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# Research Methods in Communication

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Second Edition

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by Larry B. Christensen, R. Burke Johnson, and Lisa A. Turner

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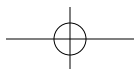
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# Preface

Communication research is an extremely rich field of study that merits much more attention from communication researchers than it currently receives. *Research Methods in Communication* is a comprehensive book designed to equip communication students with the essential tools to effectively conduct and accurately understand multi-research-designs in communication. It is a unique compilation of works on communication research that offers advice from some of the most well-known and widely published authors in the field. Designed to meet a variety of needs, it provides inclusive material with easy-to-follow explanations that span the full range of research methods and approaches. This model gives freedom and flexibility to students and professors working at all levels of concentration, in order to draw upon the required and relevant information that guides them through their communication research courses. As a valuable handbook, it equips them with the knowledge to design research projects, collect and analyze quantitative and qualitative data, compile the report, and present research findings.

*Research Methods in Communication* is both a theoretical and practical guide to the world of communication research. It draws on the work of senior scholars, and has been edited by an academic who has extensive professional and academic experience in conducting qualitative and quantitative research projects and in teaching communication research methods. To ensure the highest possible calibre of the book, strict criteria were applied concerning the contents of the chapters; these include the quality and depth of the subject matter covered, and their practical application in both academic and professional environments. The objective is to satisfy a broad range of needs and maximize the learning

experience of communication students by providing them with current, accurate, and essential information about communication research. As a result, readers of this book are able to find clarification and answers to many of their questions surrounding research methods in communication.

This book takes an innovative, multi-research-design approach to understanding and conducting communication research. For example, the quantitative-qualitative convergence in this book stems from an in-depth understanding of how communication research methods are interrelated. There is a common misconception among communication researchers in terms of the distinction between quantitative and qualitative research approaches. It is true that each approach has its own language and tools that challenge this inter-relation. Moreover, some researchers use both approaches when conducting a communication study as a way of improving its quality, or in an attempt to prove the interconnection. Although there is some logic behind this methodology, it is nevertheless misleading.

The fact of the matter is that quantitative and qualitative methods are complementary to one another; not in the sense of their joint utilization in one study or research project, but rather that they cannot be entirely separated as they share many commonalities. For example, can any communication researcher claim that there is no reasoning or critical thinking in using a qualitative approach? In fact, logic and reason are the overarching premise for mathematics under which numbers and statistics fall. On the other hand, can any communication researcher claim that there are no observations of human subjects, or that the analysis of words, images, and behaviours does not exist in the quan-



**x** PREFACE

titative approach? In questionnaires, open-ended questions provide us with qualitative content that can be analyzed, with an option of doing so qualitatively. As well, face-to-face interviews allow a researcher to report information similar to a qualitative participant observation method of data collection. In order to accurately understand the distinction between the two approaches, one must acknowledge that each approach should be studied in light of the other; in so doing, each receives the attention that it deserves as a rich and comprehensive approach of communication research, but not in the sense that it is entirely distinct from the other approach. Indeed, communication researchers should appreciate the strengths of each approach, and also acknowledge their respective limitations; in this way, when designing the methodology of a communication research project, researchers can benefit from the advantages and minimize the limitations of each approach according to the topic under investigation and the objectives of their research project. An appreciation of their mutual benefits ultimately improves the understanding of the communication phenomena being investigated.

The materials provided in this book aid professors in offering instructions to students in both qualitative and quantitative approaches at basic and advanced levels, i.e. Basic Quantitative Research Methods in Communication and Advanced Quantitative Research Methods in Communication, and Basic Qualitative Research Methods in Communication and Advanced Qualitative Research Methods

in Communication. Courses at the basic level of each approach should be taught at the undergraduate level for second and third year students in departments of communication, media studies, and journalism; the advanced level courses should be taught to fourth year students and at the graduate level (M.A. and Ph.D.). In addition, introductory courses in communication research methods should also be taught to first year students in order to provide them with an overview of both approaches. At the graduate level, more specialized instruction should be organized, involving in-depth discussions at the most advanced level of both quantitative and qualitative approaches. These courses could be divided into various levels that gradually increase in intensity, according to the year of study.

*Research Methods in Communication* is divided into four parts: Introduction; Research Designs; Data Collection Methods and Sampling Strategies; and Data Analysis and Production. Presented in a logical order consistent with the process of conducting communication research, each part is a composition of a group of chapters, each of which is designed to provide students with exclusive materials that cover a specific stage in the process.

Dr. Mahmoud Eid

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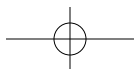
## About the Editor

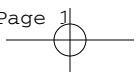
**Mahmoud Eid** (Ph.D., Carleton University) is an Associate Professor at the Department of Communication, University of Ottawa, Canada. Dr. Eid previously taught in the University of Regina's School of Journalism in Regina, and in Carleton University's School of Journalism and Communication in Ottawa. He has been teaching research methods courses in Canadian and Egyptian universities since 1994, and has worked as a research manager in several international research agencies and centers for 15 years. His teaching experience, research interests, and publications concentrate on quantitative and qualitative research in international and political communication, media ethics and effects, public opinion, and social development.

Dr. Eid is the editor of the *Global Media Journal--Canadian Edition*, and serves on the editorial boards of several academic journals and as an organizing committee member for various international conferences. He is the author of *Interweave-*

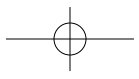
*ment: International Media Ethics and Rational Decision-Making* (2008), editor of *Communication and Media Studies: An Introduction* (2010) and co-editor of *The Right to Communicate: Historical Hopes, Global Debates and Future Premises* (2009).

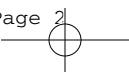
Dr. Eid has presented numerous papers at global conferences and has contributed chapters to several books published by Hampton Press, Peter Lang, Rodopi, Rowman & Littlefield, Kendall/Hunt, Pearson, and Oxford University Press, among others. In addition, he has published articles in various refereed journals, including *The Journal of International Communication*; *The European Journal of Communication Research*; *International Journal of the Humanities*; *First Monday*; *INFORMATION*; *Journalism Ethics for the Global Citizen*; *Corporate Ownership and Control*; *Journal of Integrated Marketing Communications*; *International Journal of Technoethics*; and *Middle East Journal of Culture and Communication*.





# I. Introduction





# Introduction to Communication Research

*Mahmoud Eid*

## **IMPORTANCE OF COMMUNICATION RESEARCH**

Everyday thinking or inquiry differs from scientific thinking (Nardi, 2006). Everyday experiences are often based on methods that can lead to problematic decisions with outcomes that can seriously affect our lives. We may come to conclusions and act on them with limited information. Everyday thinking is somewhat less sophisticated than scientific thinking, which we would expect from policy makers and others who are in control of our well-being; it is often characterized by biased questions, limited sampling, selective attention, perception and retention, and inaccurate generalizations. On the other hand, scientific thinking enables us to make accurate and reliable conclusions about human behaviour. It is characterized by empirical observations or data, systematic and deliberate methods, as well as objective, intersubjective, and replicable procedures.

In conducting scientific investigations, researchers must make many basic decisions in the interest of enhancing the growth of knowledge or making contributions to it (McLeod & Tichenor, 2003). These decisions are related to defining research problems, constructing explanations, making observations, and testing hypotheses, as well as developing research programs. Identifying a research problem is a process of abstraction in its own right. From the complexity of events that cause concern in a particular area of interest, an investigator selects and formulates a problem in terms that give it some generalizability and make it amenable to systematic study. The ultimate goal of abstraction in scientific inquiry is to develop and examine explanations. Creating explanations for a specific phenomenon involves attempts to answer a number of related questions, such as: what are the antecedent and consequent factors and processes?

All scientific explanations are considered tentative and are subject to continued testing through the process of empirical observation. These explanations are continually refined, elaborated, and even replaced by more effective explanations. In fact, the production of scientific knowledge is an ongoing cycle: creating an explanation, identifying the concepts in that explanation, performing meaning analysis to derive concrete indicators of these concepts, making empirical observations to test hypotheses about the relationship between them, engaging in empirical analysis of the measured concepts to refine the definitions and measurement of these concepts, and refining the theoretical explanation that links these concepts. This cycle repeats with every new investigation. The ultimate dependence on observation and experience holds true for all communication research. If two communication researchers, who differ widely in their choice of abstractions, follow the scientific norm, they accept specific observations in the same light. Findings must stand the test of inter-observer agreement and reproducibility, meaning that observers using the same procedures should obtain the same result. For example, regardless of their models concerning the consequences of televised advertising about kids' toys, they would ordinarily be expected to agree on the fact that in a given experiment, say, 85% of the children displayed toy purchasing behaviour as operationalized by the researcher. There may be differing interpretations of the motivations for this behaviour, but the observed, empirical facts are the same for all in the norms of science. However, observation alone is not a sufficient criterion for a scientific procedure. The observations must be relevant to a theory, meaning that for a specific case they must rest on one or more hypotheses. Researchers should also strive to develop a research

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program that links their various investigations into a larger whole. The links that bind studies together to form a research program may be shared concepts and/or theoretical propositions.

In conducting social and behavioural research, the investigator must go beyond the general standards of scientific inquiry, and must first define a problem in a way that makes it amenable to study. In conceptualizing that problem, the investigator must address key issues, including: epistemology, induction versus deduction, causation versus prediction, and micro versus macro models. *Epistemology* refers to the origin of knowledge and the routes used to establish it. Induction and deduction are two commonly used types of logic or reasoning whose nature is an important concern in the construction and testing of theory. In *deductive* reasoning, a hypothesis or conclusion is implied in the premise. One proceeds from the general to the particular; i.e. from a set of assumptions one deduces a specific hypothesis. In contrast, *inductive* reasoning means that one proceeds inferentially from particular to more general statements. Induction is commonly used both in defining problems and in the interpretation of results. Some scientists and philosophers point out that science is both *causal* and *predictive*; however, the distinction between the two is important. Researchers may be able to use X to predict Y, although little is known about the causal relationship between them. On the other hand, there might be a well-investigated causal relationship between two variables; however, one cannot predict any related influences on other variables. Investigators also face a choice between *microscopic* and *macroscopic* conceptual approaches. At the microscopic level, the emphasis is primarily on the individual as a unit of analysis, while at the macroscopic level, a holistic approach is taken, and the unit of analysis tends to be a collective or larger social unit, such as an organization, a community, or a social system.

The most common purposes of scientific research on human social behaviour and attitudes are to explore, describe, explain and evaluate in order to arrive at an in-depth understanding of an issue, as well as to make decisions and predictions. *Exploratory research* is conducted to obtain a

rough sense of what is happening on a particular topic for which we do not yet have sufficient information. *Descriptive research* provides basic information describing the topic and the respondents involved. *Explanatory research*, based on some descriptive information, is intended to explain relationships and uncover reasons why and how some social phenomena occur among respondents. *Evaluation research* is interest in understanding the causes of human social behaviour and people's opinions on a variety of issues; or sometimes evaluating specific outcomes and providing explanations as to why and how a particular result occurred.

As a social science, communication is very difficult to define, as is the case for many other sciences. For example, if we ask a senior mathematics scholar who has spent his/her entire academic life studying and teaching mathematics what the definition of mathematics is, it might be very difficult, if not impossible, to provide a comprehensive answer. However, it might be easier for that scholar to answer the question: how do you define or understand mathematics? And it would be easier still if we ask for a definition of a mathematical theory, an approach, or a tool, or an explanation of a mathematical equation or dilemma. The fact that it is difficult to provide one definition of communication upon which all can agree confirms that it is a very rich discipline, whose theories, approaches and tools are as deep as the discipline itself. As such, conducting communication research is an enormous field of study that requires very skilled and knowledgeable researchers who are aware of its many areas, approaches, designs, methods, tools, etc. In general, a distinction is made between basic communication research, which is designed to test and refine theory, and applied communication research, which is designed to solve a practical problem. However, both types are interrelated, and an integrated model of both basic and applied communication research is still valid (Frey, Botan & Kreps, 2000). Communication researchers study varied and complex phenomena. They design their research questions and statements in ways that help them describe communication behaviour and relate it to other variables.

Communication research involves people as researchers, respondents, and interested observers; people whose interactions are not always ethically neutral. Communication researchers are confronted by ethical dilemmas and issues arising from human subject research; thus, there is a need to find strategies to resolve these issues (Greenberg, Eastin & Garramone, 2003). They also have responsibilities towards society, which both supports and is influenced by their efforts. Communication research that involves observations of human beings must ensure that their rights are not violated. However, given the fact that one individual's rights may conflict with those of another, and that an individual's rights may conflict with what is beneficial to society, it may not be always possible for the researcher to simultaneously respect the rights of all involved. Therefore, the best alternative is to demonstrate respect by asking research participants to forgo certain rights, a procedure that is generally referred to as giving *informed consent*. *Debriefing* is also appropriate whenever subjects' perceptions or feelings about themselves or about others may have been altered by participating in a study. Researchers are obliged to attempt to return their subjects to their pre-participation state, i.e. desensitizing them from the experience. *Privacy* is another issue that researchers should avoid violating, whether through the effects of data collection methods (e.g., participant observation) or the disclosure of these data (e.g., sensitive personal information). As a result, researchers have developed techniques to protect subjects' privacy, such as offering guarantees of *anonymity* and *confidentiality*, as well as presenting questions in a way that shields respondents.

In addition, a variety of strategies for resolution have been developed, including: professional codes, federal regulations, and individual ethical analysis. Professional codes of ethics provide considerable direction regarding the treatment of human subjects. An institutional review board is a system used by many institutions (e.g., universities) that requires that all research conducted at the institution conforms to specific ethical guidelines, usually referred to as *ethical clearance*. However, both codes and regulations are not often entirely comprehensive, and perhaps the most useful ethical,

decision-making tool may be a strategy for developing a personal judgment about the ethical character of a research activity. Moreover, the communication researcher's ethical responsibilities go beyond human subjects. They also have responsibilities towards society at large, given the fact that communication research has vast social implications. Society has the right to expect communication researchers to investigate important topics, is interested in knowing about the conduct and reporting of research, and has concerns about the application of scientific knowledge.

## RESEARCH DESIGNS

Having decided on the problematic and defined the main concepts and objectives, the next key stage in a research project is to choose the most effective and relevant design for the topic under investigation. The research design can be one or a combination of the following: *historical-comparative*, *unobtrusive*, *experimental*, *qualitative*, *quantitative*, and *content analysis* research. The research design dictates the next phases: the data collection methods and tools, the choice of the sampling strategy, the data analysis techniques, and finally, making presentations and writing reports.

Historical-comparative research is a powerful design for addressing extensive questions: what fundamental features and techniques of advertising are common to most cultures? How have major Canadian media conglomerates developed and changed over the last two decades? How has media policy been increasingly developed and implemented to protect Canadian media content since the 1960s? Historical-comparative research can strengthen conceptualization and theory building (Neuman, 2011). By looking at historical events or diverse cultural contexts, researchers can generate new concepts and broaden their perspectives.

Generally, conducting historical-comparative research does not involve a rigid set of steps or complex techniques; however, there are some exceptions. Researchers usually draw on four types of historical evidence: primary sources, secondary sources, running records, and recollections. While traditional historians rely heavily on



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primary sources, historical-comparative researchers often use secondary sources or different data types in combination. A comparative perspective exposes weaknesses in research design and helps researchers improve the quality of their research. The focus of comparative research is on similarities and differences between units. In communication studies, these units can be different communication or media systems in other countries, different media in one culture, or a combination of the two. For example, a researcher may compare the coverage of a specific historical terrorist event in two different Canadian newspapers, a Canadian radio station and a Canadian magazine, or Canadian and American TV channels. Comparative research can eliminate or offer alternative explanations for causal relationships. It improves measurement and conceptualization, as concepts developed by those conducting research across several settings are less likely to apply to only one specific culture or setting. However, comparative research is more difficult, more costly, and more time-consuming. Comparative researchers can apply theory, not test it; and they are only able to make limited generalizations.

A major concern for any researcher is to ensure maximum reliability and validity throughout the research process. Indeed, how the research is designed and conducted can have a profound influence on the accuracy of the results. The types of measures used to test a research hypothesis can be threats to its reliability and validity. For example, the fact that subjects “know” they are being studied can influence their behaviour or attitude, which threatens the validity of the research. This phenomenon is commonly called the *Hawthorne effect*. Sometimes, the researcher can find ways to neutralize this biased behaviour by using standardized procedures, as is the case with control groups and control variables. But when this is not possible, unobtrusive measures prove to be very useful. These involve examining and studying *human traces*.

Archival materials, radio and videotape transcriptions, photographs, autobiographies, diaries, and even paint deposits and tombstones are all human traces. These can in fact be quite revealing for a researcher, as they allow for the creation of

case studies, life histories, and understanding of ideology and culture (Berg, 2009). Archival strategies include public archives (e.g., commercial media accounts, actuarial records, and official documentary records) and private archives (e.g., autobiographies, letters, and diaries). Therefore, from a media and organizational communication research perspective, unobtrusive measures can be quite helpful. Let us think about researchers who are interested in studying the potential impact of traditional and new media in Canada on beliefs and attitudes of Canadian citizens. Human traces left in the letters and comments to the editor in the form of newspaper articles, e-mails, and chat forums (following the broadcast of specific programs) would certainly be very efficient means to gauge how the public reacts to specific radio, television, newspaper, and Internet content.

The goal of experimental research is to establish cause and effect conclusions by isolating causal variables (Jackson & Verberg, 2007). In this case, the procedure is to manipulate one or more independent variables to determine their effect(s) on a dependent variable. The experimental design requires an artificial environment in order to control for all antecedent, intervening, and spurious variables. Its strength is its ability to clarify causal inferences. It has a high level of internal validity because researchers can demonstrate that the manipulation of the independent variable alone produced changes in the dependent variable. The experimental design is therefore intended to control for the effects of potentially confusing variables.

Some natural settings lend themselves well to quasi-experimental designs and field experiments. Quasi-experimental designs control some, but not all of, irrelevant factors. These types of designs have stronger external validity because the behaviour is measured in real life settings. Field experiments facilitate making causal inferences, have strong validity, and are often fairly inexpensive to complete. However, the nature of experimental design makes it difficult to take into account systematically a large number of variables at one time. Also, although experiments provide the clearest explanation of causation, it is not always possible to experiment on all topics.

Qualitative researchers are more concerned with issues of the richness, texture and the feeling of raw data because their inductive approach emphasizes developing insights and generalizations from the data collected. They also want to become intimate with the details of a natural setting or a particular cultural-historical context (Neuman, 2011). They often rely on interpretive or critical social science. For example, communication researchers who conduct qualitative research frequently rely on critical theory. They apply logic in practice and follow a nonlinear research path. Qualitative researchers speak a language of cases and contexts. They stress conducting detailed examinations of cases that arise in the natural flow of social life, and try to present authentic interpretations that are sensitive to specific social-historical contexts. Fewer standardized procedures or explicit steps are used, and often on-the-spot techniques are devised for one situation or study. Finally, the researchers rarely separate planning and design decisions into a distinct pre-data collection stage, but continue to develop the study design throughout early data collection.

When considering measurement, qualitative researchers develop ways to capture and express concepts using various alternatives to numbers. They often adopt an inductive approach, creating new concepts as part of measurement. Qualitative researchers usually begin with empirical data, followed by abstract ideas; they relate ideas and data and conclude with a mixture of the two. As qualitative researchers gather data, they use some pre-existing ideas to assist with data collection, and then merge the old ideas with the new ideas that are developed from the data. In the conceptualization process, qualitative researchers refine rudimentary working ideas during the data collection and analysis processes. In this case, conceptualization is a process of forming coherent, theoretical definitions as one seeks to make sense of the data, or organize one's preliminary thoughts. As qualitative researchers gather and analyze data, they develop new concepts, formulate definitions for major constructs, and consider relationships among them. Ultimately, they link concepts and constructs to create theoretical relationships. Qualitative researchers form and refine constructs as they examine their

data, and ask theoretical questions about the data. The operationalization process for qualitative research often precedes conceptualization. Instead of turning refined conceptual definitions into measurement operations, a qualitative researcher operationalizes concepts by describing how specific observations and thoughts about the data contributed to working ideas that are the basis of conceptual definitions and constructs. In this instance, operationalization is a description of how a researcher develops working ideas, while making observations and collecting data. It is a description of how specific observations or data, preliminary ideas about the data, and struggles to understand the data, become constructs. It is an after-the-fact description more than a pre-planned technique.

Reliability and validity are central issues in qualitative measurement. Reliability in qualitative research means dependability or consistency. Qualitative researchers use a variety of techniques to record their observations consistently. They want to become consistent in how they make observations over time. In qualitative research, validity means truth. Qualitative researchers are more interested in authenticity than in the idea of a single version of the truth. Authenticity means providing a fair, honest and balanced account of social life from the perspective of someone who lives it every day. They are less concerned with matching an abstract construct to empirical data than with giving a candid portrayal of social life that is true to the experiences of the people being studied.

Quantitative researchers focus more on issues of design, measurement and sampling because their deductive approach emphasizes objectivity and detailed planning prior to data collection and analysis (Neuman, 2011). Most quantitative researchers rely on a *positivist* approach to social science. For example, communication researchers who conduct quantitative research often rely on the administrative school of thought. They apply reconstructed logic and follow a linear research path. They speak a language of variables and hypotheses, and emphasize measuring variables precisely and testing hypotheses that are linked to general causal explanations. Quantitative research is often deductive with a sequence of discrete steps that precede data

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collection: narrow the topic to a more focused question; transform nebulous, theoretical concepts into more exact variables; and develop more hypotheses to test.

Quantitative researchers treat measurement as a distinct step in the research process that occurs prior to data collection, and they develop special terminology and techniques. As they adopt a deductive approach, they begin with a concept, and then create empirical measures that precisely capture it in a form that can be expressed in numbers. Quantitative researchers begin with an abstract idea, followed by a measurement procedure, and finish with empirical data that represent the ideas. As a quantitative researcher develops measures, the constructs become more refined and clear, and as the researchers apply the measures to gather data, they often adjust the measurement technique. The measurement process for quantitative research follows a straightforward sequence: first is the conceptualization, followed by the operationalization, and then the application of the operational definition or measurement to collect the data. Quantitative researchers have developed several ways to rigorously link abstract ideas to measurement procedures that produce precise quantitative information about empirical reality. In the process of quantitative measurement, there are three levels to consider: conceptual, operational and empirical. At the most abstract level, the researcher is interested in the causal relationship between two constructs, or a conceptual hypothesis. At the level of operational definition, the researcher is interested in testing an empirical hypothesis to determine the degree of association between indicators. This is the level at which correlations, statistics, and questionnaires are used. The third level is the concrete empirical world. If the operational indicators of variables are logically linked to a construct, they capture what happens in the empirical, social world and relate it to the conceptual level. The measurement process links the three levels together, moving deductively from the abstract to the concrete. A researcher first conceptualizes a variable, assigning it a clear conceptual definition. Next, s/he operationalizes it by developing an operational definition or set of indicators. Finally, s/he applies the indicators to collect

data and test the empirical hypotheses. These tests are logically linked back to a conceptual hypothesis and causal relations in the world of theory.

Reliability and validity are also central issues in quantitative measurement. In terms of quantitative research, measurement reliability means that the numerical results produced by an indicator do not vary because of the characteristics of the measurement process or the measurement instrument itself. Measurement validity refers to the compatibility of the conceptual and operational definitions; the better the fit, the greater the measurement validity. Validity is more difficult to achieve than reliability. Researchers cannot be absolutely confident about validity, but some measures are more *valid* than others; this is because constructs are abstract ideas, whereas indicators refer to concrete observations.

When a researcher systematically and objectively identifies characteristics of messages, s/he is using a procedure of data analysis defined as *content analysis*. As messages are a key component of communication, one can understand the importance of this procedure for communication scholars. For example, a researcher might want to assess the changing images of women in the Canadian media from the 1970s to the year 2010, or that same researcher might aim at examining Canadian newspaper orientations towards candidates throughout an election campaign. When we think about it, virtually all data gathered require a certain level of content analysis. This is particularly true for data collected through interviews, field notes, observations, case studies, and specifically for any unobtrusive data. For example, archival materials, videotape transcriptions, photographs, newspaper articles or focus group discussions must all be condensed in a systematic and rigorous manner in such a way that some kind of manifest pattern can emerge in the light of previous research, theories, and hypotheses.

There are certain steps and concepts involved in the procedure of content analysis: from the data collected that are transformed into a text or document, to the construction of categories and the coding process, to the patterns resulting from the coding (Berg, 2009). In content analysis, the process of specifying the content characteristics being examined interact with the application of unequivocal

rules for identifying and recording those characteristics. These are essential to the validity and reliability of content analysis. For example, from the very beginning of the process, researchers must establish clear selection criteria concerning which parts of the document or text will be included in, or excluded from the analysis. In other words, researchers need to specify the characteristics of the sample chosen: is the focus of the analysis on words, phrases, sentences, paragraphs, sections, chapters, books or subject topics? The subsequent steps involve the conceptualization and operationalization of categories from which parts of the text or written document have to be rigorously coded. The construction of these unequivocal rules can be done inductively, deductively, or by a combination of the two approaches.

Content analysis can be very useful when a longitudinal study is being conducted (e.g., assessing the changes in English Canadian newspapers' orientations towards immigration from the 1960s to the 1990s). As the level of validity and reliability generated from longitudinal studies is high, such strength cannot be underestimated. However, one major limitation of content analysis (as is the case with some other research designs) is its ineffectiveness in testing causal relationships. When a topic or theme seems to reappear frequently in a text or document, the researcher can only conclude that there seems to be a trend or an emerging pattern, but no causal explanations should be attached to these, as only experimental designs allow for cause and effect conclusions.

## **DATA COLLECTION METHODS AND SAMPLING STRATEGIES**

After selecting and planning the research design, researchers should decide on the data collection method(s) and the sampling strategy and technique(s). Researchers use a variety of quantitative and qualitative data collection methods, and consequently utilize the relevant sampling strategy and technique(s).

Survey research is the most widely used quantitative research method (Neuman, 2011). It is a process of asking many people the same questions and

examining their answers. When writing survey questions, researchers should be aware of the principles of good writing, including the knowledge of what to include or avoid. There are various types of survey research, including mail, telephone interviews, face-to-face interviews, and web surveys, each of which has advantages and disadvantages. In general, researchers should be aware of the fact that there is no one perfect type of survey; instead there are ideal types depending on the research design and topic of investigation. A major ethical issue in survey research is the invasion of privacy. Researchers should treat all respondents with dignity and do everything possible to reduce their discomfort. Researchers are also responsible for protecting the confidentiality of data.

There are logical steps to conducting a survey: developing hypotheses, deciding on the type of survey, writing survey questions, deciding on response categories, designing the layout, planning how to record data, pilot-testing survey tools, deciding on the target population, getting the sampling frame, deciding on the sample size, selecting the sample, locating the respondents, conducting interviews, recording the data carefully, entering the data into computers, rechecking data and running statistical data analysis, and concluding with describing the methods and the presenting findings in a research report.

In constructing a questionnaire, there are various issues that need to be handled carefully and professionally. These may include: the principles of good question writing, aiding respondent recall, obtaining honest answers, the design of open versus closed questions, etc. There is no proper length of a questionnaire or an interview; it depends on the survey format, the objectives of the study, and the respondents' characteristics. Survey researchers should also give careful consideration to the order and sequence of the questions to be asked by the interviewer, as well as the context in which they are posed. A large-scale survey requires the hiring of several interviewers; an interview of professional quality demands the careful selection of highly-trained individuals. Survey researchers proscribe interviewer behaviour to reduce bias. Ideally, the actions of a particular interviewer do not affect the way in which a respondent

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answers, and responses do not vary from those given to any other interviewer.

In qualitative research, there are three traditions that move across a continuum in the size of the unit being studied as they have different research goals: *ethnography*, *grounded theory*, and *phenomenology* (Jackson, Gillis & Verberg, 2007). Ethnography is concentrated on larger aggregations of people and focuses on describing a culture. It is a qualitative research method that attempts to understand human behaviour in the cultural context in which it is embedded. Grounded theorists typically examine smaller aggregations and focus on basic social processes. The goal of grounded theory is the development of a theory that explains underlying social processes. The researcher is interested in understanding how people interact, take action, or engage in the process in response to some phenomenon. Phenomenological studies tend to be concentrated on individual experiences and perceptions, and focus on discovering the essence of the lived experience. Phenomenologists seek to reveal the meaning of a lived experience from the perspective of the participant.

Qualitative researchers usually use more than one data collection method in a single study. They choose among the various data collection methods, including the three major ones: *participant observation*, *in-depth interviews*, and *focus group discussions*. The participant observation method involves an intensive examination of a culture, community, organization or group by a researcher who has joined it for an extended period of time. In so doing, researchers face multiple challenges: gaining entry into the group, developing and maintaining rapport, developing a method for taking field notes, and integrating the data collection and data analysis. In-depth interviews provide a method of collecting respondents' perceptions of their world. Typically, they are done to solicit people's descriptions and explanations of events taking place in their own environment. Quotations from the interviews are used to illustrate points the researcher wants to make in his/her report. In the communication field, researchers use this method when interviewing experts or members of the social, economic or political elites who are difficult to meet. A focus group

typically consists of six to twelve individuals who are asked to discuss topics suggested by a moderator. The researcher observes the interactions among focus-group members and solicits their attitudes, opinions, and solutions to problems. In all data collection methods, qualitative researchers should develop and ensure high standards.

When the population is small enough, you can easily survey every element. A *population* is the total collection of units or elements that a researcher wants to analyze. If researching the entire universe or population of study is difficult or impossible, selecting a representative sample is the only alternative. The sampling strategy is dependent on the design, and it is strongly linked to the methods of data collection; hence the different approaches to sampling taken by qualitative and quantitative researchers.

Qualitative researchers focus less on a sample's representativeness or on detailed techniques for drawing a probability sample (Neuman, 2007). Instead, they focus on how the sample, or small collection of cases or units, illustrates key features of a universe; the goal is to collect cases, events or actions that clarify and deepen understanding. Therefore, qualitative researchers tend to use *non-probability* or *non-random sampling*, which means that each unit of analysis in the population does not have an equal chance of being selected for the sample. The *unit of analysis* is the element about which a researcher is observing and collecting data, such as a person responding to a questionnaire, a school, an editorial or a local business. Qualitative researchers rarely determine the sample size in advance and select cases gradually, with the specific content of a case determining its inclusion. There are various types of nonprobability samples, each of which has its own principle. A *haphazard* sample means obtaining units in any manner that is convenient. A *quota* sample means fulfilling a preset number of units in each of several predetermined categories that reflect the diversity of the population, using haphazard methods. A *purposive* sample means obtaining all possible units that fit particular criteria. A *snowball* sample means acquiring cases using referrals from one or more cases, and then referrals from those cases. A *deviant case* sample

means acquiring cases that substantially differ from the dominant pattern. A *sequential* sample means obtaining cases until there is no additional information or new characteristics.

The primary goal of quantitative researchers is to obtain a representative sample, or a small collection of units or cases, from the *universe* being studied so that s/he can research the smaller group and make accurate generalizations about the whole population (Neuman, 2007). For example, if a researcher targets communication students as a universe or population of study who all are in the Faculty of Arts at the University of Ottawa and who number 1,000 in total, it might be very difficult, albeit still possible, for him or her to conduct research on the whole population. Therefore, selecting a representative sample is a more feasible choice. However, it is impossible for a Ph.D. student, who conducts research on how Canadian citizens perceive the idea of multiculturalism, to apply methods of data collection to the whole population; consequently, selecting a representative sample is the only choice. Therefore, quantitative researchers tend to use *probability* or *random sampling*, which means that each unit of analysis in the population has an equal chance of being selected for the sample. A well-designed, carefully executed probability sample produces results that are as accurate, if not more so, than trying to reach every single person in the whole population. As well, deciding on the sample size requires researchers to follow specific rules.

There are various types of probability samples, each of which has its own technique. A *simple random* sample means creating a sampling frame for all units and then selecting units using a purely random process such as a random number table. A *stratified* sample means creating a sampling frame for each of several categories of units, and then drawing a random sample from each category, which are then combined into several samples. A *systematic* sample means creating a sampling frame, calculating the sampling interval (which tells the researcher how to select units from a sampling frame by skipping a number of units in the frame before selecting one from the sample), choosing a random starting place, and then selecting every

interval unit, e.g., every tenth person of one hundred. A *cluster* sample means creating a sampling frame for larger cluster units, drawing a random sample from them, creating a sampling frame for units within each selected sample, and then drawing a random sample of units.

## DATA ANALYSIS

One of the crucial steps in the research process is being able to understand the collected information. A researcher often accumulates a great deal of data, which must be organized in such a way that they can be given practical and substantial meaning. Researchers try to make sense of the data so that the numbers can be translated into words from which predictions and projections can be made.

From a communication perspective, we could compare this process of analyzing, understanding, and interpreting data to a conversation between individuals: each aims at making sense of the other's underlying message. After all, what would the value of research be without this essential exchange that takes place not only among scholars, but also between scholars and the public? However, as in any conversation, if the codes are not clearly understood by each individual, serious misunderstanding can arise. The same can occur when data are not properly analyzed, interpreted and understood. In other words, the rules pertaining to data analysis have to be clearly comprehensible to the researchers in order to make the conversation flow as smoothly as possible.

Communication researchers need to analyze qualitative data, which are in the form of text, written words and phrases, or symbols describing or representing people, actions and events. In fact, there are as many kinds of texts as there are communication media. Communication texts can be written transcripts of speeches and conversations, written documents (e.g., letters, personnel records, newspapers and magazines), electronic documents (e.g., audiotapes, videotapes, films and CD-ROMs), or visual texts (e.g., paintings, photographs, websites and architecture).

Textual analysis is the method communication researchers use to analyze (i.e. describe and

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interpret) the characteristics of written, recorded, or visual messages (Frey, Botan & Kreps, 2000). It can be used to answer the two major questions posed in communication research: “what is the nature of communication?” and “how is communication related to other variables?” To answer the first question, textual analysts describe the content, structure and functions of the messages contained in texts. However, describing the communication embedded in a text is not as easy as it might seem because there is neither one sole meaning of a text, nor is there a single perspective from which to interpret it. Some analysts investigate how various factors/variables that precede communication are related to the messages contained in a text, while others study relationships between the communication embedded in a text and their various outcomes, or lack thereof. Further, some textual analysts, such as rhetorical critics, often go beyond these two questions to evaluate texts, pointing out their strengths and weaknesses.

A qualitative researcher analyzes data by organizing them into categories on the basis of themes, concepts, or similar features. The researcher develops new concepts, formulates conceptual definitions, and examines the relationships among them (Neuman, 2011). Qualitative coding is an integral part of data analysis. It is guided by the research question and leads to new questions. Most qualitative researchers use techniques of coding, memo writing, and the search for outcroppings as generic approaches to the analysis of qualitative data, often combined with a more specific strategy for the analysis of qualitative data. They need to be aware of these strategies (e.g., the ideal type, successive approximation and narrative analysis) and various qualitative analysis techniques (e.g., network analysis, time allocation analysis, and software for qualitative data such as NVivo). In many respects, qualitative data are more difficult to deal with than data in numeric form. Qualitative analysis requires more effort by a researcher to read and reread data notes, reflect on what is read, and make comparisons based on logic and judgment.

Statistics (or numerical indicators of a set of data) provide us with the tools and the rules to interpret quantitative data in such way that practical and substantial meaning that goes beyond just the num-

bers can be derived. In today’s Information Society, we are bombarded with statistics more than ever. Not a day goes by without our being highly exposed to them, especially in the media: for example, we might read that the latest federal election poll showed that one candidate obtained 38% of the votes, the second 28%, the third 24% with 10% undecided; the poll was conducted with an error or margin error of 1.7% in a sample of 3,000 participants. The first question that comes to mind to those unfamiliar with statistics is how to make projections regarding the entire Canadian population, based on such a small portion of it. There are two dimensions to statistics: *descriptive* and *inferential* (Nardi, 2006). Descriptive statistics are meant to structure, summarize and describe the characteristics of a set of data. Inferential statistics allow the researcher to move beyond the set of data and to potentially generalize the results to a broader population. In this sense, inferential statistics are used for *estimating* the characteristics of a population based on the sample; they are also used for *hypothesis testing*, i.e. to ascertain significant differences between groups or significant relationships between variables.

Different statistics are used to test associations or correlations between variables, depending on the level of measurement. For example, when a researcher is looking at the potential positive correlation between the number of hours spent studying and the final grade for a specific course, s/he should be using Pearson R to assess this relationship because both variables are measured at a ratio level. Very often, researchers want to determine if significant differences exist between two or more groups. For example, a communication scholar might want to know if men and women (the variable in this case is gender) differ in terms of their level of self-disclosure in the context of intimate relationships; or, if three types of social publicity related to cultural sensibility each has a significantly different impact on attitudes of Canadian university students. The researcher then needs to learn when to apply different statistics in order to compare and assess if means differ significantly from one another; s/he must also know how to run and correctly interpret a T-test (when comparing two groups) and an ANOVA (when comparing three or more groups). When the

questions are complex, the researcher needs to be more knowledgeable about data analysis. For example, when a researcher wants to study the relationship between three or more variables, s/he might turn to multiple correlation; or, to assess the relative weight of a set of independent variables on dependent variables, a multiple regression technique would be the best option. Another very important aspect of quantitative data analysis closely relates to the validity and reliability of the research: the process of controlling for variables that are not part of the hypothesis being tested. Consequently, learning how to perform elaboration techniques with control variables then prove to be very useful. Moreover, the use of SPSS (Statistical Package for Social Sciences) software is very popular among social scientists, including communication researchers. A quantitative analysis researcher must gain knowledge about the logic behind the techniques of data analysis, as well as the know-how of these techniques.

## WRITING REPORTS AND MAKING PRESENTATIONS

The last stage of conducting communication research is writing the report and presenting the qualitative findings and quantitative results. This phase is extremely important as it demonstrates the strength of the design and how well the research project has been conducted. In fact, the impact of the research project is highly dependent on the quality of the organization and the presentation of its material. In general, reports are written for a variety of audiences, and this fact should be taken into account in their preparation.

Know your audience! If a report is intended for a professional journal, then it should be organized to conform to the style in which other documents are submitted. If the audience is not technical, then the report should avoid technical terminology. If researchers know their audiences, they are aware of what questions are likely to arise, and they are able to address the concerns of their audiences accordingly. Researchers must explain their points clearly, and should never assume that the reader is an expert. Careful attention should also be devoted to the writing style. The American Psychological Associ-

ation (APA) writing style is commonly used in communication research. Plagiarism must also be avoided; this is the unacknowledged borrowing of ideas and words from other authors. Adopting the APA style is useful in this respect, as it requires researchers to identify their sources of information in the body of the text and to include a complete bibliography at the end of the written report.

By organizing the report into sections, the researcher can include relevant material and discuss issues under key headings (Jackson & Verberg, 2007). The introduction should inform the readers about the research project and its problematic; it also raises interesting questions and resolves issues that justify the significance of the research study. The literature review provides readers with an overview of other research that is relevant to the topic of investigation. This leads to a section that defines the hypotheses or research questions to be examined. At this point, identifying the research design and the data collection procedures are required. The sampling strategy and the description of the intended sample should be discussed in detail. A thorough explanation of the variables, indexes, and measurement procedures contributes to an understanding of the key concepts and relationships being investigated. Presenting basic results, organizing summary tables, and creating tables and figures are major sections in the report that need to be well planned. The next step explains the results of testing hypotheses. Following this, a discussion should be devoted to tying the whole project together. Finally, conclusions should be drawn and suggestions should be made. To ensure a high quality report, it is also important that the research report incorporates a review of a final checklist. This list may include: the title, abstract, introduction, literature review, statement of hypotheses or research questions, methodology, results, discussion, conclusions, references, spell check, format, view document, print, and proofreading.

The process of presenting the qualitative findings and quantitative results includes the creation of tables and figures—e.g., graphs, charts, and illustrations (Cookman, 2003). Tables present actual numbers organized in rows and columns. Graphs present numbers with physical markers such as columns, lines, wedges, and data points.



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Charts diagram relationships, explain theoretical models, schematize hierarchies or flows, and convey other concepts that can be best understood visually. Creating these tables and figures is not a random process; instead, it is professional and follows rules and procedures. Most importantly, different types of tables and figures are selected for specific purposes. For example: a single-scale bar graph visualizes comparisons at a particular moment in time; a bar graph is used to compare means and rank categories at the same time; a line graph links observations to show trends; an area graph implies volume; a pie chart divides a whole into component parts to review relationships and to illustrate the relative size of the parts that make up a whole; a 3-D pie graph gives us an immediate, intuitive sense of the proportions in a whole; a donut

graph is used to segment the universe of study; a column graph represents a count of the same group(s) at various moments; a multiple column is used to compare attitudes towards different things or different groups of respondents; a pyramid butterfly format is helpful when the relationship between sets of information is critical; a gradual graph is used to illustrate attitudes (e.g., agreement, support, and satisfaction); and a line-column graph is used to examine the influence of an action or event (e.g., advertising or media campaign) on people or things (e.g., image of a company, country, or product). In general, a presentation or report is greatly affected by the quality of the tables and figures used. Creating effective tables and figures is not difficult, but does require much planning and consideration.

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