

TEXAS WOMAN'S UNIVERSITY

SCHOOL OF LIBRARY AND INFORMATION STUDIES

PROSPECTUS FOR DISSERTATION

This prospectus proposed by joanne twining SSN:

and entitled: **A Naturalistic Journey into the Collaboratory: In Search of Understanding for Prospective Participants** has been read and approved by the members her Research Committee.

This research involves human subjects.

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**A Naturalistic Journey into the Collaboratory: In Search of
Understanding for Prospective Participants**

A DISSERTATION PROSPECTUS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
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INTRODUCTION

This study explores how humans create knowledge in the "shared minds" space (Schrage 1990) of the Collaboratory. The Collaboratory is a

...center without walls in which the nation's researchers can perform research without regard to geographical location -- interacting with colleagues, accessing instrumentation, sharing data and computational resources, and accessing information from digital libraries (Wulf 1989, 7).

After nearly a decade of government and private funding, American scientists and technologists are close to making Wulf's center without walls more real than imaginary. As scholars take up this new way of working, and try to make real the virtuality of new technology, they seek new understanding, they search for meaning, and they look for rules.

Need for the Study

Several "state of the technology" overviews provide a rudimentary roadmap to the design development of the Collaboratory, but Collaboratory Science has yet to produce either a comprehensive review of the Collaboratory evidence or a case study describing an individual scholar's journey into Collaboratory space. This study addresses both needs.

Purpose of this Study

The purpose of this study is to shed light on the Collaboratory and to add to the expansion of knowledge by exploring the creation of understanding. First, this study explores the reality of the Collaboratory as represented in the

objective, documentary evidence. Then, it explores a subjective, experiential reality created within the context of the online Collaboratory. Finally, it employs a reality-validating Delphi to create an inter-subjective reality, articulate the "Rules of the Road" of the Collaboratory, and determine the skills that Collaboratory pioneers perceive valuable for prospective participants.

Paradigm of the Study

This study employs the naturalistic/constructivist paradigm (Erlandson, et al. 1993) to explore the notion that

...shared constructions, developed collaboratively by empowered individuals, are the basis for significant cross-cultural and interpersonal understandings (xvii).

The naturalistic/constructivist paradigm is incommensurable with the traditional positivist paradigm. It assumes that no single objective reality exists separate from subjective understanding. It admits ungeneralizable, context-specific subjectivity as an appropriate process of inquiry for the creation of shared realities through a collaborative exercise. The aim of the naturalistic paradigm is to illuminate specific environment and provide working hypotheses for the expansive research of others. It neither expounds hypotheses nor attempts to arrive at truth by process of falsification. Instead, it resolves by intertwining objective, subjective and inter-subjective realities using emergent methods during immersion in an environment.

Theoretical Foundation of the Study

This study relies on mass communication and mass media theory to guide a hermeneutic journey through distinct, but converging, communication channels. The environment this study investigates is virtual. It exist as representations in the objective, documentary evidence comprising books, scholarly articles, government documents, and proceedings papers produced exclusively for print; and as the subjective and inter-subjective online Collaboratory, which includes the artifacts, interactions, and manifestations exclusively accessible via computerized networks.

Mass Communication and Mass Media Theory

Gerbner (1987) defines mass communication as social interaction though messages. Mass media is further differentiated as the organized technologies which make mass communication possible (McQuail 1994).

Two general areas of mass media and mass communication theory provide a useful approach to this study. The behavioral approach, with roots in psychology, social psychology, and sociological sciences, sheds light on the effects on the *individual* and is used to inform the documentary construct portion of this study. The cultural approach, with roots in the humanities, is "media-centric" and contextually focused (McQuail 1994), and seeks to understand the effects on the *masses*. The cultural approach informs the experiential online construct of this study. Together, the behavioral and cultural approaches bridge the gap between the objective construct of the

documentary Collaboratory, and the subjective, experiential construct of the online Collaboratory.

Within the behavioral and cultural theories of mass communication and mass media, four models exist:

- The **transmission**, or sender-message-receiver model (Lasswell 1948, Shannon and Weaver 1949, Westley and MacLean 1957) is concerned with *channel*, or the mechanics and technologies of transmission and distribution.
- The **ritual** or expressive model (Carey 1975) is concerned with *content* and with the maintenance of society by representing shared beliefs or values using emotional performances, iconizations, and sentimentations.
- The **publicity** model focuses on *context*, and gaining and keeping attention, with the substance of the message often subordinate to the devices for presentation (Altheide and Snow 1979, 1991).
- The **reception** model (Holub 1984, Jensen and Rosengren 1990), which locates and constructs meaning derived with the receivers, and is concerned with *content in context*.

In this study, the ritual or expressive model is used to explore the objective, documentary representation of the Collaboratory. The reception model is used to explore the subjective and inter-subjective online Collaboratory.

Philosophical Foundation of the Study

Philosophically, this study relies on the hermeneutic process, which contends that shared meaning is the necessary and sufficient determinant of shared understanding. This study represents understanding as the valid interpretation of evolving multiple realities (objective, subjective, and inter-subjective) in an emerging, immersive, collaborative process between researcher and document, researcher and media, researcher and participant, and researcher and participant group.

Ricoeur (1981) defines hermeneutics as the theory of the operations of understanding in their relation to the interpretation of texts. Ricoeur argues that the proper task of hermeneutics is concerned with reaching the subjective meaning of the message (its content in context), rather than the objective language of the transmission (the channel).

Ricoeur defines explanation as the objective, neutral reality external to the human, and understanding as the subjective, prejudiced reality internal to the human. The hermeneutic process is used here to explore the space between the objective, explanatory construct created through interaction with documentary content in the ritual or expressive model of mass mediated communication, and understanding created through subjective and inter-subjective interaction with content in context in the reception model of interactive mass mediated communication.

Definitions

Collaboratory

Capital-C "Collaboratory" is used throughout this prospectus to conveniently identify the yet-indistinct concept and/or environment, in either singular or plural, which is the focus of this research.

"Rules of the Road"

For the purpose of this study, the "Rules of the Road" are defined as those behaviors, attitudes, beliefs, skills, norms, expectations, and paradigms commonly shared or accepted by active Collaboratory participants to promote safe and productive navigation through Collaboratory space.

METHODOLOGY

Naturalistic Inquiry

This study relies on mass media and mass communication theory within a naturalistic/constructivist paradigm and a hermeneutic process to investigate the creation of objective *explanation* of documentary evidence, and the creation of subjective, and inter-subjective, *understanding* in the online Collaboratory. Keeping with the naturalistic/constructivist paradigm, this study does not assume an a priori design. Rather, it depends on an emergent, cybernetic design based on careful preparation to achieve its knowledge goals.

Evaluative Criteria

This study makes no attempt to address the criteria and protocols of the traditional, positivist scientific method. Instead, it seeks to meet Naturalistic Inquiry's criteria of trustworthiness (Erlandson, et al 1993) as defined by credibility, transferability, dependability, and confirmability (Guba 1981, Guba and Lincoln 1981, Guba and Lincoln 1989, Lincoln and Guba 1985).

Credibility is defined as the "degree of confidence in the 'truth' that the findings of a particular inquiry have for the subject with which--and context within which--the inquiry is carried out" (Erlandson, et al. 1993, 29). Credibility will be accomplished by strategies including prolonged engagement, persistent observation, triangulation, referential adequacy materials, peer debriefing, and member checks.

Transferability is defined as "the extent to which its findings can be applied in other contexts or with other respondents" (Erlandson, et al. 1993, 31). Transferability will be achieved two ways: through thick description of sufficient detail and precision that it brings the reader vicariously into the environment under investigation; and through purposive sampling governed by emerging insights and information achieved during the course of the investigation.

Dependability is defined as the extent to which, if the inquiry "were replicated with the same or similar respondents (subjects) in the same (or similar) context, its findings would be repeated" (Erlandson, et al. 1993, 33). Dependability will be verifiable through a "dependability audit" which includes

construction and maintenance of an information archive to facilitate access to all documentation, a running account of the process of inquiry in the form of a researcher log, and the documentation of process decisions in a methodology log.

Confirmability of an inquiry is defined as "the degree to which its findings are the product of the focus of its inquiry and not of the biases of the researcher." (Erlandson, et al. 1993, 34) Confirmability is achieved when constructions, assertions, and facts can be tracked to their original sources and the logic behind their construction leads to an explicit and implicitly coherent and corroborating whole. Confirmability will be achieved via a "confirmability audit" which will allow an external review to judge the conclusions, interpretations and recommendations of the inquiry.

The Dependability Audit and the Confirmability Audit are facilitated by the construction of a Collaboratory library using commonly available relational database software, the design of which will emerge during the investigative process.

Intertwined Phases of the Study

This study involves three intertwined and semi-simultaneous phases: immersion in the documentary evidence of the Collaboratory; immersion in the online environment of the Collaboratory; and a reality-validating Delphi among Collaboratory participants. Appropriate Collaboratories for the second phase of this study will be identified during the first phase. Examples of

Collaboratories that might be explored include The Collaboratory for Research on Electronic Work (CREW) at the University of Michigan, the MIS Collaboratory at the University of Texas, and the Upper Atmospheric Research Collaboratory (UARC) at the University of Michigan.

Human contact will be made during the second and third phases, but human subjects will only be used in the third phase. For the second phase, access to the online environment of the Collaboratory will be obtained and consent will be gained from gatekeepers. While it will be necessary to interact with individual Collaboratory participants during this part of the study, it will be only to create researcher understanding of the environment generally, and will not involve investigation or identification of individual participants. All Collaboratory participants will be informed that environmental research is underway and that no individual will be the subject of the research.

Participant Selection for Concluding Delphi

Linstone (1975) characterizes the Delphi as a method for structuring group communication processes so that a group of individuals, as a whole, can deal with a complex problem. The Delphi technique uses a purposive sample of those most likely to know in a series of refining contacts to reduce individual answers to a group consensus until a probability of understanding is achieved. This correlates with the inter-subjective reality verification imperative of the naturalistist paradigm. The intent of the Delphi is to identify the "Rules of the Road" for the Collaboratory and determine those skills

Collaboratory pioneers value in prospective participants. Participants will be purposively selected during the first two phases as representative of the authoritative voice of the Collaboratory by virtue of their contribution to the scholarly literature, their inclusion in the mediated representation of Collaboratory development work, their status as Collaboratory participants, or their recommendation by others so qualified. The technological skill requisite for inclusion supports the exclusive use of email to effect the Delphi. The questions of the Delphi will emerge during the execution of the study.

Delphi participants will receive an initial instrument via email. After results are tabulated and common themes are determined, participants will receive a second instrument providing points on which consensus or shared understanding occurred, and the unique perspectives that emerged. They will be asked to review their individual response and the responses of the group, and to determine how important they believe each element to be. This procedure will be carried out one or more times, as necessary, to reach common understanding.

Data Analysis

Data analysis will be ongoing throughout the process of this study. Method of analysis will be determined by the data.

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