

# CHAPTER 4

- 4.1 Introduction**
- 4.2 Multiple Worlds: Research Paradigm**
- 4.3 Hidden Worlds: Challenges Related to Investigating Beliefs**
- 4.4 Overview of Data Collection**
- 4.5 Discussion List: Multilogue and Dialogue**
  - 4.5.1 Discussion List: Definition and Characteristics**
  - 4.5.2 Discussion List: Procedure**
  - 4.5.3 Discussion List: Participants**
  - 4.5.4 Discussion List: Dialogues**
- 4.6 Questionnaire: Monologue and Dialogue**
  - 4.6.1 Questionnaire Design**
  - 4.6.2 Questionnaire: Procedure**
  - 4.6.3 Questionnaire: Participants**
  - 4.6.4 Questionnaire: Dialogues**
- 4.7 Data Analysis, Coding and Categorization**
- 4.8 Data Reporting**
- 4.9 Conclusion**

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## CHAPTER 4

# Methodology: Making Sense of a Teacher's Complex World

We do not describe the world we see; we see the world we can describe. (Senge, 1995)

### 4.1 Introduction

The methodological approach chosen for this study is multifaceted relying on a variety of means to probe and profile the beliefs of teachers. The potential of the Internet as a tool for research is exploited by the present investigation which relies on an online discussion list, e-mail correspondence and questioning to collect data. The study also included use of a more traditional research technique, that of a mail-out, open-ended questionnaire. The investigation privileges teacher talk through multilogue, monologue and dialogue in order to make explicit and articulate the tacit. The multiloguing or discussion is accomplished through use of an online discussion list. The monologue is represented by the use of questionnaires. The dialogues are one-on-one exchanges that took place between the researcher and select participants in both the discussion list and the questionnaire. The data are collected and analyzed within the historical and conceptual framework outlined in Chapter 2 of this study.

The questions that guided the research are as follows:

1. What are some of the beliefs of teachers of FSFL in relation to teaching and learning in online learning environments?
2. What do these beliefs reflect in terms of the evolution of approaches and use of technology in the teaching of FSFL?

This chapter describes in detail the approach taken to the investigation of these questions. For each method used to collect data, a description is provided of the procedures, participants and the characteristics of the method. Prior to the description is an overview of the general research paradigm as well as a discussion of the particular challenges related to studying beliefs.

### 4.2 Multiple Worlds: Research Paradigm

In his discussion of paradigms and research programs in the study of teaching, Shulman (1986) highlights the complex nature of the world of teaching:

I begin with the assumption that there is no "real world" of the classroom, of learning and of teaching. There are many such worlds, perhaps nested within one another, perhaps occupying parallel universes which frequently, albeit unpredictably, intrude on one

another. Each of these worlds is occupied by the same people, but in different roles and striving for different purposes simultaneously. (p.7)

Schulman's assertion fits well with the epistemological framework or perspective of the present research. This investigation is premised on the notion that a teacher's world is a diverse and complex phenomenon. It assumes not a linear, rather a cyclical or circular direction of causality in the chain of behaviors of students' and teachers' classroom actions. Furthermore, it considers of primal importance the experiences of individuals and the meanings and interpretations they attach to these experiences. Learning is understood as being the social negotiation of shared meanings and interpretations which groups of individuals construct based on experiences and interactions with their environment.

Research is seen as a means of gaining insight into these experiences in order to understand the meanings of events and not to influence them. This inquiry is thus interpretive and reflective. It does not attempt to explain how things work, nor does it attempt to predict how they might work. The orientation of the present research aims to understand the meanings which individuals in a particular context have evolved. Specifically, it seeks to understand some of the underlying beliefs or implicit theories of teachers. It attempts to make sense, to understand, to make more explicit, this underlying aspect of teachers' complex world.

The present study can be described as "interactive" in the sense that the researcher actively participates in the discussion list along with the other participants. While the researcher's role in the list may be more of a leader and an individual who prompts others, the role nonetheless involves active participation. Such research can be described more specifically as ethnographic. Ethnography can be defined as "analytical description of social sciences, individuals, and groups that recreate their shared feelings, beliefs, practices, artifacts, folk knowledge, and actions" (McMillan Schumacher, 1997, p.427). Ethnography is a form of "naturalistic enquiry" (Taft, 1988). The emphasis on subjective realities as the focus of the investigator's attention has much in common with the philosophy of naturalism which purports that "there exist multiple realities which are, in the main, constructions existing in the minds of people" (Guba Lincoln, 1988, p.81). These multiple realities are synonymous with Shulman's (1986) multiple worlds described in an earlier section of this chapter. The role of the researcher as ethnographer is to observe these multiple realities, to articulate, interpret and reconstruct them (McMillan Schumacher, 1997).

The methodological approach adopted is designed to take into consideration the challenges related to investigating beliefs. Innovative and non-obtrusive techniques are required to elicit tacitly held beliefs and to provide an environment in which teachers will be encouraged to reflect on and articulate their beliefs. Many approaches might or could have been used to probe and profile teachers' beliefs. However, ensuring the integrity of these beliefs has to be a guiding factor in the choice of methodology. The present research model has been designed specifically to ensure the integrity of the beliefs and to provide teachers with an optimal opportunity to reflect and articulate their beliefs. The following section describes in detail the challenges related to studying beliefs.

### 4.3 Hidden Worlds: Challenges Related to Investigating Beliefs

Much of educational research has traditionally focused on teacher actions which represent observable and measurable phenomena that lend themselves easily to empirical research. Beattie (1995) notes that the major goal of this research was to determine the effects of teacher actions and performance on student achievement. Brophy and Good (1986) describe this type of research as process-product studies. Such research typically concerned itself with causality and was conducted using quantitative research methods. Fang (1996) notes that this research was conducted under laboratory or contrived conditions and describes it as follows:

[Such] research assumed that the relationship between teachers' actions and their observable effects is linear and unidirectional. Data analysis was relatively decontextualized and objectified in a search for positive, generalizable principles which can be used to formulate teaching and learning theories. Statistical procedures used in these studies were often correlations and analysis of variance. (p.48)

In recent years, advances in cognitive psychology have resulted in a shift away from process-product studies towards a growing interest in understanding teachers' thought processes (Fang, 1996). This tendency has led to various attempts at investigating teacher beliefs. However, focusing on what happens inside teachers' heads presents certain obvious research challenges. Pajares (1992) argues that the construct of belief does not lend itself easily to empirical investigation. Beliefs have a very covert nature, might not be observable and even the teachers holding them may not recognize them (Milne Taylor, 1995). Teachers' beliefs are often tacit and inarticulate (Driver Erickson, 1983). They belong to the area of thought processes that occur inside heads and are thus unobservable in the same way that behaviour would be (Clark Peterson, 1986).

Kagan (1992) has identified a number of challenges related to studying beliefs. She notes that they cannot be inferred directly from teacher behaviour, because teachers can follow similar practices for very different reasons. Furthermore, notes Kagan, "much of what teachers know or believe about their craft is tacit. For example, teachers are often unaware of their own beliefs, they do not always possess language with which to describe and label their beliefs..." (p.66). She therefore cautions against a style of direct questioning such as "What is your philosophy of teaching?" and characterizes it as "an ineffective or counterproductive way to elicit beliefs" (p.62).

Varying approaches have been taken by researchers in their attempts to understand teacher beliefs. One of the more common approaches is the use of Likert-type questionnaires to which teachers indicate agreement with direct statements on beliefs. Another approach is that of forced-choice options that require teachers to endorse a particular option. Such approaches, however, are unlikely to provide an accurate indication of teachers' beliefs. Munby (1984) points to a number of drawbacks to such approaches to studying beliefs:

While the items of the instrument generate a response, they may be doing so not because the teacher would necessarily have thought of the belief represented by the items but because the test developer did. In other words, the scores represent what the teacher says is believed when he or she is physically presented with various beliefs of interest to the researcher (and possibly identified by many other teachers), and these do not necessarily correspond to the beliefs which are paramount to the individual teacher's handling of the immediate and unique professional environment. (p.29)

Like Kagan, Woods (1996) emphasizes the tacit nature of beliefs and the difficulties of accessing them. Even in an interview situation, direct questioning can produce misleading results:

...beliefs (and their interrelationships) may not be entirely consciously accessible, and teachers may, in responding to questions about generalized beliefs, answer according to what they would like to believe, or would like to show they believe in the interview context. When a belief or assumption is articulated in the abstract as a response to an abstract question, there is a much greater chance that it will tend more towards what is expected in the interview situation than what is actually held in the teaching situation and actually influences teaching practices. (p.27)

A further problem arises, according to Woods, in relation to the way in which the questions may be posed. Terms like *whole language* can have varying meanings for different individuals and their use by the interviewer may be misleading. As Woods explains "...language teachers know a lot about themselves in language teaching situations, but although they have had the experiences, they may not have categorized and labeled them. Therefore using abstract questions, symbols and categories that the interviewer might feel comfortable with may not allow themselves to express what is important to them" (p.27).

Fang (1996) expresses a similar concern about the approach of much of the research on teachers' thought processes and beliefs. He posits that studies of teacher cognition and beliefs must address the personal experiences of teachers and their influence on shaping these beliefs. He recommends approaches such as life history, narrative, and autobiography in order to capture the complexities of teacher beliefs. Woods makes similar recommendations and proposes investigating the contexts of what he refers to as teacher stories about events, behaviours and plans. Munby (1984) argues that special attention needs to be given to providing teachers with opportunities to talk about fundamental beliefs.

The present study recognizes the challenges related to studying beliefs. It is in recognition of these challenges that the research was designed. Emphasis in the research design is on providing a means or mechanism to allow teachers the opportunity to bring to the surface their own theories, personal knowledge, or beliefs about the teaching of FSFL in online learning environments. The study has taken a broad focus as a means of providing an initial foray into an area about which little is yet known. Expressed in this study therefore is an interest in understanding the beliefs of both teachers who do and do not operate in OLEs. The broad range allows for an understanding of the beliefs of those who may value and those who may not value the use of the Internet in the teaching of FSFL. The study allowed for participation from a wide

range of teachers from diverse educational and geographical backgrounds. At the same time, the study provided an opportunity to probe more deeply into the beliefs of a certain number of the study's participants.

An approach often taken to the study of teachers' beliefs is to focus in on a small number of three or four teachers and to probe their beliefs in-depth. The present study takes a very different approach. The study's data collection techniques allowed the opportunity to probe in-depth the beliefs of certain participants. The teachers involved in the study were able to participate in the large group discussion where many issues were raised and a broad range of topics discussed. However, at the same time, these teachers' beliefs were also probed in a more in-depth fashion through individual dialogues conducted via e-mail for the discussion participants and via telephone for the questionnaire participants. The range of topics generated allowed the researcher to capture a broader range of beliefs than might have been possible if only three or four individuals participated in the study. The following section provides a brief overview of the data collection techniques.

#### 4.4 Overview of Data Collection

The data were collected over a period of ten months i.e., from September, 1998 to June, 1999. Two primary methods were used to collect data for this study:

1. a French online discussion list and an English online discussion list
2. an open-ended, mail-out questionnaire

The English and French discussion lists were comprised of teachers from more than four continents but primarily from North America. The questionnaire was circulated among teachers of FSFL in the province of Newfoundland and Labrador, Canada. Comments made by participants in the discussion list inspired questioning or probing in the questionnaires. Some of the comments made in the questionnaires were recirculated by the researcher in the discussion list. Thus, the research could be described as cyclical and integrated, with each method of data collection influencing the content of the other methods.

In-depth probing, or *dialoguing* as it will be referred to in this study, formed a secondary means of collecting data. Sixteen participants from the discussion list were involved in e-mail *dialogues* with the researcher in order to gain further insight into individual beliefs. In the case of the questionnaires, five of the respondents were selected to participate in dialogues or interviews with the researcher. The following sections of this chapter describe in detail, the participants, procedures and instruments used in this study. (See Appendix A for a summary of the study's research methods).

## 4.5 Discussion List: Multilogue and Dialogue

This section provides in-depth information on the use of discussion as a means of favouring teacher talk, reflection and of bringing teachers' implicit beliefs to the explicit level. Comparisons will be made throughout this section in order to highlight the similarities and differences between online discussions in asynchronous time and face-to-face discussions in synchronous time. An overview will be presented of the participants in and procedures of the online discussion that took place in the context of this study. The individual dialogues or discussions will also be explained.

### 4.5.1 Discussion List: Definition and Characteristics

Of all types of sustained direct oral communication, none is more common or important to our way of life than discussion (Brilhart, 1978). The following definitions of a discussion indicate the many interpretations that can be given to the term. These definitions also highlight many commonalities. The definitions include:

- a process of *shared* talking and listening by two or more people; (Brilhart, 1978, p.3)
- a small group of people talking with each other face to face in order to achieve some interdependent goal, such as increased understanding, coordination of efforts, or a solution to a shared problem; (Ibid. p.5)
- a form of group dialectic; (Ibid. p.7)
- the purposeful, systematic, primarily oral exchange of ideas, facts, and opinions by a group of persons who share in the group's leadership; (Potter Anderson, 1976, p. 1)
- ...one or more meetings of a small group of people who thereby communicate, face to face, in order to fulfill a common purpose and achieve a group goal; (Borman, 1975, p.53)
- an effective technique for intelligent and productive self-expression. (Bergevin Morris, 1965)

These definitions were created at a time when the online discussion was a yet non-existent phenomenon. It is therefore easy to understand why many of the authors cited above relied on the importance of face-to-face contact in their definition. In this age of asynchronous communication facilitated by the many tools of the Internet such as e-mail, the World Wide Web, chat rooms, MUDs and MOOs, discussions can occur without the need for either physical or temporal proximity. Thus, for the purposes of the discussion that formed a major part of the research method of this study, the face-to-face element need not figure as part of the definition. Using these clarifications and with reference to the established definitions listed above, the discussion used in this study can be defined as follows:

A purposeful and systematic exchange of experiences, anecdotes, personal knowledge and implicit theories, by means of electronic, asynchronous, written communication by a group of teachers sharing a common interest in the teaching and learning of French as a second or foreign language in online learning environments.

There are numerous differences between a "live" discussion and an online discussion. The elements of time and distance play no role in the online discussion. E-mail discussion operates in asynchronous time whereby "messages are either e-mailed or posted on a system where, upon login, users are notified of the new postings they have not yet accessed" (Bush, 1996, p.2). Discussions are frozen on the hard drives of the participants and the discussion can be entered into at an interval convenient to the participant (Logan, 1995). The characteristic of asynchronicity means that participants do not have to be logged onto the computer system at the same time in order to communicate, thus freeing them from time and distance limitations. Asynchronicity also allows either reflective or spontaneous interaction (Harasim, 1986, p.6). In terms of distance, whether the discussion list member sends a message from 500 or from 50 miles away, the resulting message and relative speed of its delivery are the same. Physical presence is not a requirement for online discussion which has the capacity to "unite" a geographically dispersed group of individuals. In an online discussion, participants "share a common corner of cyberspace rather than sit at a banquet table" (Logan, 1995, p.276). The absence of physical presence means that members of the discussion cannot see each other.

Absence of physical presence has important implications for the discussion. The benefit of freedom from spatio-temporal limitations allows for more interaction and flexibility in communication among members and thus potentially more exchange of ideas, increased participation and variety of interchange (McComb, 1993). The fact that the communication is taking place online has important implications for the amount and types of participation. "The time for reflection and the distance of the written interaction allow the slow thinker or shy person opportunity to interact just as much as the quicker or bolder person, who can, however, still interact at his or her own pace without having to wait for permission" (McComb, 1993, p.8). While some might argue that online discussions are limited by lack of physical interaction, others see significant benefits to the freedom of spatial limitation. Feenberg (1987) considers the advantages of computer-mediated communication (CMC):

CMC users often feel they gain a more immediate access to each other's thought processes, undistracted by the status signaling and social games that are played simultaneously with speech in face-to-face encounters.... ordinary individuals possess the 'literary' capability necessary to project their personalities in written texts. The loss of the interlocutor's bodily presence does not signify impersonality, but freedom from undesirable social constraints. (p. 174)

Computer-mediated communication facilitates a greater equality of participation than does a face-to-face discussion. Such communication can benefit most those who would normally be shut out of the conversation because of shyness but also because of other factors. In a review of the literature on computer-mediated collaboration, Warschauer (1997a) summarizes some of the findings related to the equalizing nature of computer-mediated discussions. He explains that factors related to race, gender, status, handicap, accent or status do not impact on the discussion. Certain non-verbal clues such as frowning and hesitating which might normally serve to intimidate certain participants are eliminated. Finally, individuals can contribute at their own time and pace.



Another characteristic of online communication that distinguishes it from its real- world counterpart is its oral nature. In spite of the fact that communication via e-mail is written, the style of communication in an online discussion bears more resemblance to oral communication. Logan (1995) explains:

The protocols and rituals associated with the use of the Internet are not the formal patterns characteristic of literate communication but are more like those of an oral society, despite the underlying literate substrata that infuses the use of computers. The primary mode of communication, e-mail, is written, but, in contrast to traditional literacy, the form of writing is not formal. Grammatical structures are frequently relaxed and shorthands and jargon are liberally used. The writing is frequently infused with hieroglyphic signs used to connote feelings and tone and are meant to replicate the kind of information that facial gesture and vocal tone convey during face-to-face conversation. (p. 268)

Shank (1993) likens Internet communication to a conversation. He notes that messages tend to be informal and phrased in conversational form, and can engender a great deal of interchange. He also distinguishes the online discussion from all others through his reference to the term "multiloguing". Shank distinguishes between three types of conversation: the monologue where "there is only one sender, and one or more multiple receivers who listen passively to the message of the sender"; the dialogue whereby "the sender and receiver take turns" (p.2). The third type of conversation is the discussion whereby "we have one person who starts as the sender, and multiple receivers. While it is important for the receivers to take turns as senders, in the discussion, the initial sender still retains control of the conversation" (p.2). However, argues Shank, these models of monologue, dialogue, discussion, do not capture the dynamics of Internet communication. For this reason, he claims, a new linguistic model is needed - that of the multilogue:

In the multilogue, we have a number of players. We have the starter, or the initial sender, who starts the "thread" (a well-established Net term, by the way). Once a thread has been started though, it is no longer under sender control. This is because the mechanics of Net response do not require turn taking. From the oral side, it is as if everyone who is interested in talking can all jump in at once, but still their individual voices can be clearly heard. From the written side, it is as if someone had started writing a piece, but before he/she gets too far, people are there magically in print to add to, correct, challenge, or extend the piece. Therefore, what we have is a written quasi-discussion that has the potential to use the strengths of each form. Since the "feel" of Net communication is still oral, I think it is best to call this form of communication "multiloguing", to retain the link with its oral heritage. (p.3)

The pattern of communication or conversation in the online discussions that took place in the context of this study's discussion lists can be described as multiloguing. The researcher served most often, though not always, as the starter. The participants developed the thread such that the researcher as participant-observer needed to intervene to maintain momentum, to start a new thread where necessary, to probe further or to request clarification. Multiloguing served as an

effective technique for ensuring a context in which teachers could "talk", share ideas, opinions, questions and debate without too much intervention by the researcher.

Besides defining the term discussion, it is important to understand in detail its characteristics. Hyman (1980) highlights seven such characteristics. The first of these characteristics is that of the discussion as a social activity whereby several people react to each other. A minimum group of five individuals is necessary to provide the opportunity to talk and yet allow some shifting of roles within the group. Secondly, a discussion is also a cooperative endeavor without winners or losers unlike the argument and debate which thrive on competition. Thirdly, unlike the free conversation among friends, the discussion can be distinguished by reason and purpose and a focus on an agreed-upon topic. Participants are required to think reflectively and to weigh arguments. The characteristic of being systematic implies that there will be some progression in the discussion. The fifth characteristic of the discussion is that it is creative. It is through the participants asking of, responding and reacting to questions, that remarks are shaped and that the discussion is created. A discussion requires participation. Active, attentive listening as well as active responsive speaking constitutes a sixth characteristic of the discussion-that of participation. The speakers and listeners constitute the integral participants. The discussion benefits from a broad range of participants.

The online discussion conducted in the context of this study followed a systematic exchange among teachers. The discussion provided them with the opportunity to reflect on their practices, the curriculum, their theories and knowledge. Through a cooperative sharing of ideas and experiences, teachers were able to respond and react to each other, to weigh arguments, ask questions, compare practices and ideas, express concerns and clarify issues in order to better understand how best to work and learn in OLEs. Providing teachers with the opportunity to talk about their experiences, theories and knowledge meant that they were having to reflect on their practice as well as on the environment in which they work. Such reflection brings closer "to the surface" issues, knowledge, theories, ideas and feelings that might otherwise have gone unexplored, unquestioned and unnoticed. Teachers were guided in this process by the researcher who served as a leader of the group discussion.

A discussion requires leadership in order to keep it focused, rational, purposeful, creative, systematic and participatory. The leadership of the discussion may take at least three different forms: that of the leader-centered group, the leader-guided group or the group-centered group (Hyman, 1980). In the first group, it is the leader who provides the motivation and direction and makes decisions for the group. The leader functions like the hub of the group without whom the group might cease to function. It is the leader who chooses the topic, sets the tone and focuses the discussion. In the leader-guided group, the leader functions as a facilitator who guides the discussion, contributes facts and opinions, clarifies ideas and raises questions. The third type is the group-centered group in which case there is no official leader. Instead, all members function as leader so that the discussion is not focused by one person rather each participant is responsible for providing the focus.

Specific discussion skills are required in order to lead the discussion. Hyman lists six skills which he identifies as being necessary to ensure an effective discussion. The first of these skills,

that of contributing, involves supplying requests for information, providing information not provided by the participants themselves, offering opinions, and suggesting new ways to view a point. Crystallizing is the second important skill for the discussion leader and essentially involves stating concisely, summarizing or interpreting the remarks of the participants in order to get at both the explicit and implicit, overall meanings. The leader may clarify statements made, offer alternative ways of perceiving meaning of remarks or offer a reflection on remarks. The third skill is that of focusing or putting the discussion on its intended course and ensuring that progress is made in the discussion. Focusing may also involve linking remarks with previous remarks, setting limits on what can and cannot be discussed.

In addition to the three leadership skills is the skill of introducing/closing the discussion. Introducing the discussion involves getting it off the ground by presenting the topic while closing the discussion involves ensuring that the discussants have a sense of satisfaction about their participation. The introduction also provides an important opportunity to deal with procedural issues related to the discussion. Closing the discussion involves more than ending it. A summary or recapitulation of the important points made along with suggestions for future discussions are important parts of the closing process. Participants can also be asked by the leader to perform the role of summarizing the highlights of the discussion. The fifth discussion skill is that of questioning or probing which serves to stimulate greater participation by the discussants and allows opportunities to solicit further opinions, explanations or generalizations or to explore relationships between ideas and remarks. Mixing the skill of questioning with other skills allows the leader to avoid dominating the discussion by interrogating. The final, but not the least important skill for the leader, is that of supporting. Praise, humorous remarks, and facilitating participation by shy or inactive members or even reducing any tension in the discussion constitute different ways of supporting.

The discussion that took place in this study could be described as a leader-centered discussion. The researcher functioned like the hub of the group, providing the topic, focus and direction of the discussion. The skills of contributing, crystallizing, focusing, introducing, closing and questioning were exercised in order to ensure the flow of participation, and to elicit comments, and remarks that would provide insight into teachers' beliefs. As leader, the researcher also had to ensure that the motivation in the group remained sufficient to ensure continued participation of members. Members no doubt needed to feel that the discussion was of benefit to them in their attempt to better understand how to work and learn in the new environment of the Internet. The participants volunteered to join the group knowing that the ultimate purpose was to collect data on their beliefs. At the same time, a second purpose for them or incentive to participate was that, in so doing, they might come to a better understanding of teaching and learning in OLEs .

The role of the leader in the discussion used in this study could also be characterized somewhat as that of the participant-observer. Brillhart (1978) describes the role of the participant observer in discussion groups:

The participant-observer is a person who is a regular member of the group, engaging actively in its deliberations, but who at the same time is observing, evaluating, and adapting to its processes and procedures. In terms of role, the participant-observer directs

part of his attention to task functions and part to maintenance functions, trying always to be aware of what the group needs at the moment. (p.45)

In the role of participant-observer, the researcher did not actively engage in the deliberations except to provide questioning, probing, direction and focus. It was important, however, as participant observer, to observe, evaluate and to adapt the discussion in ways most conducive to making beliefs explicit. In this sense, as participant-observer, the researcher acted more as a leader-observer than a true participant. Certainly, the online, virtual nature of the discussion that took place in this study allowed the researcher to play a more invisible role than what might have been possible in a face-to-face discussion. In the online discussion, there is no physical presence of the participants or the leader. In the case of this discussion, the participants had never met physically. Instead, their interactions were all virtual - i.e. via their individual e-mail messages sent through the list. Thus the focus becomes less on who is delivering the message than on the message itself.

As leader and participant-observer, it was important to construct what Hammersley and Atkinson (1983) refer to as a working identity. This identity allows the researcher to exploit any relevant skills or knowledge that she possesses. In this way, the participants can perceive the participant-observer, not as an "exploitive interloper", but as someone who has something to contribute. To maintain the participants' interest and continued participation in the list, it was necessary for the researcher to provide such a contribution. This contribution took the form of suggestions of sites, contacts, resources, answers to technical questions, some support with and feedback on projects and occasional summaries of information or research. A collaborative and cooperative tone was thus fostered in this discussion.

#### **4.5.2 Discussion List: Procedure**

Internet discussion lists can also be referred to by the generic term of mailing lists which is a collection of e-mail addresses (Carroll Broadhead, 1994). Thus, any message sent to the list is automatically distributed to all members of the list in asynchronous time. Messages and information from mailing lists are distributed via regular Internet e-mail. Special software is not required to read or send a message to the list (Ibid.). Anyone with an Internet e-mail address can choose to join a mailing or discussion list. Mailing lists represent interest groups or topics of discussion (Falk, 1994) and constitute a convenient method for people on different computer systems from different parts of the world to discuss particular topics or share information. This study provided for discussion in both French and English by means of an English list called **CREDO** and a French list called **CREO**. Invitations to join CREDO were sent to six lists that relate to education and/or language learning (see Appendix B). Invitations to join CREO were also sent to six lists (see Appendix B). These lists in turn distributed the invitation to their members who would have immediately received the invitation to subscribe. Subscriptions were processed by a listserv (a specialized piece of software provided by the service provider) that managed the process of list administration (subscribing and unsubscribing). To send out a message to the list or to respond to any message on the list, subscribers needed only to send their

message to [credo@stemnet.nf.ca](mailto:credo@stemnet.nf.ca) or to [creo@stemnet.nf.ca](mailto:creo@stemnet.nf.ca). Haughey Anderson (1998) explain how the listserv program manages the list:

A list server program maintains a list of the names and e-mail addresses of everyone who is subscribed to the list. The list owner has the capacity to restrict membership in any way that he or she chooses. When a list member wishes to send a message to the other members on the list, he or she composes the message on e-mail software and addresses it to the list. When the message arrives at the server, it is reposted to all the members. Each member then receives a private e-mail message in his or her "inbox". Replying to this message sends it to all the members of the list, which in turn supports e-mail interaction among many people. (p.23)

The questions and topics for the discussion came from various sources. Besides topics, issues or questions raised by the participants themselves, questions and topics were also generated from the topics and issues raised in both the review of the literature in Chapter 3 and the conceptual and historical framework in Chapter 2. The discussion lists represented a highly effective means of providing an opportunity for teachers to articulate their reflections, recount their experiences, present anecdotes, ask questions, provide comments and suggestions, express frustrations and seek and share advice. The discussion list was meant to be an indirect means to provide teachers with an opportunity to express beliefs. For this reason, the questioning did not focus specifically on beliefs but rather on issues that might generate a discussion in which beliefs would be indirectly expressed.

In terms of the postings, their frequency was irregular with an average of approximately four to five postings per week over a period of approximately 40 weeks. Certain threads of discussion might prompt numerous responses during a week-long period. Other threads or comments and questions raised by the researcher elicited few, if any, responses. The number of postings and their frequency was highly irregular and unpredictable. The total number of postings, excluding those of the researcher, exceeded 200 for the duration of the study. While some of these may have been as much as two pages in length, others were a few lines or several paragraphs long (for examples of participant postings see Appendix C). Not all discussion was initiated or directed by the researcher (for examples of postings by the researcher see Appendix D). Participants frequently asked questions or posted comments in reaction to the comments of others. The English list CREDO was more active than the French list which had fewer members and which represented a more geographically dispersed and diverse range of individuals who may have had less in common pedagogically than their counterparts in the English list.

#### **4.5.3 Discussion List: Participants**

All participants in the discussion volunteered themselves after having seen the invitation/announcement about CREDO and CREO which was sent out to other lists in the Internet (see Appendix B). Immediately following their subscription, participants were sent an initial message (see Appendix E), a welcome message (see Appendix F) outlining procedures for unsubscribing, a form indicating their willingness to participate in the study (see Appendix G) and guidelines for participation in the list (see Appendix H). As well, all questionnaires

contained an invitation to participate in the discussion list. While some of the individuals who completed the questionnaire agreed to join the CREDO list, none posted any messages.

The participants represented a select sample or group in the sense that they would all possess a minimum level of skill in use of the Internet. To be able to receive the initial message, they had to have been already subscribed to a discussion list because it was through the discussion lists that the invitation was distributed. Participation in a discussion list implies that the user has established an Internet account, has achieved a basic comfort level in the use of e-mail and is familiar with how to subscribe to discussion lists. As such, the participants in the CREDO and CREO lists represented Internet users as opposed to non-Internet users.

Demographic information on the participants was provided by means of an introduction to the group which each individual was asked to provide using a "template" in the form of the introduction of the researcher to the group (see Appendix I). Not all participants adopted the format of the introduction template. Thus, some participants provided more demographic information than others. This study did not aim to focus on or control for any variables related to gender, experience, programs, or geographic location. The demographic information was necessary for both the researcher and the participants in order to contextualize certain comments particularly in relation to the grade and program that the individual was teaching.

The individuals came from diverse backgrounds with a range in teaching experience from pre-kindergarten to college and university level. The majority of participants were, however, teaching school-age children. Core French and French Immersion programs were represented among the participants. Many of them had been involved in Internet projects and some were intensely involved in integrating the Internet into their teaching. Numerous continents were represented by the participants. While the majority of CREDO participants were from Canada and the U.S.A., there were also participants from Australia and Austria. In the CREO list, there were participants primarily from Europe i.e., France and Italy. However, there were also some participants from South America, Africa and Québec.

#### **4.5.4 Discussion List: Dialogues**

In the course of the discussion which ran for a period of ten months, it was often necessary or useful to contact certain participants individually i.e., without posting to the entire list. Such was the case, for example, when clarification was required on a point or when the researcher wanted to probe more deeply or even when the researcher wanted to encourage greater participation from a member of the group. As well, it was not uncommon for some participants of CREDO or CREO to send an individual e-mail to the researcher to request information on a topic, to express an opinion which, for participants' own reasons, they chose not to express to the entire group. This type of exchange is referred to in this study as dialoguing as opposed to the multiloguing exchanges which took place between all members of the group in the context of the discussion lists.

Besides the informal dialoguing that took place as described in the above section, a more formalized system of dialoguing was also incorporated into the discussion list. The purpose of

the formalized dialoguing, like that of the informal dialoguing, was to probe more deeply into beliefs of some of the discussion list participants, to seek further clarification on comments made in the context of the list, to encourage participation and exchange and flow of "conversation". The primary difference between the informal versus the formal dialoguing was that the latter involved the same question sent out approximately once per week to each participant in the dialogue. The question served as a catalyst for further questioning or dialoguing with the participant (see Appendix J for sample dialogue questions).

In terms of the participation in the dialoguing, 22 members of CREDO and 14 members of CREO each received an individual e-mail from the researcher inviting them to participate in dialogues (see Appendix K for the invitation). These 36 individuals were invited to participate based on a variety of factors. The majority were invited to participate because of what the researcher perceived as an ability on the participants' part to articulate their beliefs and experiences. Others were chosen with an aim to increase participation from a wider range of experience in terms of geographic location or programs. Whereas 16 of the 22 individuals invited from the CREDO list agreed to participate, no members of the CREO list agreed to join in the dialogues. We can speculate that as to why no CREO members agreed to participate. The general degree of participation on CREDO was greater than on CREO for the discussion list as a whole. As such, the researcher was more easily able to create a rapport with the participants of CREDO than with those of CREO. Although it cannot be determined conclusively that the rapport contributed to the willingness of participants to dialogue, it may have been a contributing factor in their decision.

For those who did agree to participate, their involvement amounted to responding to approximately one question every one or two weeks. The questions were determined by the researcher. In terms of the number of postings by individual dialogue participants, these were irregular. There were some weeks when certain individuals did not respond because they were unavailable for various reasons ( see Appendix L for an example of a dialogue posting or message). It is possible as well that they did not respond because the question was not meaningful for them or simply because they were too busy to find the time to respond.

The number of postings for the dialogue as well as the multilogue were irregular. Their length also varied considerably. While some may have been more than two pages in length, others were no more than a few lines. Certain threads of discussion for the multilogue or questions for the dialogue might prompt numerous responses during a week-long period. Other threads, or questions raised by the researcher elicited few, if any, responses (see Appendix M for an individualized summary of the postings of the multilogue and dialogue participants). For certain participants, their multilogue and dialogue postings combined exceeded 20. Others exceeded 10 or 15 which represented a large amount of in-depth data (see Appendix N for a numerical comparison of the participation in the multilogue and dialogue). Those participants who posted little nonetheless provided an important peripheral contribution in the sense that their messages/postings often served to stimulate discussion in other participants.

## 4.6 Questionnaire: Monologue and Dialogue

The online discussion list provided an opportunity for teachers to reflect, share information, express concerns and to articulate their own theories about teaching and learning FSFL in online learning environments. Those who volunteered to participate in the online discussion list generally represented a group of individuals experienced in using the Internet. The fact that these individuals were willing and able to participate in an online discussion meant that they had to have a certain level of competency in the use of e-mail. Many of the participants were involved in Internet projects and some were even responsible for training other teachers in use of the Internet in teaching.

These teachers represented a select group who, it might be expected, would hold some similar beliefs about use of the Internet in teaching and learning. The aim of this study was not only to profile the beliefs of teachers who were comfortable and competent in teaching in OLEs, but also, to gain insight into the beliefs of those teachers who work in these environments very little or not at all. Even though these individuals do not work in these environments, they are still adequately familiar with them to be able to express their beliefs about them. It may well be because of their beliefs that these individuals do not choose to experiment with online learning environments. Thus, the beliefs of these individuals are important in building an understanding of teachers' beliefs in general. These beliefs provide a point of comparison to the beliefs of those who work frequently in online environments.

### 4.6.1 Questionnaire Design

In order to capture the beliefs of a wider group of teachers, a mail-out, open-ended questionnaire was used. The sampling for the questionnaire targeted a wide geographic range including all ten school districts in the province of Newfoundland and Labrador as well as a range in grades, programs and small versus large schools. The instrument (see Appendix O) included a consent form and a two-page questionnaire with eight, open-ended questions. The questions were designed to elicit responses that would reveal underlying beliefs. No attempt was made to ask explicit questions such as "What are your beliefs about the value of the Internet as a teaching and learning environment?". Instead, the aim was to provide teachers with an opportunity to provide information on or to "discuss", in general, issues related to the following:

- their approach to teaching with and without the Internet;
- the strategies needed by teachers and students for Internet use;
- the impact of the Internet on their teaching;
- their experiences in using the Internet;
- the types of activities in which they engage when using the Internet;
- why they do or do not use the Internet.

The questionnaire was designed to assist teachers in revealing implicitly their personal theories about the teaching of FSFL in online learning environments. The following section of this chapter outlines the procedures of the questionnaire.



A program designed for non-French-speaking individuals in which French is the language of instruction in the classroom for all or some of the subject areas.

#### **4.6.2 Questionnaire: Procedure**

The questionnaire was piloted by 11 individuals during the months of October and November, 1998. The participation in the pilot study was requested by the researcher. The individuals chosen represented a range of participant types and included a university professor, teachers in training, Core French and Immersion teachers. The most important changes made in the design allowed for wording that would accommodate users who either did not use the Internet or who used it little.

The questionnaires were mailed to French Program Specialists during the month of January and distributed to schools and the individual teachers through district mail. Teachers were asked to return the questionnaire by February 15<sup>th</sup>, 1999. This time of year was chosen to avoid the busier times of year such as at the beginning or end of year or reporting times. Each questionnaire included a return, stamped envelope as well as a small button with a slogan related to the teaching of French such as *J'aime parler français*. If the questionnaire had not been returned by the end of February, a follow-up letter was sent to the teacher (see Appendix P) . If the questionnaire had not been received by the middle of March, a second follow-up letter and questionnaire were sent out (see Appendix Q). This letter also included an Internet address of a site created by the researcher where participants could complete the questionnaire online. The final response rate was approximately 68% with 88 out of 130 questionnaires returned.

#### **4.6.3 Questionnaire: Participants**

The questionnaire was distributed to 130 teachers from Kindergarten to grade 12 in the province of Newfoundland and Labrador, Canada. All ten districts were represented in the study. The districts represent ten geographic regions of the province including the island portion of Newfoundland as well as the mainland portion of Labrador (see Appendix R for a map). The regions represented include schools in urban as well as rural centres, large and small schools, centrally located as well as extremely isolated schools. The inclusion of all ten districts as well as a selection of schools from within the district was based on the premise that technology integration and teacher exposure to the Internet would vary based on a large number of factors some of which would include the size of school as well as its location.

A form was sent to French Program Specialists in each of the ten boards to request participation (see Appendix S ). The Program Specialists were asked to choose teachers from as wide a range of schools as possible as opposed to choosing all the teachers from the one school. The selection included Core French and French Immersion programs and all grades from K-12. Using combinations of grades and programs (i.e. Core French K-3, Core French 4-6, etc), each Program Specialist needed to select 16 teachers. Since some districts do not offer certain programs such as French Immersion at the primary level, they were not able to provide the researcher with a name of a teacher at that level. For this reason, specialists provided 130 names as opposed to the 160 requested (10 districts X 16 names).

#### 4.6.4 Questionnaire: Dialogues

Recipients of the questionnaire also had the opportunity to participate in individual dialogues or questioning in the same way that participants in the discussion list were involved in individual dialogues with the researcher. The cover of each questionnaire contained a section inviting participants to participate in an online discussion and/or an interview. Twenty two individuals expressed an interest in participating in interviews. Five individuals from this 22 were selected to participate. These individuals were selected because they indicated in their questionnaires that they never used the Internet for teaching. Some of them had not used the Internet at all for any purposes. The discussion list profiled primarily the beliefs of individuals who were comfortable with online technologies and who were, in the case of many of the participants, teaching and learning using the Internet. An essential aim of the research was to capture a range of beliefs. The dialogues between the researcher and these five individuals provided the means of capturing beliefs of individuals, who, in terms of their online comfort level, were at the opposite end of the continuum of use as compared to the discussion list participants.

The dialogue was conducted using the telephone since the participants all lived in rural areas at some distance from the researcher. Our discussion began by talking about our experiences. The researcher as well as the participant, exchanged stories about professional and, sometimes, personal lives. Following the establishment of a basic rapport, the discussion centered around responses made in the questionnaire. From this discussion, we engaged in a more general dialogue about the Internet, its use in the classroom and, most often, the participants then talked about the challenges related to Internet use. The dialogues could be described as open-ended and non-directive (Hammersley Atkinson, 1983). The participant was encouraged to converse at length and on his/her own terms.

#### 4.7 Data Analysis, Coding and Categorization

The purpose of analysis is to "make sense of the data" and to "make meaning" (Merriam, 1998, p.178). It is an "ongoing cyclical process integrated into all phases of the research" that begins with the data collection ( McMillian Schumacher, 1997, p. 502). As Merriam (1988) explains:

Data collection and analysis is a simultaneous activity in qualitative research. Analysis begins with the first interview, the first observation, the first document read. Emerging insights, hunches, and tentative hypotheses direct the next phase of data collection, which in turn leads to refinement or reformulation of one's questions, and so on. (p. 119)

In the case of this study, there were seven stages of data analysis. In each stage, the data underwent a certain reduction and transformation. The stages which are each described separately in this section of the chapter, are as follows:

1. On-going analysis during data collection;
2. organization of the data;
3. reading of and conversation with the data;
4. data reduction;

5. descriptive coding leading to the presentation of the data;
6. pattern coding leading to the interpretation of the data;
7. thematic coding leading to conclusions and recommendations about the data.

The first stage was conducted during the gathering of the data. In the context of the discussion lists, ongoing analysis of participants' postings led to the researcher's posting of particular questions or comments. The analysis of the postings led, as well, to the formulation of questions for the dialogues with discussion list participants. A preliminary analysis of the responses in the questionnaire led to the formulation of particular questions in the discussion list. Finally, analysis of the questionnaires led to the formulation of questions for the dialogue with the five questionnaire respondents.

The second stage of the analysis began once all the data had been collected from all sources. The aim of this stage was to organize the data into manageable formats. All the postings from the discussion list multilogues and dialogues were first organized chronologically and included the postings of the researcher. Such organization was necessary in order to follow the "train of thought" of the discussion. The total postings amounted to approximately 300 pages and filled two large binders. The questionnaires were assembled together into a binder but not according to any classification system.

The third stage of the research involved becoming familiar with the data that had been collected. Unlike the ongoing analysis where the data are viewed in isolated bits, this stage allowed for viewing of the data from a holistic perspective. The multilogue and dialogue postings as well as the questionnaires were read through several times. The tapes were played through numerous times. Merriam (1988) describes this stage of the analysis as one of "holding a conversation with the data, asking questions of it (sic), making comments, and so on" (p.131). Notes taken during this process comprised a preliminary organization and sorting which led to the following stage: that of data reduction.

The data collection yielded several hundred pages of postings, 176 questionnaire pages as well as approximately two hours of recorded telephone dialogues with the five questionnaire participants. Some data could not be used because of risk to anonymity of informants. Reporting of certain comments made would have possibly revealed the identity of some of the participants. Many pages of data could be compressed because of the nature of discussion list postings. On occasion, an individual's response may have constituted only two or three lines. However, their message may have comprised as many as two or three pages because of the identifying headers, signature files, and, most of all, because, they were replying to previous comments made and these comments were included in their message. Thus, once the postings were printed, it became obvious that there was considerable repetition of postings. Other postings were not relevant to the issue. For example, at one point in the discussion, a long posting was made by one participant in relation to an ongoing political dispute between the United States government and a middle-eastern country. Other postings were of a personal nature or simply unrelated to the discussion whereby individuals may have related anecdotes, described their education, or asked questions related to personal issues. Finally, the postings of the researcher were removed from the collection of data.

Reduction or elimination of material from the discussion list postings could be easily accomplished. The entire collection of postings from CREDO and CREO could be retrieved as one file from an archive created on the computer of the service provider. The files were imported into a word processor where cutting and pasting allowed for easy organization of the data. Any data not relevant to the study were cut from this file. Headers were removed, repeated postings were deleted, signature files removed and comments from the researcher were removed as well. The dialogue postings could not be retrieved from the archive but were saved in a "mailbox" from which they could be easily retrieved. For each message, the headers and repeated or second postings were removed. The remaining postings were combined or added onto those of the multilogue to create one large file which comprised, at the end of reduction, approximately, 70, single spaced pages of data.

In terms of the questionnaires, it was possible once again to eliminate some of the data however, there was far less data reduction than with the discussion list postings. This is not surprising given that the questionnaires were far more structured and responses were directed by the questions in the questionnaire. The questionnaire comments were read and reread. Using a highlighter, it was possible to isolate all parts of the data that were relevant. Once these comments were highlighted, they were then typed into a word processor. While there were 88 questionnaires each two pages long, many respondents did not write for the full two pages. The reduction in the data resulted from abbreviating the respondents' comments in order to highlight the essential points.

A similar procedure was followed for the cassette recordings of the dialogues with the five participants from the questionnaires. A certain portion of these dialogues could be eliminated or reduced because the discussion centered around developing rapport, getting to know the individual, making him/her feel comfortable, explaining the purpose of the research and answering questions about the research. The tapes were listened to repeatedly, notes were taken on the comments made to assist in the later development of themes and patterns. The final product of merging all the data into one text resulted in approximately one hundred single-spaced pages of typed text.

The next important step in the process of analysis was to code the data. "Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study" (Miles Huberman, 1994, p.56). They are astringent in the sense that they pull together a lot of material (Ibid.). The initial coding simply involved writing a descriptive word next to a given excerpt in order to summarize what the excerpt was about: for example, resources, training, time, teaching, learning, Internet, equipment etc. Once all the data had been coded in this way, categories and sub-categories could be established.

All of the data were coded manually with the categories written in the margins alongside each excerpt. Then, through the use of the cut and paste features of a word-processor, all excerpts could be moved into the categories into which they had been coded. At this stage, the data could be reported or described. Chapter 5 thus presents the data grouped into categories. This presentation of the data does not include any interpretation. The presentation provides an answer

to the first research question which was: What are some of the beliefs of teachers about teaching and learning FSFL in OLEs?

Once the beliefs had all been identified, it was possible to move to the next level of analysis, stage six, the aim of which was to interpret the data. The data were interpreted in light of the conceptual and historical framework which was outlined in Chapter 2 of this study and the aim was to provide an answer to research question 2: What do these beliefs reflect in terms of the evolution of approaches and use of technology in the teaching of FSFL? The interpretation was accomplished through a search for patterns in the data which related to elements identified in Chapter 2. In the descriptive coding of the data, key words were used in order to group the data according to topical categories. In order to identify patterns, similar types of beliefs were grouped analyzed, explained and interpreted.

The final stage in the analysis of the data involved identifying overall themes. These themes allow us to draw conclusions from the data, to determine the implications of the findings and to make recommendations for educational practice. The conclusions, implications and recommendations are presented in Chapter 7.

## 4.8 Data Reporting

The process of reporting the data did not aim to group all the beliefs of one individual together. Instead, the aim is on grouping the beliefs based on the codes, patterns and themes. This means that the data are reported as excerpts. In the course of a discussion, a teacher might have revealed numerous beliefs some of which might relate to different topics. Such beliefs may therefore be reported in different sections under different categories. In some cases, it was necessary to report only part of a sentence in order to focus on particular beliefs. Every attempt was made to ensure the integrity of the individual's comments and beliefs in spite of the fact that only parts of comments might have been reported and in spite of the fact that many beliefs are not presented in the context of the discussion in which they were generated.

Every effort was made to ensure the anonymity of the participants. Therefore, names of places or persons which might serve to attribute a comment to a particular individual were replaced by fictitious names. In cases where reference was made to a country or continent and where the reference is significant in terms of the meaning, the place name was not changed if it did not appear to compromise the identity of the participant. In cases where the identity could not remain anonymous in spite of changing the names of the place or person, the data were discarded.

In relation to gender, use of "his/her" was avoided. Teachers are referred to instead with the feminine "she" or "her". Also in terms of the reporting, it should be noted that teachers' discussion postings often contained errors. Logan (1995) reminds us that e-mail correspondence is often less formal than other forms of written correspondence. Errors are noted with a "sic". However, missing accents, in the case of the French postings are not noted with a "sic". While some participants were able to make use of the computer's capacity to transmit accents, others were not. Some participants asked of others that they expressly not use accents because their own e-mail software did not support them and because they had difficulty reading them.

## 4.9 Conclusion

Shulman (1986) reminds us that, in terms of the classroom, there is no "real world". The worlds experienced by teachers may each be different. However, they have in common that they are all complex worlds. What the teacher believes about these worlds is no doubt equally complex and, added to that, it is often hidden, not conscious but tacit. The only way to effectively 'observe' these multiple, complex and hidden worlds was, therefore, to become a part of them. Thus, the researcher joined in a discussion with participants in order to improve the vantage point from which to 'observe' these worlds.

Senge (1995) reminds us that "we do not describe the world we see; we see the world we can describe". However, perhaps too, our efforts in describing these worlds, in bringing to the surface our beliefs, leads us to see this world differently and more clearly. In this sense, the research has served more than one purpose. The teacher was given the opportunity to see how others view their world and to think about how they see their own world. The participants may well now have a greater ability to describe their world and therefore to see it.

In the chapters that preceded this one, a conceptual and historical framework was presented. The review of the literature presented relevant studies of beliefs. This present chapter has explained the approach which was taken to collect the data. This chapter has also shown how the information presented in Chapter 2 and 3 were incorporated into the analysis and interpretation of the data. In the chapters that follow, the results of the study are presented and interpreted.