,31*(7), 28-38.

Anglin, G. J., & Morrison, G. R. (2000). An analysis of distance education research: Implications for the instructional technologist. *The Quarterly Review of Distance Education, 1*(3), 189-194.

Babchuk, W. (1997). *Glaser or Strauss?: grounded theory and adult education*. Midwest Research-to-Practice Conference in Adult, Continuing and Community Education. Retrieved February 07, 2003, from http://www.canr.msu.edu/aee/research/gradpr96.htm

Bangert-Drowns, R. L., & Rudner, L. M. (1991). *Meta-analysis in educational research*. (ERIC Document Reproduction Service No. ED339748).

Berge, Z. L., & Mrozowski, S. (2001). Review of research in distance education, 1990-1999. *The American Journal of Distance Education, 15*(3), 1-15.

Bogdan, R. C., & Biklen, S. K. (1998). *Qualitative research for education: An Introduction to theory and methods*. (3rd Ed.). Boston, MA: Allyn & Bacon.

Boyd, G. (1993). A theory of distance education for the cyberspace era. In Keegan, D. (Ed.), *Theoretical principles of distance education* (pp. 234-253). New York, NY: Routledge.

Caraballo-Olivera, M. A. (1994). *A theory of neurological processes in language acquisition: A qualitative meta-analysis*. Abstract retrieved August 1, 2003, from UMI ProQuest Digital Dissertation database. (UMI No. 9504322)

Carlberg, C. G., & Walberg, H. J. (1984). Techniques of research synthesis. *The Journal of Special Education, 18*(1), 11-26.

Charmaz, K. (1994). The grounded theory method: An explication and interpretation. In B.G. Glaser (Ed.). *More grounded theory methodology: A reader* (pp. 95-115). Mill Valley, CA: Sociology Press.

Coffey, A, Holbrook, B. & Atkinson, P. (1996). Qualitative data analysis: Technologies and representations, *Sociological Research Online, l*(1). Re http://www.socre sonline.org.uk/socresonline/1/1/4.html

Cook D. J., Sackett D. L., & Spitzer W. O. (1995). Methodologic guidelines for systematic reviews of randomised control trials in health care from the Potsdam consultation on meta-analysis. *Journal of Clinical Epidemiology, 48*, 167-171.

Cooper, H., & Hedges, L. V. (1994). Research synthesis as a scientific enterprise. In Cooper H. & Hedges, L.V. (Eds.), *The handbook of research synthesis*, (pp 3-14). New York: Russell Sage Foundation.

Crismore, A. (Ed.) (1985). Landscapes: A state-of –the-art assessment of reading comprehension research 1974-1984. Final Report, Volume 1. (ERIC Document Reproduction Service No. ED 261 350)

Davies, H. T. O., & Crombie, I. K. (2001). *What is a systematic review?* Retrieved August 1, 2003, from http://www.evidence-based-medicine.co.uk/ebmfiles/WhatisSystreview.pdf

Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of qualitative research.* Thousand Oaks, CA: Sage Publications.

DeWitt-Brinks, D., & Rhodes, S. C. (1992). *Listening Instruction: A Qualitative Meta-Analysis of Twenty-Four Selected Studies*. (ERIC Document Reproduction Service No. ED351 721)

Dey, I. (1999). *Grounding grounded theory: Guidelines for qualitative inquiry*. San Diego: Academic Press.

Dick, B. (2002). *Grounded theory: A thumbnail sketch*. Retrieved March 25, 2005, from http://www.scu.edu.au/schools/gcm/ar/arp/grounded.html

Douglas, D. (2003). Inductive theory generation: A grounded approach to business inquiry. *Electronic Journal of Business Research, 2*(1), Retrieved February 9, 2005, from http://www.ejbrm.com/archives/vol2-issue1/issue1-art4-douglas.pdf

Durkheim, E. (1951). *Suicide, a study in sociology*. (J. A. Spaulding and G. Simpson, Trans.). Glencoe, Il: The Free Press.

Eysenck, H. J. (1984). Meta-analysis: An abuse of research integration. *The Journal of Special Education, 18*(1), 41-59.

Gabriel, M. A. (2004). Learning together: Exploring group interactions online. *Journal of distance education, 19* (1), 54-72.

Garrison, D. R. (1993). Quality and access in distance education: theoretical considerations. In Keegan, D. (Ed.) (1993). *Theoretical Principles of Distance Education* (pp. 9-21). New York, NY: Routledge.

Garrison, R. (2000) Theoretical Challenges for Distance Education in the 21st Century: A Shift from Structural to Transactional Issues. *International Review of Research in Open and Distance Learning, 1*(1). Retrieved July 13, 2002, from http://www.icaap.org/iuicode?149.1.1.2

Glaser, B. (1978). *Theoretical Sensitivity*. Mill Valley, CA: Sociology Press.

Glaser, B. (2002). Conceptualization: On theory and theorizing using grounded theory. *International Journal of Qualitative Methods, 1* (2), Article 3. Retrieved October 20, 2004 from http://www.ualberta.ca/~ijqm/

Glaser, B. G. (1978). *Theoretical Sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine Publishing Company.

Glaser, B. G., & Strauss, A. L. (1971). *Status passage*. Chicago, IL: Aldine.

Glaser, B. G. (1992). *Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.

Glaser, B. G. (1992). *Emergence vs. forcing: Basics of grounded theory analysis.* Mill Valley, CA: Sociology Press.

Glaser, B. G. (1992b). *Basics of grounded theory analysis: Emergence vs. forcing.* Retrieved November 11, 2001 from http://www.groundedtheory.com/soc6.html

Glaser, B. G. (1998). *Doing grounded theory: Issues and discussions*. Mill Valley, CA: Sociology Press.

Glaser, B. G. (2002). *Conceptualization: On Theory and Theorizing Using Grounded Theory*. Retrieved November 28, 2004, from http://www.ualberta.ca/~iiqm/backissues/1_2Final/html/glaser.html

Glass, G. V. (1976). Primary, Secondary, and meta-analysis of research. *Educational Researcher, 5*(10), 3-8.

Glass, G. V. (1981). *Meta-analysis in social science*. Beverly Hill, CA: Sage Publications, Inc.

Glass, G.V. (1978). Integrating findings: The meta-analysis of research. *Review of Research in Education*, 5, 351-79.

Glass, G.V. (2000). *Meta-Analysis at 25*. Retrieved March 23, 2005, from http://glass.ed.asu.edu/gene/papers/meta25.html

Goetz J., & LeCompte, M. (1984). *Ethnography and qualitative design in educational research*. Orlando, Fl: Academic Press.

Haeworth-Hoeppner, S. (2000). The critical shapes of body image: The role of culture and the family in the production of eating disorders. *Journal of Marriage and the Family, 62*(2), 212 – 227.

Haig, B. D. (1996). Grounded theory as scientific method. *Philosophy of Education Yearbook.* Retrieved July 14, 2000 from http://www.ed.uiuc.edu/EPS/PES-Yearbook/95_docs/haig.html

Holmberg, B. (1987). The development of distance education research. *The American Journal of Distance Education, 1* (3), 16-23.

Holmberg, B. (1995). *Theory and Practice of Distance Education*. New York: Routledge.

Hossler, D., & Scalese-Love, P. (1989). Grounded meta-analysis: A guide for research synthesis. *The Review of Higher Education, 13*(1), 1-28.

Hutchinson, S. A. (1988). Education and grounded theory. In R. R. Sherman and R. B. Webb, (Eds.), *Qualitative Research in Education: Focus and Method.*(pp. 123-140). New York, NY: The Falmer Press.

Jackson, G. B. (1980). Methods for integrative reviews. *Review of Educational Research, 50* (3), 438-460.

Keegan, D. (1993). Introduction. In D. Keegan (Ed.) (1993). *Theoretical principles of distance education*, (pp. 1-6). New York, NY: Routledge.

Kelle, U. (1997). Theory building in qualitative research and computer programs for the management of textual data. *Sociological Research Online, 2* (2). Retrieved August 1, 2003, from http://www.socresonline.org.uk/socresonline/2/2/1.html

Kerlins, B. A. (1998). *Pursuit of the Ph.D.: Is it good for your health?* Paper presented at the 4th International Multidisciplinary Qualitative Health Research Conference Vancouver, British Columbia, Canada, February 19-21, 1998. Retrieved 03-24-2005, from http://kerlins.net/bobbi/research/myresearch/health.html

Khan, B. H. (Ed.). (1997). *Web-based instruction*. Englewood Cliffs: Educational Technology Publications.

Khan, K. S., Daya, S,, & Jadad, A. R. (1996). The importance of quality of primary studies in producing unbiased systematic reviews. *Arch Intern Med*, *156*, 661–666.

Kinach, B. M. (1996) *Grounded theory as scientific method: Haig-inspired reflections on educational research methodology*. Retrieved March 13, 2002, from http://www.ed.uiuc.edu/PES/95_docs/kinach.html

LeCompte, M.D., & Preissle, J. (1993). *Ethnography and qualitative design in educational research* (2nd Ed.). New York: Academic Press.

Lee, Y., Driscoll, M. P., & Nelson, D. W. (2004). The past, present, and future of research in distance education: Results from a content analysis. *The American Journal of Distance Education, 18*(4), 225-241.

Light, R. J., & Pillemer, D. B. (1982). Numbers and narrative: Combining their strengths in research reviews. *Harvard Educational Review, 52*(1), 1-26.

Livingston, A., & Wirt, J. (2004). *The condition of education 2004*, NCES 2004–077. Washington DC: U.S. Department of Education Institute of Education Sciences.

Lynham, S. A. (2000). Theory building in the human resource development profession. *Human Resource Development Quarterly*, *11*(2), 159-178.

Mangabeir, W. C, Lee, R. M., & Fielding, N. G. (2004). Computers and Qualitative Research: Adoption, Use, and Representation. *Social Science Computer Review, 22* (2), 167-178.

Marshall, C. and Rossman, G. B. (1999*). Designing qualitative research* (3rd Ed.). Thousand Oaks, CA: Sage Publications.

McIsaac, M .S., & Gunawardena, C.N. (1996). Distance education. In D.H. Jonassen, (Ed.), *Handbook of research for educational communications and technology* (pp. 403-437). New York: Macmillan Library Reference USA.

Merriam, S. B (1998*). Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.

Moore, J. (1999). *Some basic concepts in meta-analysis*. (ERIC Document Reproduction Service No. ED426101)

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education.* (pp. 22-38). New York, NY: Routledge.

Moore, M. G. (2001). *Distance Education in the United States: the State of the Art*. Retrieved August 1, 2003, from http://www.uoc.edu/web/eng/art/uoc/moore/moore.html

Moore, M. G., & Kearsley, G. (2005). *Distance Education: A Systems View* (2nd Ed.). Belmont, CA:Thomson/Wadsworth.

Noblit, G. W., & Hare, R. D. (1988). *Meta-ethnography: Synthesizing qualitative studies.* Newberry Park, CA: Sage Publications, Inc.

Ogawa, R. T., & Malen, B. (1991). Towards rigor in reviews of multivocal literatures: Applying the exploratory case study method. *Review of Educational Research, 61*(3), 265-286.

Open University. *About the OU: History of the OU*. Retrieved January 10, 2005, from http://www.open.ac.uk/about/ou/p3.shtml

Phipps R., & Merisotis, J. (1999). *What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education*. The Institute for Higher Education Policy. Retrieved August 1, 2003, from http://www.ihep.com/Pubs/PDF/Difference.pdf

Pillemer, D. B. (1982). Conceptual issues in research synthesis. *The Journal of Special Education, 18* (1), 27-40.

Popay, J., Rogers, A., & Williams, G. (1998). Rationale and standards for the systematic review of qualitative literature in health services research. *Qualitative Health Research, 8*(3), 341-351.

Prouty, A. M, Thomas, V., Johnson, S., & Long, J. K. (2001). *Methods of feminist family therapy supervision*. Retrieved January 20, 2005, from http://www.findarticles.com/p/articles/mi_qa3658/is_200101/ai_n8945498

Radcliffe-Brown, A. R. (1951). The Comparative Method in Social Anthropology. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland, 81*(½), 15-22.

Randy Garrison (2000). Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues. *International Review of Research in Open and Distance Learning*. Retrieved October 3, 2002, from http://www.irrodl.org/content/v1.1/randy.html

Reed, J. G., & Baxter, M. B. (1994). Using Referencing Databases. In H. Cooper & L. V. Hedges (Eds.), *The Handbook of Research Synthesis* (pp. 57-70).

Rogers, E. M. (1985). Methodology for meta-research. In H. H. Greenbaum, S. A. Hellweg, & J. W. Walter (Eds.), *Organizational communication: Abstracts, analysis, and overview, 10*. Beverly Hills, CA: Sage.

Rourke, L., & Szabo, M. (2002). A content analysis of the Journal of Distance Education 1986-2001. *Journal of Distance Education*, *17*(1), 63-74.

Saba, F. (1999). Toward a systems theory of distance education. *The American Journal of Distance Education, 13*(2), 24-31.

Saba, F. (2000). Research in distance education: A status report. *International Review of Research in Open and Distance Learning, 1*(1), 1-9.

Saba, F. (2003). Distance Education, Theory, Methodology, and Epistemology: A Pragmatic Paradigm. In M. G. Moore & W. G. Anderson (Eds*.), Handbook of Distance Education* (pp. 3-20). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.

Sandelowski, M., Docherty, S., & Emden, C. (1997). Qualitative metasynthesis: Issues and techniques. *Research in Nursing and Health, 20,* 365-371.

Schlosser, C., & Anderson, A. (1994). *Distance education: Review of the literature.* Monograph prepared for the Iowa Distance Education Alliance. Washington, DC: AECT Publications. (ERIC Document Reproduction Service No. ED382159)

Schreiber, R., Crooks, D., & Stern, P. (1997). Qualitative meta-analysis. In J. M. Morse (Ed.). *Completing a qualitative research project: Details and dialogue*. Thousand Oaks, CA: Sage.

Setzer, J. C., & Lewis, L. (2005). *Distance Education Courses for Public Elementary and Secondary School Students: 2002-03*. NCES 2005010, Washington, DC: U.S. Department of Education Institute of Education Sciences.

Sherman, S. S. (1994). Commentary: Grounded theory methods - applications and speculations. In E. Sherman and W. Reid (Eds.). *Qualitative Research in Social Work*. (pp. 152 – 160).

Sherry, L. 1996. Issues in distance learning. *International Journal of Educational Telecommunications, 1*(4), 337-65.

Slavin, R. E. (1986). Best-evidence synthesis: An alternative to meta-analytic and traditional reviews. *Educational Researcher, 15*(9), 5-11.

Stall-Meadows, C. (1998). *Grounded meta-analysis of qualitative case study dissertations in distance education pedagogy*. Retrieved August 1, 2003, from UMI ProQuest Digital Dissertations database. (UMI No. 9918818)

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.

Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.

Suri, H. (1999). The *process of synthesising qualitative research: A case study*. Paper presented at "Issues of rigour in qualitative research", annual conference of the Association for Qualitative Research, Melbourne, Australia. Retrieved September 24, 2001, from http://www.aare.edu.au/99pap/sur99673.htm

Suri, H. (2000). A critique of contemporary methods of research synthesis. *Post-Script, 1*, 49-55. Retrieved August 1 2003, from http://www.edfac.unimelb.edu.au/insight/postscriptfiles/vol1/suri.pdf

Thomas, G. (1997). What's the use of theory? *Harvard Educational Review, 67*(1), 75-104. Retrieved August 10, 2003, from http://www.library.ohiou.edu:2289/harvard97/1997/sp97/s97thom.htm

Turner, B. A. (1983). The use of grounded theory for the qualitative analysis of organisational behaviour. *Journal of Management Studies, 20*, 333-348.

Turner, P.D. (1997). S*econdary analysis of qualitative data: a roundtable discussion*. Paper presented at the 1997 Annual AERA Conference. Chicago, IL. (ERIC Document Reproduction Service No. ED 412231)

Weber, M. (1968). *Economy and society*. New York: Bedminster Press.

Weed, M. (2005). "Meta Interpretation": A method for the interpretive synthesis of qualitative research. *Forum: Qualitative social research, 6* (1), Art. 37.

Wolcott, H. F. (1988). Adequate Schools and inadequate education: The life history of a sneaky kid. In R. M. Jaeger (Ed.). *Complementary methods of research in education* (p. 221-250). Washington, DC: AERA.

Wood, P. (2000). Meta-analysis. In Glynis M. Breakwell, Sean Hammond & Chris Fife-Schaw (Eds.), *Research methods in psychology* (2nd edition), (pp.414-425). London: Sage.

Woolard, L. L. (1997). *The voices of children: A meta-analysis of early childhood qualitative research methodologies*. Retrieved August 1, 2003, from UMI ProQuest Digital Dissertations database. (UMI No. 9731510)

Yin, R. K. (1991). Advancing rigorous methodologies: A review of "Towards rigor in reviews of multivocal literatures…". *Review of Educational Research, 61*(3), 299-305.

Zakon, R.H. (2003). H*obbes' internet timeline v6.1.* Retrieved August 03, 2003, from http://www.zakon.org/robert/internet/timeline/

Appendix: Literature included in this GTRS investigation

Allen, M, Bourhis, J. Burrell, N., & Mabry. E. (2002). Comparing student satisfaction with distance education to traditional classrooms in higher education: A meta-analysis. *The American Journal of Distance Education, 16*(2), 83-97. Quantitative

Aragon, S. R., Johnson, S. D., & Shaik, N. (2002). The influence of learning style preferences on student success in online versus face-to-face environments. *The American Journal of Distance Education, 16*(4), 227-244. Quantitative (survey)

Armatas, C., Holt, D., & Rice, M. (2003). Impacts of an online-supported, resource-based learning environment: does one size fit all? *Distance Education, 24*(2), 141-158. Quantitative (survey)

Baumann, U., & Shelley, M. (2003). Adult learners of German at the Open University: Ttheir knowledge of, and attitudes towards Germany. *Open Learning, 18*(1), 61-74. Quantitative (survey)

Benson, A. D. (2003). Dimensions of quality in online degree programs. *The American Journal of Distance Education, 17(3)*, 145-159. Qualitative (case study)

Bjorck, U. (2002). Distributed problem-based learning in social economy-key issues in students' mastery of a structured method for education. *Distance Education, 23*(1), 85-103. Qualitative (transcript analysis)

Bonk, C. J., Olson, T. M., Wisher, R. A., & Orvis, K. L. (2002). Learning from focus groups: An examination of blended learning. *Journal of Distance Education, 17*(3), 97-118. Qualitative (focus group)

Browne, E. (2003). Conversations in cyberspace: a study of online learning. *Open Learning, 18*(3), 245-259. Qualitative (case study/interview/questionnaire/transcript analysis)

Buckingham, S. (2003). Perspectives on the experience of the learning community through online discussions. *Journal of Distance Education, 18*(2), 74-91. Quantitative (survey)

Cain, D. L., Marrara, C., Pitre, P. E., & Armour, S. (2003). Support services that matter: an exploration of the experiences and needs of graduate students in a distance learning environment. *Journal of Distance Education, 18*(1), 42-56. Qualitative (interviews and document analysis)

Cheurprakobkit, S., Hale, D. F., & Olson, J. N. (2002). Technicians' perceptions about web-based courses: The university of Texas system experience. *The American Journal of Distance Education, 16*(4), 245-258. Quantitative (survey)

Christianson, L., Tiene, D., & Luft, P. (2002). Examining online instruction in undergraduate nursing education. *Distance Education, 23*(2), 213-229. Quantitative (survey)

Conrad, D. (2002). Deep in the hearts of learners: Insights into the nature of online community. *Journal of Distance Education, 17*(1). http://cade.athabascau.ca/vol17.1/conrad.html Qualitative (interview/fieldnotes)

Conrad, D. (2002). Inhibition, integrity and etiquette among online learners: The art of niceness. *Distance Education, 23*(2), 197-212. Qualitative (interpretive)

Conrad, D. L. (2002). Engagement, excitement, anxiety, and fear: Learners' experiences of starting an online course. *The American Journal of Distance Education, 16*(4), 205-226. Quantitative/Qualitative (survey)

Creanor, L. (2002). A tale of two courses: A comparative study of tutoring online. *Open Learning, 17*(1), 57-68. Qualitative (case study)

Datta, S., & Macdonald-Ross, M. (2002). Reading skills and reading habits: A study of new Open University undergraduate reservees. *Open Learning, 17*(1), 69-88. Quantitative (survey)

Dickey, M. D. (2003). Teaching in 3D: Pedagogical affordances and constraints of 3D virtual worlds for synchronous distance learning. *Distance Education, 24*(1), 105-121. Qualitative (case study)

Fahy, P. J. (2002). Epistolary and expository interaction patterns in a computer conference transcript. *Journal of Distance Education, 17*(1). http://cade.athabascau.ca/vol17.1/fahy.html Quantitative (transcript analysis**)**

Fahy, P. J., (2002). Use of linguistic qualifiers and intensifiers in a computer conference. *The American Journal of Distance Education*, 16(1), 5-22. Quantitative (Transcript analysis)

Fong, C., & Woodruff, E. (2003). Web-based video and frame theory in the professional development of teachers: Some implications for distance education. *Distance Education, 24*(2), 195-211. Quantitative

Forsyth, R. (2002). Making professional development flexible: A case study. *Open Learning, 17*(3), 251-258. Quantitative (case study/survey)

George, J. (2002). Action research: Development for staff and students. *Journal of Distance Education, 17*(1). http://cade.athabascau.ca/vol17.1/george.html Qualitative (action research)

Goho, J. MacAskill, P., & McGeachie, P. (2003). Using a panel of experts to enrich planning of distance education. *Journal of Distance Education, 18*(1), 1-18. Qualitative (panel of experts)

Howland, J. L., & Moore, J. L. (2002). Student perceptions as distance learners in internet-based courses. *Distance Education, 23*(2), 184-195. Qualitative (survey)

Irani, T., & Telg, R. (2002). Building it so they will come: Assessing universities? Distance education faculty training and development programs. *Journal of Distance Education**,** 17*(1). http://cade.athabascau.ca/vol17.1/irani.html Quantitative (survey, descriptive)

Jeong, A. C. (2003). The sequential analysis of group interaction and critical thinking in online threaded discussions. *The American Journal of Distance Education, 17*(1), 25-43. Quantitative (Content Analysis)

Kanuka, H. (2002). A principled approach to facilitating distance education: the internet, higher education and higher levels of learning. *Journal of Distance Education, 17*(2), 70-86. Qualitative

Kanuka, H. (2002). Guiding principles for facilitating higher levels of web-based distance teaching and learning in post-secondary settings. *Distance Education, 23*(2), 163-182. Qualitative/Quantitative (interview/focus group/self-reflection/survey)

Kanuka, H., & Nocente, N. (2003). Exploring the effects of personality type on perceived satisfaction with web-based learning in continuing professional development. *Distance Education, 24*(2), 227-245. Quantitative (survey)

Kanuka, H., Collett, D., & Caswell, C (2002). University instructor perceptions of the use of asynchronous text-based discussion in distance courses. *The American Journal of Distance Education, 16*(3), 151-167. Qualitative (Interview)

Kemp, W. C. (2002). Persistence of adult learners in distance education. *The American Journal of Distance Education, 16*(2), 65-81. Quantitative (survey)

King, C., & Fricker, B (2002). Multimodal curriculum delivery in distance education. *Journal of Distance Education, 17*(2), 102-111. Qualitative (survey, focus group, interview)

Kirkwood, A. (2003). Understanding independent learners' use of media technologies. *Open Learning, 18*(2), 155-175. Quantitative/Qualitative (survey)

Lamy, M., & Hassan, X. (2003). What influences reflective interaction in distance peer learning? Evidence from four long-term online learners of French. *Open Learning, 18*(1), 39-59. Qualitative (ethnography)

LaPadula, M. (2003). A comprehensive look at online student support services for distance learners. *The American Journal of Distance Education*, *17*(2), 119-128. Quantitative (Survey)

Lee, J., & Gibson, C. C. (2003). Developing self-direction in an online course through computer-mediated interaction. *The American Journal of Distance Education, 17*(3), 173-187. Qualitative/Quantitative Transcript analysis

Levy, S., & Beaulieu, R (2003). Online distance learning among the California community colleges: Looking at the planning and implementation. *The American Journal of Distance Education*, 17(4), 207-220. Quantitative (survey/document analysis)

Litchfield, R. E., Oakland, M. J., & Anderson, J. A. (2002). Relationships between intern characteristics, computer attitudes, and use of online instruction in a dietetic training program. *The American Journal of Distance Education, 16*(1), 23-36. Quantitative (survey)

McConnell, D. (2002). Action research and distributed problem-based learning in continuing professional education. *Distance Education, 23*(1), 59-83. Qualitative (grounded theory, transcript analysis, interview)

Mckillop, C., Mackintosh, B., & Watt, S. (2003). Psychology experiments on the Internet: An evaluation of the impact on distance education students. *Open Learning, 18*(2), 109-119. Quantitative (survey)

Monk-Turner, E., & Bisciglia, B. G. (2002). Differences in attitudes between on-site and distance-site students in group teleconference courses. *The American Journal of Distance Education, 16*(1), 37-52. Quantitative

Murphy, E., & Coffin, G. (2003).Synchronous communication in a web-based senior high school course: Maximizing affordances and minimizing constraints of the tool. *The American Journal of Distance Education*, 17(4), 235-246. Qualitative (observations/interviews)

Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *The American Journal of Distance Education, 16*(2), 99-113. Quantitative

Nichols, M., & Gardner, N. (2002). Evaluating flexible delivery across a tertiary institution. *Open Learning, 17*(1), 11-22. Quantitative/Qualitative (survey/interview)

Oriogun, P. K., & Cook, J. (2003). Transcript reliability cleaning percentage: An alternative interrater reliability measure of message transcripts in online learning. *The American Journal of Distance Education, 17*(4), 221-234. Quantitative (grounded theory/case study)

Orrill, C. H. (2002). Supporting online pbl: design considerations for supporting distributed problem solving. *Distance Education, 23*(1), 41-57. Qualitative (transcript analysis)

Painter, C., Coffin, C., & Hewings, A. (2003). Impacts of directed tutorial activities in computer conferencing: a case study. *Distance Education, 24*(2), 159-174. Qualitative/Quantitative (experiment)

Ready, R. (2002). Innovation in technology-based flexible learning: DentalTec, a case study. *Open Learning, 17*(3), 245-250. Quantitative (survey)

Richardson, J. T. E., Long, G. L., & Woodley, A. (2003). Academic engagement and perceptions of quality in distance education. *Open Learning, 18*(3), 223-244. Quantitative (survey)

Ronteltap, F., & Eurelings, A. (2002). Activity and interaction of students in an electronic learning environment for problem-based learning. *Distance Education, 23*(1), 11-22. Quantitative (experiment)

Rourke, L., & Szabo, M. (2002). A content analysis of the Journal of Distance Education 1986-2001. *Journal of Distance Education*, *17*(1). http://cade.athabascau.ca/vol17.1/rourke.html Content analysis

Rovai, A. P., & Barnum, K. T. (2003). On-line course effectiveness: An analysis of student interactions and perceptions of learning. *Journal of Distance Education, 18*(1), 57-73. Quantitative

Scheer, S. B., & Lockee, B. B. (2003). Addressing the wellness needs of online distance learners. *Open Learning, 18*(2), 177-196. Quantitative

Shin, N. (2003). Transactional presence as a critical predictor of success in distance learning. *Distance Education, 24*(1), 69-86. Quantitative (survey)

Sims R. (2003). Promises of interactivity: aligning learner perceptions and expectations with strategies for flexible and online learning. *Distance Education, 24*(1), 87-103. Quantitative (survey)

Smith, P. J., Murphy, K. L., & Mahoney, S. E. (2003). Towards identifying factors underlying readiness for online learning: an exploratory study. *Distance Education, 24*(1), 57-67. Quantitative (survey)

Stein, D., & Glazer, H. R. (2003). Mentoring the adult learner in academic midlife at a distance education university. *The American Journal of Distance Education*, *17*(1), 7-23. Qualitative (case study)

Thérèse Laferrière (2002). Telelearning: Distance and telos. *Journal of Distance Education, 17*(3), 29-45. Qualitative (philosophical inquiry)

Thurmond, V. A., Wambach, K., Connors, H. R., & Frey, B. B. (2002). Evaluation of student satisfaction: Determining the impact of a web-based environment by controlling for student characteristics. *The American Journal of Distance Education*, *16*(3), 169-189. Quantitative (survey)

Townsend, E. Campbell, C., Curran-Smith, J., McGinn, F., Persaud, D., Peters, P., Bower, I., & Sheffield, S. L. (2002). Accessibility and interactivity in distance education programs for health professions. *Journal of Distance Education, 17*(2), 1-24. Quantitative (survey & focus group)

Tu, C., & McIsaac, M. (2002). The relationship of social presence and interaction in online classes. *The American Journal of Distance Education, 16*(3), 131-150. Quantitative/Qualitative (survey/observation)

Vanijdee, A. (2003). Thai distance English learners and learner autonomy. *Open Learning, 18*(1), 75-84. Quantitative/Qualitative

Venter, K. (2003). Coping with isolation: the role of culture in adult distance learners' use of surrogates. *Open Learning, 18*(3), 271-287. Qualitative (interview)

Williams, P. E. (2003). Roles and competencies for distance education programs in higher education institutions. *The American Journal of Distance Education, 17*(1), 45-57. Delphi (panel of experts)

Wilson, D., Varnhagen, S., Krupa, E., Kasprzak, S., Hunting, V., & Taylor, A. (2003). Instructors' adaptation to online graduate education in health promotion: a qualitative study. *Journal of Distance Education, 18*(2), 1-15. Qualitative (transcript analysis)

Woods, R., & Ebersole, S. (2003). Using non-subject-matter-specific discussion boards to build connectedness in online learning. *The American Journal of Distance Education, 17*(2), 99-118. Quantitative/Quatlitative (Case study)

Yildiz, S., & Bichelmeyer, B. A. (2003). Exploring electronic forum participation and interaction by EFL speakers in two Web-based graduate-level courses. *Distance Education, 24*(2), 175-193. Quantitative/Qualitative (survey/transcript analysis/interview)

Zhang. W., & Yeung, L. A. (2003). Online measurement of academic programme preferences for distance learners in Hong Kong. *Distance Education, 24*(2), 213-226. Quantitative (survey)