AN EVALUATION OF THE IMPLEMENTATION OF A GRADE TWO LANGUAGE ARTS PROGRAM

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by

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Abstract

This study examined the implementation of the Nelson Networks Language Arts Program, a whole language approach to the teaching of language arts. Specifically, the study investigated the relationship of health, teacher background and reflective teaching to quality of teaching life and satisfaction with career choice. Further, the relationship between the preceding variables and teachers' perceptions of the implementation process used with the Nelson Networks and the management aspects of the program was investigated.

The data for this study was obtained from the Curriculum Change Survey. Only the data pertaining to the aforementioned variables was used. This data was collected from a sample of grade two teachers in Newfoundland schools during the 1989-90 school year. Teachers completed a four point scale survey at two points in the school year. Only the data from the first survey was addressed.

Analysis consisted of principal components analysis of the instrument items, regression analysis, path analysis and direct least squares. On the basis of this analysis it was concluded that teacher health was a good indicator of teacher satisfaction with career choice. Reflective teachers were more likely to be satisfied with career choice, more positive toward implementation of new curriculum and more positive towards the management aspects of new curriculum.

Teachers who were more satisfied with their career choice responded more negatively to the implementation and management aspects of the new program. Satisfaction with career choice and quality of teaching life were highly related, as were teachers' perceptions of the implementation process and management aspects of the new curriculum.

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CHAPTER I

The Problem

The purpose of this study was to evaluate the implementation of the grade two language arts program introduced in Newfoundland schools in September, 1989. The study focused on factors influencing teacher acceptance of the program's philosophy and how these factors were reflected in the implementation process. The major factors evaluated were the degree of reflective teaching, teacher health, teacher background, and how teachers perceived the quality of their teaching lives.

A random sample of grade two teachers was selected as the units for participation in this study. The sample consisted of 195 grade two teachers from different school settings across the province. These teachers had varying degrees of experience with and exposure to the whole language philosophy which the Newfoundland Department of Education has accepted.

Background to the Problem

Throughout the 1980s the Department of Education for Newfoundland and Labrador accepted a philosophy for language arts education which it claimed was based on "the understanding of what is known about language, and the way language functions in children's lives" (Experiencing Language, 1988, p. 1). Based on this philosophy, selected primary curriculum

specialists were asked to prepare a curriculum guide dealing with the language arts in the primary grades. The resultant report was entitled Experiencing Language.

The curriculum guide addressed three modules of the whole language approach to teaching: (a) a language experience module, (b) an instructional module, and (c) a children's literature module. In line with its philosophy and in order to address these modules, the Department of Education adopted the Nelson Canada Networks program. At the time this study began the program had been used in grade one for one year, and in September 1989 was introduced in grade two. Plans were already in place to introduce the program in grade three in September 1990.

The Problem

Traditionally in Newfoundland schools reading and writing have been treated as separate entities and have been taught using a fragmented skills approach with the basal reader utilized as the main resource. The basal reader has a long history in the field of reading, dating back to 1840 when a graded school system came into being and graded readers were introduced to accompany that structure. These readers were skills-oriented and these skills increased in complexity as the child progressed from grade level to grade level, having mastered the skills required at a given level before moving forward. As basal readers began addressing comprehension

skills, as well as word recognition skills, more of the basal reading programs were published and marketed.

Each reading program was accompanied by a teachers' manual with clearly defined expectations and activities. Another component of the program was a student workbook which addressed specific skills such as phonics, structural analysis and identification. The skills programs were sequentially planned and the skills acquired at one grade level were reinforced in the next. It was assumed that if children learned these fragmented skills sequentially, the end product would be a proficient reader who could integrate the skills necessary for comprehension of the prescribed material.

Doake (1987), in an address at Acadia University, summarized the philosophy of the basic skills/basal reader approach when he stated:

> The complex tasks of learning to read and write have to be broken down into more manageable bits and pieces so that children can learn more easily. In order to make this learning even simpler, the bits and pieces have been arranged into some pre-ordained sequence of clearly identifiable sub-skills, which will be presented to children in the form of a multitudinous array of workbook exercises. A series of readers are written in which the authors have to quite rigorously control the vocabulary they use in the stories. This is done

> so that specific phonics and other word recognition skills can be introduced to match the sequences present in the hierarchy on which the program is based. (p. 10)

Doubts about this approach to reading and writing led to further research into how children acquire proficiency in these areas of language development. This research led to critical analysis of the basic skills/basal reader approach by such theorists as Doake (1985), Goodman (1986), Holdaway (1979), Huck (1977) and Newman (1985). These criticisms, summarized in Beebe (1988) are categorized as follows:

> 1. Basal readers place undue emphasis on isolated parts of language: letters, letter-sound relationships, words, sentence fragments, or sentences. This encourages readers to perceive reading as a word meaning activity instead of a meaning making activity in which sense is made of real comprehensible stories and expository passages.
> 2. They introduce arbitrary sequences of skills which too often lead to learning these skills as ends rather than learning <u>how</u> and <u>when</u> to use the skill to assist in real reading situations.
> 3. They often create artificial language passages by controlling vocabulary or by building around specific phonic relationships or word attack

skills. They also often create artificial texts by using readability formulas to create selections written to a specific reading level.

4. They minimize time spent on reading real stories or content by monopolizing the time for skills exercises. This is particularly true when workbooks are used extensively. In the report Becoming a Nation of Readers (Anderson et al., 1985) it is claimed that up to 70% of the time allocated for reading is spent in independent reading practice or seatwork. Most of that time is spent on workbook and skills sheets directly related to the basal program in use. Yet, classroom research shows that the amount of time devoted to worksheets is unrelated to year-to-year gains in proficiency. (p. 76-79)

5. Children's literature selections are often tampered with either by simplifying the vocabulary or by rewriting them to accommodate the development of particular skills. Similarly, short selections from children's literature are selected by the editor of basal readers, which lack the integrity and unimpaired context of the original.

6. Basals are costly for school boards to purchase. Sometimes few funds are left over for the purchase of library books and other authentic

> reading materials which children need in order to practice the skills they are taught. (p. 14-15)

Supportive of these criticisms, three important research findings of the 1960s and 1970s (Payne, 1989) influenced the move from the skills approach to reading and writing.

> Children know a lot about written language before they come to school. They know the written form is learned in the same way in which they learn oral language. Also, they know the reasons for learning both ... to communicate and understand. The second important finding in research indicates that the knowledge children have before they read, strongly influences how much they will understand when they read. A third finding shows that reading and writing are interdependent. (p. 4)

These research findings and research into the area of psycholinguistics led to an approach to the teaching of reading and writing which has been labelled whole language. This approach has been accepted by many educators across the world and is currently by the Department of Education for Newfoundland and Labrador.

While whole language has been difficult to define there is a basic principle on which the philosophy rests: the reading-writing process is an individualized one and the child's background experiences in language will determine the

curriculum offered to that individual. Advocates of the whole language philosophy believe that just as we learn to speak in whole units, we learn to read and write in whole units. By fractionalizing language into parts we will not arrive at a language which is whole and meaningful.

When teaching reading and writing from a whole language point of view teachers select methods and materials that, according to Searfoss and Readence (1985), allow them to do the following:

1. Provide children with genuine, real purpose for reading.
2. Produce children who can and do read.
3. Stress the functional purpose of reading instead of terminology and labels.
4. Supply, in the classroom, a wide variety of relevant natural forms of print from the world outside the classroom.
5. Keep meaning or comprehension as the center or focus for instructional lessons.
6. Recognize that language systems (graphophonic, syntactic, and semantic) operate together as inseparable parts of whole language.
7. Use materials to teach reading that are whole samples such as complete stories, rather than offering isolated practice in bits and pieces of language. (p. 92)

The prescribed text in a whole language approach is viewed as just another resource and not the language arts program.

The shift to whole language grew out of research in the 1970s and 1980s which addressed the reading process:

> ... not as a series of discrete sequential skills but rather as a highly complex multi-faceted and integrated process. Researchers were now concerned with understanding how children learn to read rather than with what decoding and comprehension skills readers should be taught. (Beebe, 1988, p. 13)

The research supporting this shift has been categorized by Heald-Taylor (1989) under the following headings:

1. Developmental learning supported by Carol Chomsky's research in oral language (1969) and Elizabeth Sulzby and William Teale's work with emergent reading and writing (1983-1987). Their research clearly demonstrates that children learn language developmentally, in an environment of immersion in reading, writing, listening and speaking.

2. Oral language development research by Carol Chomsky, Joan Aitchison (1973) and Dan Slobin (1985) confirm that children acquire language naturally without formal instruction.

3. Research by Durkin (1965), Holdaway (1967-69), Doake (1977-80), Clay (1967), Smith (1969), Lutz (1974), and

Stauffer (1960-65) which supports the contention that learning to read is acquired through interaction with whole units as opposed to skills based instruction and is better affected through immersion in meaningful print with comprehension-focused strategies for reading instruction.

4. Research by Clay (1972-74), Deford (1977-78), Heald-Taylor (1981-83), Chomsky (1968-69), Read (1967-75), Gentry (1980) and Graves (1972-86) which supports the philosophy that writing was also learned developmentally rather than through direct teaching. Skills are fostered in the context of what a child is writing at a given time.

5. Research in evaluation by Pearson and colleagues (1985) and Teale and colleagues (1987) which support a move away from standardized testing as a means of evaluating student growth to a process of direct observation or "kid watching" as termed by Yetta Goodman (1977). This observation occurs over time as children are directly involved in the reading-writing process.

A question prevailing in the minds of educators and parents is: What is the difference between whole language and a skills-based approach? A skills-based approach is clearly defined by the sequential skills development program but whole language is much more difficult to define since it is "a belief system, a way of understanding learning, a view of instructional processes ..." (Heald-Taylor, 1989, p. 7).

A list of changes which represent the shift from a

skills-oriented approach to a whole language approach and factors which the whole language approach recognizes are included as Appendix A.

The Provincial Picture

While, in 1988, the Department of Education adopted a whole language philosophy as the basis for language arts instruction in schools in Newfoundland and Labrador and has introduced Nelson Canada Networks program as a support for that philosophy, most teachers have not received the curriculum guide Experiencing Language. The curriculum objectives addressed in this guide are not clearly defined by Nelson Canada Networks. Many teachers are using this support as the program but it is only a small component in the overall picture of the proposed language arts instructional program.

The program has been used in grade one classrooms across the province for one year. In September 1989, it was introduced at the grade two level with little or no follow-up as to its effectiveness or concerns of teachers using it. The whole language program was a drastic move away from traditional methods used to teach reading and writing. It required a change of belief and philosophy as opposed to a textbook change which addressed the same type of skills-based approach. The shift in philosophy brought with it a major change in teacher role and classroom environment for many classroom teachers. Teachers approached the new curriculum with varying

degrees of experience and training in the curriculum's philosophy.

The Department of Education provided schools with the anthologies and some support materials in the form of independent readers and evaluation guides. It was left to individual schools and school districts to provide the remainder of resources to carry out the program effectively. Budgetary constraints and degree of commitment on behalf of those controlling budgets for schools determined how many of these resources were accessible to teachers.

The Local Picture

Curriculum which requires such a drastic change requires the support of the district, administrators, parents, and teaching colleagues within the school. The expectations of each of these support systems bring different demands upon the classroom teacher.

Very few of the primary-elementary school administrators were familiar with Experiencing Language and its whole language philosophy. Inservicing by district and provincial personnel varied in intensity and quality. As well, access to personnel who are well trained in the whole language philosophy varied from school to school.

Parents have expectations which they have developed under a structured and clearly defined program and are uneasy about programs which permit their children to have so much control

over the learning process. The evaluation and reporting process under this new curriculum is quite different and requires the understanding of teachers and parents.

Some teachers have misunderstood the philosophy of whole language and have dropped the instructional component which addresses skills learned in context. They view whole language as a student controlled curriculum with no teacher intervention.

Research Questions

The preceding overview and discussion led the investigator to evaluate the curriculum change by addressing the general questions which follow:

1. Is curriculum change more likely to be accepted by reflective teachers?

2. Are teachers who define the quality of their teaching lives in positive terms more likely to be receptive of change?

3. Are (1) and (2) complementary or competing theories in the implementation of new curriculum?

Supplementary questions.

The following specific questions arise from the general questions stated above. The concepts referred to in the following questions are defined on pages 16-17 and the theory underlying the hypotheses is the focus of discussion in

Chapter II.

1a. What are the effects of health levels on Quality of Teaching Life?

1b. What are the effects of health levels on satisfaction with teaching career?

1c. What are the effects of health levels on implementation of the new curriculum?

1d. What are the effects of health levels on the management of whole language resources?

2a. What are the effects of background factors on Quality of Teaching Life?

2b. What are the effects of background factors on satisfaction with career choice?

2c. What are the effects of background factors on implementation of the new curriculum?

2d. What are the effects of background factors on the management of whole language resources?

3a. What are the effects of reflective teaching on Quality of Teaching Life?

3b. What are the effects of reflective teaching on satisfaction with career choice?

3c. What are the effects of reflective teaching on implementation of the new curriculum?

3d. What are the effects of reflective teaching on the management of whole language resources?

4a. What are the effects of Quality of Teaching Life on

implementation of the new curriculum?

4b. What are the effects of Quality of Teaching Life on management of whole language resources?

5a. What are the effects of satisfaction with career choice on implementation of the new curriculum?

5b. What are the effects of satisfaction with career choice on management of whole language resources?

Limitations

The following limitations are recognized as being inherent in this study:

1. There was no guarantee that the respondents in the study were implementing the intended whole language curriculum. Therefore, what teachers claimed they were doing and what, in fact, they were doing in so far as curriculum implementation was concerned could well be different.

2. Because the data was gathered under the auspices of the Division of Evaluation, Department of Education, the respondents may have been inhibited in their answers to some questionnaire items. The questionnaire was not anonymous to the researchers because the study called for information at the beginning and at the end of the school year. Knowing this some respondents may have "held back" on some of their responses.

3. Because teachers were requested to identify themselves on the survey, some of their responses to survey items

may be different if they had not been requested to identify themselves.

Practical Implications

This research was designed to test two theories of curriculum change. One states that the reflective teacher is more receptive of curriculum change. The other states that positive attitudes toward curriculum change depend largely on the structure of the school and the way it is experienced by teachers. The researcher believes that the two theories are complementary. If the theory is verified the study may be replicated by others at different levels of the system until a sufficient body of research exists to justify efforts to promote conditions for ensuring that schools and the teaching professional are responsive to the needs of society.

If theory number one is found to be a sound explanation of teacher response to curriculum change processes one would assume that the faculties of education would make literature on reflective teaching part of the instruction for student teachers in the curriculum and instruction divisions. If theory number two is accepted it has implications for future involvement of teacher professional organizations such as the NTA and CTF to promote positive response to change. These associations would then consider options to improve teacher motivation, commitment, identity within the school and professional status. This is becoming increasingly important

as teachers become more involved in curriculum development at a provincial and district level.

The role of teacher health in curriculum change will have implications as the NTA negotiates working conditions in collective agreements. If health negatively or positively affects curriculum planning and implementation then it is incumbent on the bargaining agency to ensure conditions which may affect teacher health are addressed.

Definition of Terms

Several of the variables used in the current research have meanings relevant to the quality of teaching life and are defined below. The first four are the domains of quality of teaching life with the remainder being the other variables affecting the study.

Quality of Teaching Life refers to teacher perception of the quality of teaching life and is reflected in four indicators, alienation, commitment, identity and status.

1. Alienation for the purposes of this study is the converse of motivation. It addresses teacher estrangement from the teaching profession and specifically in the school.

2. Commitment refers to the individual's degree of commitment to the teaching profession.

3. Identity is the teacher's feelings of self-awareness or teacher's response to the question of "Who am I?" in relation to the school and others who work there.

4. Status refers to the teacher's perceptions of the relative degree of prestige afforded him by significant others namely colleagues, parents and students.

Satisfaction for the purposes of this study refers to the degree to which the individual is satisfied with career choice.

Implementation refers to the individual's perception of the effectiveness of the implementation process of the whole language approach to teaching.

Management refers to whole language introduction and the provision of resources for its implementation.

Health refers to teachers' descriptions of their physical well-being.

Background Factors include the teacher's academic training and years of experience.

Reflective Teacher refers to teachers who are able to evaluate their past performance constructively in an effort to improve their current teaching.

CHAPTER II

Review of Related Literature

Introduction

Fullan (1983) defines implementation as "the process of putting into practice an idea, program or set of activities which is new to the people attempting to bring about the change" (p. 216). The degree to which change is accepted and new ideas or programs are implemented is contingent on many factors. It is the intent of the present study to assess the implementation of the whole language approach, and more specifically the implementation of the Nelson Networks Canada Program, into Newfoundland schools. The teacher will be the focus in the examination of the factors which determine receptiveness to the new curriculum.

Rogers and Shoemaker (1971) discuss change as a highly personal experience since individuals respond differently to change. The responses, if recorded, can lead to an understanding of them and preparation for similar responses in others. Once curriculum developers understand why people respond to programs in a specific way the responses will be addressed to permit smoother transition from present to future practices. Failure to take account of the different responses will inhibit progress of initiation and implementation of change.

The current assessment includes personal characteristics

of teachers, as well as teacher interaction with the new materials. It also addresses the effects of the new demands on the teacher's perception and reception of the way the new materials were introduced.

Literature Related to Implementation

In his discussion of implementation as it occurs in the social environment in which it operates, Fullan (1982) lists 15 factors that affect implementation. These factors are illustrated in the following way:

Factors Affecting Implementation

A. Characteristics of the Change
   1. Need and relevance of the change
   2. Clarity
   3. Complexity
   4. Quality and practicality of program (materials, etc.)

B. Characteristics at the School District Level
   5. The history of innovative attempts
   6. The adoption process
   7. Central administrative support and involvement
   8. Staff development (in-service) and participation
   9. Time-line and information system (evaluation)

10. Board and community characteristics.

C. Characteristics at the School Level

11. The principal

12. Teacher-teacher relations

13. Teacher characteristics and orientations

D. Characteristics External to the Local System

14. Role of government

15. External assistance. (p. 56)

If one or more of these factors negatively affect implementation the process is less effective. The more factors supporting the implementation the more positive the change which is accomplished. These factors are supportive of each other and do not function in isolation.

Where do these factors fit with regard to whole language implementation? Teachers more readily accept and use an innovation if they feel it is needed. Scibior (1987), in addressing resistance to whole language, contends that teacher concerns must be addressed or we may be forcing change which receives neither the support nor understanding of the teachers who are to implement the change. Even worse we may be forcing a change that is not feasible as presently conceptualized. Teachers must be shown that what they have been doing for years has not been in vain. Proponents of whole language, whether intentionally or not, seem to be sending a message that this is the case. Suddenly teachers' professional worth

has become challenged.

Often the clarity of a change is poor and negatively affects its acceptance. If teachers do not understand a change they are unable to implement it effectively. Problems also arise when the implementation is oversimplified and users think they understand it. It is then that the discrepancy between the intended curriculum and the actual curriculum is broadened. There are many misconceptions about whole language instruction in the areas of (a) teacher intervention, (b) structure with the program, and (c) standardization of materials and activities. Teachers must acquire a certain degree of understanding of the philosophy on which the innovation is based and at the same time be knowledgeable about the innovation.

Complexity of an innovation is related to the skills required to use it and the extent of changes in beliefs, teaching strategies and use of materials required. The more complex the innovation is the lower the level of implementation which can be anticipated. The whole language philosophy is indeed complex and any program based on that philosophy is likely to entail new behaviors for the user. Goodman (cited in Hunsburger & Macguire, 1988) and Goodman and Goodman (1982) state that when a teacher changes from the role of traditional teaching to whole language teaching, the change is radical. Teachers become concerned that they are not doing what they normally did and become concerned about problems which may

arise. They also become concerned about the extra time and effort that the innovation will require. Scibior (1987) contends that teachers who wish to protect themselves from examining their own beliefs may hesitate to adopt the whole language philosophy. For many whole language teachers the change in beliefs and practices will be minimal but for others the change will be drastic. Posner (1985) states that teachers work within a practicality ethic that subjects any innovation to a test of cost versus benefit, feasibility and consistency with the teachers' perceptions of themselves and their situations. Dow and Whitehead (1981) were concerned that if change is to be effective, teachers must be knowledgeable about behaviors, skills, and attitudes necessary for the content and methods inherent in any new guideline or innovation. Gross, Giacquita and Berstein (1971) and Evans and Scheffler (1976) found that innovations requiring new teacher strategies and role relationships with students displayed lower levels of implementation as compared to innovations which involved changes in structure, administrative procedures and the use of materials. Fullan (1982) addressed three items which would change if a new curriculum was fully used: (a) materials, (b) practices and behaviors, and (c) beliefs and understanding. While the first item may be easy to change the other two are more difficult.

The quality and practicality of the innovation is significant to the implementation process. Teachers must see

the innovation as tangible, relevant and of good quality. If teachers perceive the innovation as being rushed into place or unorganized in its philosophy or structure, they are less likely to be committed to its implementation. Scibior (1987) expressed concern about the current climate of forced immediate change. Teachers may adopt or reject any new idea merely because it is new and mandatory. It must be demonstrated that the new innovation is better than what is currently being used and can meet the required objectives better. Support materials must also be of high quality. If teachers do not develop a sense of meaning and practicality toward an innovation early in the process it will eventually be abandoned by them.

The characteristics of a school district play a major role in acceptance or rejection of its attempts to change present structures. Its history of previous attempts at innovation are closely examined by teachers. If the district has a past history of pendulum swings in curriculum adoption with little follow-up as to its effectiveness, teachers are more reluctant to support district attempts. The more negative experiences teachers have had the more cynical they become. The more positive experiences they have had the more supportive they become. If the adoption process is carefully planned with commitment and follow-up plans in place the more seriously the implementation is considered by its users. Scibior (1987) maintains that the adoption process must be

at using new curriculum but will also assist in its implementation. Crowther (1972) found inservice given prior to implementation was significantly and positively related to the degree of implementation. Teachers preferred model units and demonstrated lessons. Pratt, Melle, Metsdorf and Loucks (cited in Fullan, 1982) and Huberman (1981) reported successful implementation as a result of effective inservice for teachers.

For effective implementation to occur reasonable time frames must be in place. If materials are late arriving, orientation and training neglected and communication is poor teachers become overburdened with the requirements of the new program in addition to present responsibilities. Curriculum guides must be in place before teachers can be expected to adopt materials which support the philosophy presented in such guides. If materials are not available to teachers of whole language the program will suffer. Teachers will be seriously handicapped in their efforts to implement the philosophy and will develop negative attitudes towards the program. If board and community relations are positive and supportive, teachers will be more positive about change efforts and implementation of new programs will be more successful. Teachers feel accountable to both board and community and there is positive correlation between their support and teacher performance. The whole language instruction is contingent on the support of community for its role in the shared reading component and its

gradual and that teachers cannot be expected to become whole language teachers overnight. Scibior supports the ideas of Fullan (1986) and Dow (1981) who state that teachers must be able to start with parts and change incrementally. They need time and opportunity to learn more about the innovation before implementation. Goodman and Goodman (1982), in their research into whole language, have discovered that teachers need to accommodate the new ideas gradually and to plan for the transition from what they have done in the past to a new program consistent with the new criteria. This transition must be made as teachers feel at ease with it. In order for an innovation to be taken seriously by teachers they must have the support and involvement of central administration. Fullan (1982) discovered that the amount of support and involvement by the superintendent positively influenced program implementation.

When addressing staff development and participation it has been determined that one-shot workshops are not effective no matter how many are given. It is quality of inservice and not quantity that determines receptiveness to and effectiveness of the inservicing. Scibior (1987) says inservice must include opportunities for teachers to see and experience the new approach to language instruction. It is not enough, for teachers, to simply hear it in a few scattered workshops. Lippit (1966) stated that if good staff development is made available teachers will not only automatically become skilled

understanding of a different type of classroom structure, evaluation and reporting procedure.

What happens at the school level is one of the most important determinants of the success or failure of many educational ventures. One of the most important people at the school level is the principal. If a new curriculum is to be successful it must receive the support of the principal who must be knowledgeable about the innovation and who will see that effective inservice and support materials are in place. Nicholson and Tracy (1982) and Sivage (1982) suggest an increased leadership role involving the principal in assisting teachers in their own personal adoption and implementation processes. The success or failure of any new program falls heavily with the principal. Teachers within a school system must also be supportive of each others efforts in implementing new curriculum. With the amount of peer pressure prevalent and school policy already in place, teachers will be less likely to attempt innovations which leave them outside the realms of what co-workers perceive to be practical and correct. While years of experience and level of teacher education do not seem to affect implementation, the teacher's sense of self-efficacy does. If teachers believe that an innovation will permit them to help unmotivated and at risk students they will likely react positively towards it.

The final force affecting innovations and their implementation is the external environment. It is imperative that

policy-makers at government levels be in tune with the requirements of the practitioner within the classroom. Close and meaningful communication is essential if the proposed changes are to be effective. Financial and technical assistance from government agencies are required and must be available to teachers. They must see that the people at the top are seriously committed to the innovation. Other outside agencies can be of assistance in the implementation process by supplying videos, pictures, brochures, and so on which will permit the whole language teacher to develop an ample supply of support materials for a language rich environment.

Even with all these factors in place the teachers will vary in their receptiveness to the program. Crowther, Lucas and Wohleb (cited in Fullan & Pomfret, 1977) contend that not all teachers have the same propensity to implement any given innovation. A teacher's disposition to change is based on what Posner (1985) describes as a personal "platform". That platform is based on the teacher's beliefs, principles, and ideals, and justifies and unifies the teacher's decisions and actions. Individual teachers will implement a new program in ways that are consistent with their own beliefs and practices. For some, the interrelations will be obvious and readily accepted. For others, the change will be agonizing and slow.

Doyle and Ponder (1977) describe three types of positions people take when faced with change: (a) the "rational adapter" who is persuaded by information and/or logic; (b) the

"stone age obstructionist" who is resistant to change and must be coerced; and (c) the "pragmatic sceptic" who is willing to be convinced but is ultimately concerned with practicality. Doyle and Ponder put most teachers in category (c).

Scibior (1987), in an effort to understand teachers' hesitations about the implementation of whole language, placed the hesitations in two categories: (a) unhealthy rationalizations which reflect an entrenching reaction to any change; and (b) healthy hesitations about unreasonable expectations for change. The unhealthy rationalizers wish to protect themselves from examination of their own beliefs and practices, and eventually to changing. The healthy hesitator wants to be sure that this change is better for the child and the teacher. For teachers who are able to accept change relatively easily, it would seem that they are comfortable with the decision-making process in which they are working and will view the implementation process of whole language as being positive. Objectors and questioners, on the other hand, will be more apprehensive about the effectiveness of the implementation. The objectors may also be less satisfied in their work especially if they perceive the new implementation as threatening or questioning their past performance.

Literature Related to Management Aspects of Whole Language

The implementation of a new curriculum brings with it new demands on the personnel adopting it. Managing these new

demands in terms of time, resources and class size influences teachers' attitudes towards the curriculum and the extent to which it is adopted, or adapted to. The whole language program by its nature, is demanding on the teacher and for many teachers requires an extreme change of classroom instruction, classroom organization, and change of role within the classroom setting.

Implementing a whole language approach within the classroom requires a wide range of support materials such as newspapers, magazines, poetry, comics, trade books, crayons, pencils, markers, erasers, toys, and the list goes on. Newman (1985) states that children's trade books are the "cornerstone" of a whole language curriculum. The program requires the availability in the classroom of a large number of different titles, both factual and fiction. Altwerger, Edelsky and Flores (1987), Beebe (1988) and Goodman (1986) stress the importance of a classroom that is rich in print, which would include good quality literature, big books and predictable books. Farris and Kaczmarski (1988) write that the "developing readers and writers need to be involved in writing events of their own and in reading a wide range of real comprehensible books" (p. 78).

Support materials are not the only demand that is placed on whole language implementers. With its focus upon the child at the center, the program demands that classroom instruction be more flexible and that all students not necessarily cover

the same material. This type of teaching requires different organizational structures within the classroom which allow spaces for large group, small group and individualized instruction. It necessitates changes of materials and activities which are of interest and manageable by the students. The whole language approach, as Gunderson and Shapiro (1988) imply, will require the teacher to devote a great deal of time to individualized instruction, evaluation of student performance and growth, preparation of materials for centers, student and parent conferencing and keeping accurate files of the student growth.

Because of the emphasis on collaborative learning and sharing of ideas, the whole language classroom is an activity-based environment with sound levels modulated to the type and intensity of the activities. This does not mean an environment with no control. The teacher and students must discipline themselves to ensure that the learning of others is not impeded by those who have no self-discipline in an active learning environment.

Dealing with these changes will have implications for teachers' receptiveness to the new program. Because teachers come to the classroom with varying degrees of exposure to and experience with this type of learning environment the demands are different for different teachers. Hord and Huling-Austin (1986) state that if teachers do not need to be concerned about managing the logistics and supplying resources they will

be less frustrated and contribute to more efficient implementation. The energies and time required for such details could be utilized in developing skills for using the new program.

Fullan (1976) determined resource support such as time and materials are important indicators of the amount of implementation. Dow (1981), in a study of barriers for implementation, found that for teachers, time and resource support were among six key concerns in implementation of new curriculum. In a study of stressors for teachers, Swick and Hanley (1980-1985) cited class size, room size, inadequate instructional materials and teaching resources, time pressures and scheduling as high stressors.

If teachers are expected to implement new curriculum it is imperative that management of the innovation is within reasonable reach for them. They must be given adequate resources of three types cited by Pollard and Tann (1987): (a) people, (b) buildings, and (c) materials. "In both quantity and quality these resources have an impact on what it is possible to do in schools and classrooms" (p. 15).

Teacher Health Theory

In the absence of research related to the relationship between teacher health and teachers' perceptions of the quality of their teaching lives, the current author feels that the lack of such research necessitates an analysis of the impact of these factors on each other and on other aspects of

curriculum implementation and management within the educational arena. The information gathered from such an analysis will have implications for curriculum planners and schools as they address the personal attributes of implementers and the impact these attributes have on effective implementation.

Currently in Newfoundland schools are faced with an aging teaching population. As people age they are more prone to illness (McGrath, 1989). In his study of teacher absenteeism, McGrath determined that teachers over 50 years of age took nearly three times as much sick leave as teachers under 25. The same research indicated that the more experienced teachers took more sick leave, proportionately, than the less experienced. A logical assumption is that the more experienced teacher will also be the older teacher.

In addressing the current curriculum change it is imperative that we address the health of the implementer. The grade two teaching force is predominantly female, who, according to McGrath (1989), are more concerned about their health and, generally speaking, have more health-related problems. Female teachers in Newfoundland schools take, on average, two to three days per year more reported sick leave than their male counterparts. A higher percentage of females, than males, take sick leave.

It would seem logical to assume that if teachers are absent from school that in their absence the school continues to function and the decision-making process continues, either

through staff meetings or by consensus on behalf of their colleagues. Many of these decisions will have direct impact on the absent teachers and yet they will miss the opportunity to have input. Ultimately they will have to live with decisions which were made by others even if they are contrary to the teacher's own beliefs.

On returning to the workplace after an illness, whether short or long term, a teacher must continue on from where a substitute teacher left off but will often be required to review the materials covered in the regular teacher's absence. At the same time an increased work load is added as the teacher prepares for current and future instruction. The whole language approach is very demanding physically, mentally, and in the amount of time required for planning, teaching, and record keeping.

If a teacher is ill while attending school the physical demands of a class of grade two students in an active learning environment can be strenuous. This can be especially difficult for an older teacher who is ill. The frustrations of dealing with the illness, a class of active children, and other job demands, can lead to stress for teachers.

Kyriacou and Sutcliffe (1979), in a single-item self-reported study of overall job satisfaction, concluded that not only the experience of teacher stress led to lower job satisfaction, absenteeism, and intention to leave teaching, but also that the circumstances that led to teacher stress

also led to lower job satisfaction, absenteeism and intention to leave teaching. Health is one of those circumstances. Sutton and Huberty (1984) suggest a tendency of teachers to report a higher level of job satisfaction when stress is low.

When faced with ill health, stress and low job satisfaction, the teachers will likely perceive the quality of their teaching lives to be poor. This author contends that teachers who are less than satisfied with their working conditions will perceive the quality of their teaching lives to be less than satisfactory. It is entirely plausible, therefore, that teachers with health problems will be more negatively disposed toward change; hence, to the implementation of a new curriculum, than teachers who enjoy sound health.

Teacher Background Literature

To address the background of teachers this study deals specifically with years of university training and the individual's teaching experience. Years of teaching experience will serve as a proxy for age since, generally speaking, the more experienced teacher will also be the older teacher.

Kyriacou and Sutcliffe (1979) report that job satisfaction tends to be higher for older and more experienced teachers and that the intention to leave teaching was greater for female and relatively younger teachers. These findings are substantiated in the research of DiCaprio (1974), Price (1970), Start and Laundy (1973), Charters (1970), Des (1973-

74), Pratt (1977) and Taylor and Dale (1971), as cited in Kyriacou and Sutcliffe (1979).

It is argued that younger teachers enter the profession with preconceived notions that the theory studied at university will be possible to implement in the school with minimal frustration. On entering the school systems they discover that, in many instances, materials are lacking and older teachers who have experience in the profession and success with their present methods will not be receptive to new ideas or methodologies. Beginning teachers have to try new strategies for themselves until they find the ones that work effectively in the given context. Until they settle down to use methods they are comfortable with, the new teachers will likely find life demanding and leading to dissatisfaction.

It could be said that older teachers must be satisfied with their teaching careers and quality of their teaching lives or they would not have remained in the profession. This author anticipates that the older teacher may be more satisfied with the way things are within the given school but change will be much more demanding on them. The demands will cause them to be less receptive to changes within the curriculum. Sparks (1988) supports the notion that teachers' age and experience relate negatively to change. It would appear that the older teachers will be less receptive to change and will perceive the implementation and management aspects of whole language more negatively than younger professionals.

The years of university relationship to job satisfaction and quality of teaching life is based on the notion of "promotion squeeze" addressed by Bulcock (1984). In the 1980s and 1990s there is a well-educated teaching force, with many of the teachers holding graduate degrees in education and becoming more specialized in their selected fields. However, because of declining enrolments, education cutbacks and layoffs, the changing demands of the educational system and the tendency for administrative positions within the system to be held by males, the implementers of the current curriculum change cannot anticipate much advancement on the career ladder. Guy (1988) reports that even though there are a larger number of females in the teaching force it appears that females instruct and males administer. Since a large proportion of our teachers are now at mid or late career, chances of advancement are unlikely. Those holding higher level positions will remain there until retirement and will likely be replaced by younger teachers who are just entering the profession.

Many of the ambitious and well-motivated teachers will become dissatisfied with their careers and ultimately perceive the quality of their teaching lives to be less than satisfactory. The ripple effect of this dissatisfaction could have negative impact on the curriculum change which is proposed.

Reflective Teacher Literature

In recent years teachers have begun to appraise their performances and roles in the educational arena. While John Dewey was arguing as early as 1933 that education should move away from methodology that was guided by authority, habit, tradition and by institutional definitions and expectations, these factors have continued to influence teachers in their communities and workplace. Dewey (1933) referred to the traditional approach as "routine action" and contrasted it with "reflective action" which involves a willingness to engage in self-appraisal and development. Among other things, reflective action, as termed by Dewey, implies flexibility, rigorous analysis and social awareness on the part of the teacher.

Dewey (1933) terms the concept of reflective action or reflective thinking as being or including critical thinking, problem-solving, inquiry and reflective judgement. Tom (1985) referred to the process as continuous experimentation, adaptive behavior, values clarification, anticipatory action and creative and generative thought. Schon (1983) referred to the reflective action as non-logical processes, tacit knowing, thinking on your feet, keeping your wits about you, learning by doing, finding the groove, learning to adjust once you're out there, feel for the ball, intuitive understanding and back talk. Staut (1989) argues that the term "reflective teaching" can serve as an umbrella term for all of these terms.

Pollard and Tann (1987) presented four essential characteristics of reflective teaching, and are as follows:

1. Reflective teaching implies an active concern with aims and consequences, as well as with means and technical efficiency.

2. Reflective teaching combines inquiry and implementation skills with attitudes of open-mindedness, responsibility and wholeheartedness.

3. Reflective teaching is applied in a cyclical or spiralling process, in which teachers continually monitor, evaluate and revise their own practice.

4. Reflective teaching is based on teacher judgement, informed partly by self-reflection and partly by insights from educational disciplines.

A reflective teacher, therefore, is one who constantly questions his or her own aims and actions, monitors practice and outcomes and considers the short-term and long-term effects upon the child (Pollard & Tann, p. 5).

Schon (1983) discussed two types of reflection. Reflection-on-action is reflection on practice and on one's actions and thoughts undertaken after the process is completed. Reflection-in-action refers to the spontaneous ways of thinking while the action is taking place. Killion and Todmem (1991) suggest that a third type of reflection, reflection-for-action, and regards it as the desired outcome of the previous two. Killion and Todmem argue this type of reflec-

tion will guide future action and summarize their thoughts in a model which is presented in Figure 1 and brings the three elements together (p. 15).

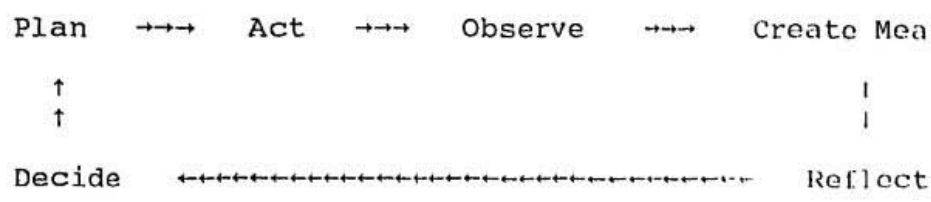


Figure 1. Elements of Professional Reflection

First the teacher plans to act. Then, through reflection-in-action, the teacher observes the action as it transpires, almost as if placing himself or herself outside the action. From this perspective, the teacher creates meaning, in understanding the dynamics of the cause/effect relationship that occurs between the teacher's actions and the students' responses to those actions. At the same time the teacher is involved in reflecting-on-action and reflecting-for-action. Events are analyzed and conclusions drawn that give insight into future decision points. Through this process the teachers are able to evaluate where they are in terms of desired teaching practices and where they want to be. This type of analysis allows the teacher to correct any discrep-

ancies between the two points and to seek alternatives to narrow the gap.

Ross (1989) stresses that the reflective process must be defined as a way of thinking about educational matters and he suggests that this application involves five crucial elements:

1. Recognizing an educational dilemma,

2. Responding to the dilemma by recognizing both the similarities to other situations and the unique qualities of the particular situation,

3. Framing and reframing the dilemma,

4. Experimenting with the dilemma to discover the consequences and implications of various solutions,

5. Examining the intended and unintended consequences of an implemented solution and evaluating the solution by determining whether the consequences are desirable or not.

The dilemma in the current study is whether teachers can accept a new curriculum which is based on a philosophy which is totally different than the philosophy of previous language arts programs.

Reflective thinking, in essence, is a method of self-evaluation which is defined as a "process" which involves improvement of instruction through having teachers reflect on their own teaching and modifying it accordingly (Bailey, 1981, p. 11). Carr and Kemmis (cited in Pollard & Tann, 1987, p. 25), support Bailey's contention when they state that the reflective process involves improvement of practice, improve-

ment of understanding of the practice by the practitioner, and an improvement of the situation in which the practice takes place. Based on the preceding statements it is safe to hypothesize that teachers who utilize the reflective practice would be more open to new ideas which may improve their teaching performance and ultimately help the students they teach.

Quality of Teaching Life Literature

Williams and Batten (1981), like other researchers in the quality of life tradition, argued that while there may be good reasons for studying the objective features of people's lives - gender, social status, age, and so on - and how they affect behavior, more complete explanations largely depend on an understanding of how people perceive their world. For the purposes of this study the "world" is that of the teacher within an educational structure that is faced with the decision to change a major component of its curriculum.

A measure of the environmental quality of the teacher's life, while a difficult variable to construct, is required to measure the teacher's motivation to teach, commitment to teaching, identification within the school and organizational status. Actually, the converse of motivation, namely alienation, is measured. It is anticipated that if teachers perceive the quality of their teaching lives to be of high order, they will be committed to the teaching profession, have

a strong sense of identity as a teacher and a high status level within the school system. If the quality of teaching life is good it can be expected that the teacher will be satisfied with the way things are being done and will have a more positive attitude toward curriculum change that can be shown to be of benefit to the students. On the other hand, teachers who perceive the quality of their teaching lives to be poor will be more apprehensive about the implementation process and the management of the whole language approach.

Fullan (1986) states that,

> The management of change is difficult because it must contend with personal and anxiety-ridden learning process on the part of individuals working in an organizational context. The latter is typically not only non-conducive to supporting the process, but also may be downright unhelpful. (p. 7)

Literature Relating to Satisfaction

Teacher satisfaction with the job will have an influence on how the teacher performs the assigned duties and the attitude with which they are performed. Satisfaction would generally lead to a perception of positive impact on performance. This is not necessarily the case. According to Galloway, Boswell, Panckhurst, Boswell and Green (1985), "A sense of job satisfaction may enhance performance; alternatively, a feeling of success and achievement may be an

important source of satisfaction" (p. 44). In other words, the relationship between satisfaction and performance may be a reciprocal or feedback relationship.

While many studies of job satisfaction used a single item measure, Herzberg, Mausner and Snyderman (1959) held the view that satisfaction and dissatisfaction are not extremes on the same continuum. They argue that satisfaction at work results from aspects of the job which meet an individual need. For teachers, that need may be in the form of pay, status within the community or a sense of power. Dissatisfaction with the job results from conditions at work rather than the work itself. It is, therefore, possible to be satisfied and dissatisfied at the same time. This is referred to as the two-factor theory.

Supportive of the two-factor theory was a study by Galloway et al. (1985) which investigated the source of satisfaction and dissatisfaction for primary teachers in New Zealand. It was discovered that satisfaction came from intrinsic aspects of the job while dissatisfaction evolved from conditions at work which were perceived to be inadequate or when some other external factors reduce the teacher's sense of self-esteem.

Teachers, then, could be very satisfied with their career choice decisions but specific aspects of that job may cause individuals to be very dissatisfied. Applying the two-factor theory to the present study, the teacher may be quite sat-

isfied with teaching life but may be dissatisfied with the way in which the whole language approach has been implemented or how the innovation can be managed. It is anticipated that teachers who are satisfied with their teaching lives and work in a supportive environment will perceive the implementation and management aspects more positively.

An important consideration regarding the preceding causal flow model is that the changes described were of recent origin for most teachers. The survey was conducted in the late fall, following the whole language introduction in September of the same school year. It could be reasonably assumed, then, that certain dispositions such as career satisfaction and perceptions of the quality of teaching life were of longer standing and more enduring. Similarly the health and reflective teaching variables might be reasonably assumed to have influenced career satisfaction and quality of teaching life rather than the other way round.

It could be argued that years of university training and teaching experience were prior to health considerations and reflective teaching but these relationships are not an integral part of the thesis; hence, all four factors were given exogenous variable status. This decision would not affect the parameter estimates.

The health question on the survey began with the phrase, "Would you say your health is ...?", suggesting that concern was not with the respondent's health on the day of the survey,

but rather over a longer period of time. Reflective teaching, too, is a trait which is more of an enduring nature; not something switched on or off, or something acquired overnight. Then to claim that the specified exogenous variables could predict the endogenous variables QTL, SATIS, IMPL and MANAG, and not the other way round, is plausible.

Hypotheses

The key elements of the proposed model have been identified and their interrelationships discussed in the preceding literature review. The elements were selected in order to be able to address the research questions presented. The elements are related to one another as shown in Figure 2 and the hypotheses are derived from this model.

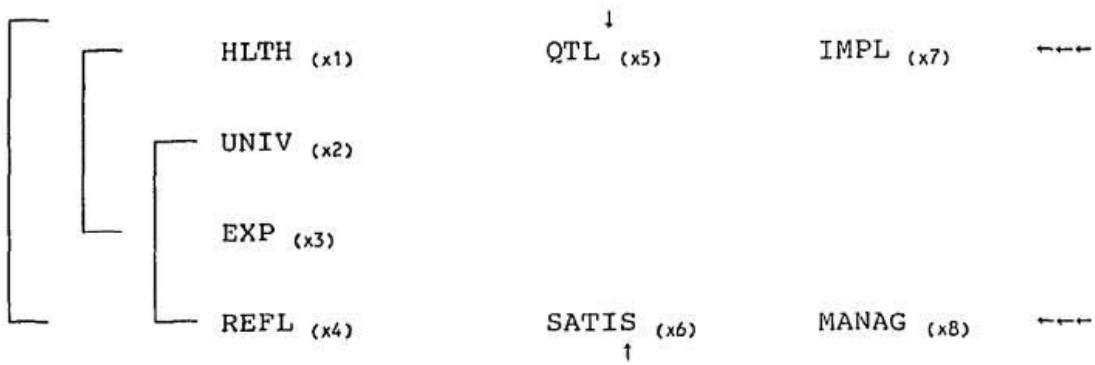
Hypotheses relating to teacher health.

1a. There will be a significant relationship between health levels and how teachers perceive the quality of their teaching lives, which will favor those reporting good health.

1b. There will be a significant relationship between health levels and teachers' level of satisfaction with their career, which will favor those reporting good health.

1c. There will be a significant relationship between health levels and teachers' perception of the effectiveness of the implementation process, which will favor those reporting good health.

1d. There will be a significant relationship between health levels and teachers' perception of the management aspects of the innovation, which will favor those reporting good health.



Where:

HLTH = health, UNIV = years of university education, EXP = years of teaching experience, REFL = reflective teaching, QTL = quality of teaching life, IMPL = whole language implementation, MANAG = management aspects of whole language; where all variables on the left account for variance in the variables on the right; and where paths have been omitted in the interests of clarity.

Figure 2. A Conceptual Model of Curriculum Implementation

Hypotheses relating to background factors.

2a. There will be a significant negative relationship between teachers' experience and years of university training on the one hand and their perception of the quality of their teaching lives on the other.

2b. There will be a significant negative relationship between teachers' experience and years of university training and their satisfaction with their career choice.

2c. There will be a significant negative relationship between teachers' experience and years of university training and their perception of the implementation process.

2d. There will be a significant negative relationship between teachers' experience and years of university training and their perceptions of the management aspect of the innovation.

Hypotheses relating to the reflective teaching.

3a. There will be a significant relationship between the degree of reflection and teachers' perceptions of the quality of their teaching lives.

3b. There will be a significant relationship between the degree of reflection and teachers' reported job satisfaction, favoring those considered to be reflective.

3c. There will be a significant relationship between the degree of reflection and teachers' perception of the implementation process, favoring those considered to be reflective.

3d. There will be a significant relationship between the degree of reflection and teachers' perception of the management aspects of the innovation, which will favor those considered to be reflective.

Hypotheses relating to quality of teaching life.

4a. There will be a significant positive relationship between teachers' perceptions of the quality of their teaching lives and their perceptions of the implementation process.

4b. There will be a significant positive relationship between teachers' perceptions of the quality of their teaching lives and their perceptions of the management aspects of the innovation.

Hypotheses relating to job satisfaction.

5a. There will be a significant positive relationship between reported job satisfaction and teachers' perceptions of the implementation process.

5b. There will be a significant positive relationship between reported job satisfaction and teachers' perceptions of the management aspects of the innovation.

CHAPTER III

Methodology

Introduction

The data used in this study were taken from the Curriculum Change Survey Report which addressed whole language implementation in grade two during the 1989-90 school year (Bulcock & Humber, 1991). The study was conducted by the Division of Evaluation and Research in cooperation with the Division of Curriculum and Instruction, Newfoundland Department of Education, the Newfoundland Teachers' Association, and all 31 school districts in Newfoundland and Labrador.

The project was a longitudinal study with teachers surveyed at the beginning of the school year and again at the end of the school year. The instruments, later discussed in further detail, consisted of teacher questionnaires addressing only grade two teachers. Because the current thesis addressed the perceptions of teachers, in relation to whole language at one point in time, only a portion of the accumulated data was used. The follow-up survey which was undertaken at year's end was not analyzed in the current thesis.

Research Design

The Curriculum Implementation Project was a longitudinal study in which grade two teachers were surveyed early in the school year in which they were introduced to the new curricu-

lum and again at the end of the same school year. The surveys were designed to examine the relationships between variables while holding other variables constant.

> Relationship studies are concerned primarily with gaining a better understanding of complex behavior patterns such as school achievement by studying the causal relationships between these patterns and variables. This research design is especially useful for exploratory studies in areas where little or no previous research has been done. (Borg & Gall, 1983, p. 576)

The relationship studied are indicated in Figure 2 and captured by the following structural equations:

$$x_5 = a_1 + b_{51}x_1 + b_{52}x_2 + b_{53}x_3 + b_{54}x_4 + e_1$$

$$x_6 = a_2 + b_{61}x_1 + b_{62}x_2 + b_{63}x_3 + b_{64}x_4 + e_2$$

$$x_7 = a_3 + b_{71}x_1 + b_{72}x_2 + b_{73}x_3 + b_{74}x_4 + b_{75}x_5 + b_{76}x_6 + e_3$$

$$x_8 = a_4 + b_{81}x_1 + b_{82}x_2 + b_{83}x_3 + b_{84}x_4 + b_{85}x_5 + b_{86}x_6 + e_4$$

where:

x_1 = teacher health, x_2 = years of university, x_3 = years of teaching experience

x_4 = reflective teaching, x_5 = quality of teaching life

x_6 = satisfaction with career choice, x_7 = implementation

x_8 = management

What this means is that we have postulated: (a) Three sets of exogenous variables, identified as teacher health, two

background factors, and reflective teaching, which influence (b) a measure of the teachers' perceptions of the quality of their teaching lives and satisfaction with their teaching careers, which in turn influences (c) two measures of teachers' perceptions of the way in which the new curriculum was implemented and their assessment of how the resources required to implement the new curriculum were arranged; both of which are conditioned by the influences noted in (a) and (b) above.

Description of the Teacher Instrument

The instrument consisted of 114 items which required three types of responses (Appendix C). The first 73 items had a four-point response scale - definitely agree, agree, disagree, definitely disagree. Research literature is controversial over the use of a four-point as opposed to a five-point Likert scale. Williams and Batten (1981) argue for a four-point scale with no middle category, based on the following rationale:

> The standard argument asserts that those answering neutral categories of this kind are a heterogeneous group consisting of those who do not understand the question, those who have no opinion, those who are ambivalent, plus those with low intensity opinions, both positive and negative. The second part of this argument, important here, is that this hetero-

Teacher health.

Would you say your health is:

Excellent	1
Good	2
Fair	3
Poor	4

Teacher background.

The Curriculum Change Survey addressed, under the background factors, many items which included parents education, time spent after school, amount of professional reading and number of specialized courses in reading and writing.

For the purposes of the current study the researcher has addressed only teacher training and teaching experience. These were addressed through the two questions which follow:

How many years (or full-time equivalent years) of university education do you have?

Less than four	1
Four	2
Five	3
Six	4
Seven	5
Greater than seven	6

How many years have you been teaching?

Less than two	1
Two to five	2

> geneous category inflates the amount of error variance in measures of association between items in ways not entirely predictable. (p. 29)

The advantage to the four-point scale is that those holding a low intensity opinion will have to take a stance, either positive or negative, or leave the item unanswered.

Items 74-105 addressed personal information and respondents were required to circle answers which were applicable to their current status of health and professional background. Items in Section D were open-ended and requested teachers to give additional comments on areas of concern or satisfaction in the whole language implementation.

The survey instrument required teachers to identify themselves by name and by school. Since this was a longitudinal study requiring a follow-up survey it was necessary that the same teachers be surveyed. A rationale for the approach taken to ensure that the same teachers were surveyed is addressed in correspondence to Mr. Wayne Russell, NTA, by Professor Jeffrey Bulcock (Appendix B).

The Instrument

The exogenous variables of Teacher Health and Teacher Background required specific information and requested that the respondent circle the appropriate numerically represented response.

Six to ten	3
Eleven to fifteen	4
Greater than fifteen	5

Reflective teacher.

The final exogenous variable was addressed through eight items in which the respondent used the four-point response scale "definitely agree ... definitely disagree". The number at the end of each sentence refers to the item number in the questionnaire (Appendix C).

1. When I am teaching I find myself continuously thinking about what I am doing. (5)

2. Unless I can see clearly the ways in which the new program is more effective than the old I am uncomfortable in trying to implement it. (11)

3. I find the new program so demanding I have little time or energy for assessing how well I am teaching. (17)

4. I make time every day to think about what my students have been doing in the Networks program. (23)

5. In my school teachers get together regularly to discuss implementing the new program. (29)

6. I have gone to some trouble to think through for myself the purposes of the Networks program. (35)

7. I use my own discretion in order to decide which practices work best with my students. (43)

8. If a teaching method or strategy does not work with

my students, I feel justified in dropping it. (45)

There were two criterion variables, Implementation and Management, with two intervening variables, quality of teaching life (which has four indicators - alienation, commitment, identity and status), and satisfaction. To construct each scale several items were used. Again the number at the end of each sentence indicates the questionnaire item.

Alienation (7 items)

1. Teaching is not a good way of getting ahead. (2)
2. Teaching is just a way of making money. (8)
3. Most teachers eventually regret going into teaching. (14)
4. I would not recommend my own children go into teaching. (20)
5. Sooner or later most teachers become disillusioned with teaching. (26)
6. If a reasonable opportunity arose I would leave the teaching profession. (32)
7. If I had known then what I know now I would never have entered teaching. (40)

Commitment (7 items)

1. One of the best decisions I ever made was to become a teacher. (1)
2. I have too little time to devote to my teaching

preparations. (7)

3. Hardly a day goes by without my striving to improve my teaching. (13)

4. If I inherited so much money I did not have to work I would still teach. (19)

5. I would be lost if I could no longer be a teacher. (25)

6. There are few things I am more committed to than teaching. (31)

7. I am always on the lookout for new teaching ideas. (37)

The next three scales were constructed from items which required the respondent to complete a sentence which begins with "The school where I teach is a place where ..." and this phrase must be inserted at the beginning of each item.

Identity (7 items)

1. I am popular with my colleagues. (49)
2. The skills I use are important to me. (53)
3. I am a success as a teacher. (57)
4. I get along with students. (61)
5. I have learned to work hard. (65)
6. I have learned a lot about myself. (69)
7. I am secure about my work as a teacher. (73)

Status (7 items)

1. My colleagues look up to me. (48)
2. My colleagues respect my ideas. (52)
3. I am treated with respect. (56)
4. My colleagues think a lot of me. (60)
5. I can get along with my colleagues. (54)
6. My colleagues are among my best friends. (68)
7. I am made to feel important. (72)

Satisfaction (7 items)

1. I find great enjoyment. (46)
2. I really like to go each day. (50)
3. My work has a fun component. (54)
4. The atmosphere is cheerful. (58)
5. I feel I am successful. (62)
6. I feel I belong. (66)
7. I find some of my greatest pleasure. (70)

The criterion variables were constructed from items which required the respondent to use the four-point scale to address the given sentences.

Implementation (7 items)

1. The way the Networks program was introduced in my board was satisfactory. (4)

2. The administrators in my board voice strong support for the Networks program. (10)

3. The inservice programs I attended were successful in introducing me to the Networks program. (16)

4. The parents of my grade two children were well informed about the new program. (22)

5. I was well prepared for implementing the new program. (28)

6. It is difficult to find someone to talk to about implementing the whole language curriculum. (34)

7. I was given ample opportunity to familiarize myself with the Networks program before it was introduced. (42)

Management (5 items)

1. My class is too large for effective whole language instruction. (6)

2. My supply of trade books is quite sufficient to implement the Networks program. (12)

3. Whole language is too dependent on the availability of resource materials. (30)

4. It is difficult to find time to handle all the resource materials called for by the new program. (36)

5. I have sufficient materials and supplies in my classroom to be able to meet program objectives. (44)

The Sample

The sample used for this study was all of the sample used in the Curriculum Change Survey. While the units of analysis

were grade two teachers in Newfoundland schools during the 1989-90 school year, it was technically necessary for the sampling units to be schools who offered grade two. The schools were classified into three groups - those with less than 200 students (231 schools), those with 300-400 students (109 schools), and those with greater than 400 students (48 schools). The sample selected was proportionate to the number of teachers in each category. There were approximately 500 grade two teachers in the province in the 1989-90 school year. The question of how many teachers to include in the sample was addressed in terms of minimizing sampling fluctuation. The rule of thumb, according to Pedhazur (1982, p. 148), in survey research is that for each independent variable in the model there should be at least 20 respondents. In this event adding a few more cases or taking a few away would not result in noticeable changes in parameter estimates. It was assumed at the outset of the present study that equations with no more than 10 independent variables would be sufficient to test the hypothesized models. In this event a sample of around 200 grade two teachers would be sufficient. The total population of grade two teachers in the school population was divided by 25 to generate the number of grade two teachers, which approximate 502 teachers (236 in category one, 154 in category two, and 112 in category three). Every school, in each category, was stratified until the number of teachers required to satisfy a 40% sample in each category was met. This

stratified sample generated 201 teachers. Of the 201 teachers surveyed only 147 completed the survey and thereby became the actual sample.

Analysis of Data

A frequencies analysis was computed for each of the items in the survey and is included as Appendix D. The frequencies analysis gives insight into the number and percentage of respondents who answer each of the items in the same way.

Each of the domains in the model (Figure 2) was analyzed using a principal components analysis which calculated the relative proportion of the variance accounted for by each item. Using appropriate weights computed for each item, in a construct, scores were computed for that construct.

A second-order principal component analysis was used to analyze and compute the latent construct QTL, from the domains of Alienation, Commitment, Identity and Status. Alpha reliabilities were also estimated for each construct.

To analyze the zero-order relationship between variables the Pearson product-moment correlation coefficient was used. Correlations between the background variable, health and the reflective teacher variable and QTL and Satisfaction were examined as a first effort to estimate the degree of their relationship. Implementation and management were then correlated with QTL, SATIS, HLTH, UNIV, EXP, and REFL. The 0.05 level of probability was accepted as the evidence of a

significant relationship. The correlations between alienation, commitment, identity, and status on the one hand, and QTL on the other may be regarded as the concurrent validity of the four dimensions of QTL.

The relative magnitude of the relationships between independent and dependent variables as called for by the model equations, as well as the strength of the relationships between the intervening variables QTL and SATIS, and the dependent variables was determined through an ordinary least squares multiple regression analysis. The multiple regression, in this case, is based on the recursive model represented in Figure 2.

Analysis of the Instruments

This portion of the chapter deals with the measurement models and the analysis of the instrument. A rigorous analysis of the instrument is beneficial for the following reasons:

1. To test the collinearity of the items in each theoretical construct; and then to improve the construct, if necessary, by eliminating any items which show poor discrimination.

2. To use information (factor score coefficients, means, and standard deviations) from each item analysis to compute a standardized score for each subject on that construct.

3. To provide information about the reliability of the instruments to anyone who may wish to replicate the study.

A measurement model was used for each of the latent variables in the study. The observed indicators of each latent variable were measured from the response assigned to them in the survey. For example, the latent variable implementation is a reflection of the scores of the seven survey items which make up implementation. Measures of the components of implementation must accurately represent this variable. A principal component analysis was conducted in order to construct each latent variable. Only items with a factor loading of 0.50 or greater were retained. These items were factorially homogeneous and thus could be considered a single meaningful construct.

Satisfaction.

The correlation matrix for the seven items of the satisfaction construct is depicted in Table 1, which also gives the means and standard deviations. This matrix was used to conduct a principal component analysis. Items with both appropriate content and a factor loading above 0.50 were retained. The items used to develop this construct were all retained (Table 2). The alpha reliability was calculated to be .839. The level of satisfaction was then calculated for each teacher used the formula:

$$SATIS = FSC_1 (SA01 - M_1)/SD + \ldots + FSC_7 (SA07 - M_7)/SD_7)$$

where: FSC_1 = the factor score coefficent for the first indicator; M = mean; SD = standard deviation.

Table 1

Correlation Matrix for Satisfaction Domain

Variables	S1	S2	S3	S4	S5	S6	S7	X	S.D.
S1	1.000							3.265	.561
S2	.517	1.000						3.280	.514
S3	.329	.392	1.000					3.311	.511
S4	.497	.435	.432	1.000				3.296	.549
S5	.312	.520	.543	.331	1.000			3.333	.504
S6	.274	.464	.520	.486	.509	1.000		3.538	.516
S7	.438	.505	.361	.348	.372	.443	1.000	3.250	.610

Alpha Reliability = .8385

Factor score coefficients are shown in Table 2 and the mean and standard deviations are shown in Table 1. The factor score coefficient was computed using the formula:

$$F_{sc} = F_L \div E$$

where: F_L = factor matrix or factor loading; and E = eigenvalue.

For example, the factor score coefficient for item SA01 is

.681 ÷ 3.644 = .187. Using these figures the level of satisfaction for each respondent was calculated as follows:

$$
\begin{aligned}
\text{SATIS} = {} & .187\ (\text{SA01} - 3.265)/.551 + \\
& .214\ (\text{SA02} - 3.280)/.514 + \\
& .199\ (\text{SA03} - 3.311)/.511 + \\
& .186\ (\text{SA04} - 3.296)/.549 + \\
& .200\ (\text{SA05} - 3.333)/.504 + \\
& .206\ (\text{SA06} - 3.538)/.516 + \\
& .193\ (\text{SA07} - 3.520)/.610
\end{aligned}
$$

Table 2

Principal Component Analysis for the Satisfaction Domain

Items	Factor Loadings	Factor Score Coefficients	Residual
SA01	.681	.187	.732
SA02	.778	.214	.628
SA03	.725	.199	.689
SA04	.677	.186	.736
SA05	.729	.200	.684
SA06	.751	.206	.660
SA07	.704	.193	.710

Alpha Reliability = .839 Eigenvalue = 3.644

Figure 3 depicts the measurement model for the latent construct, satisfaction (SATIS). It shows the construct and the extent to which it reflects the observed variables SA01 to SA07.

Note: The second column of numbers in Figure 3 represents the factor loadings for each item. The first column represents the residual computed using the formula:

$$\text{Residual} = (1 - \text{factor loading}^2)$$

Reflective paths from SATIS to each SA indicator are not shown in the interest of clarity.

Figure 3. Measurement Model: Satisfaction With Teaching Career (SATIS)

Management.

The five items depicting the management domain were subject to principal component analysis based on the correlation matrix shown in Table 3. The alpha reliability for this construct was .677. Since no items had a factor loading below 0.50 all were retained and are shown in Table 4.

Table 3

Correlation Matrix for the Management Domain

Variable	MAN1	MAN2	MAN3	MAN4	MAN5	X	S.D.
MAN1	1.000					2.628	1.001
MAN2	.233	1.000				2.395	1.003
MAN3	.257	.157	1.000			2.465	.708
MAN4	.299	.145	.391	1.000		2.039	.754
MAN5	.342	.567	.392	.172	1.000	2.543	.801

Alpha Reliability = .667

Using the means and standard deviations from Table 3 and the factor score coefficients from Table 4, the level of management was calculated as follows:

$$
\begin{aligned}
MANAG = {} & .295\,(MO1 - 2.392)/1.007 + \\
& .286\,(MO2 - 2.376)/1.005 + \\
& .306\,(MO3 - 2.464)/0.702 + \\
& .261\,(MO4 - 2.040)/0.756 + \\
& .356\,(MO5 - 2.520)/0.799
\end{aligned}
$$

Table 4

Principal Component Analysis for the Management Domain

Items	Factor Loadings	Factor Score Coefficients	Residual
MANO1	.646	.295	.763
MANO2	.625	.286	.781
MANO3	.670	.306	.743
MANO4	.517	.261	.821
MANO5	.779	.356	.628

Alpha Reliability = .667 Eigenvalue = 2.189

Figure 4 depicts the latent variable, management (MANAG). It shows the domain and the extent to which it reflects the observed variables MO1, MO2, MO3, MO4 and MO5.

Figure 4. Measurement Model: Management Domain (MANAG)

Implementation.

The seven items depicting the implementation domain were subjected to principal component analysis based on the correlation matrix shown in Table 5. The alpha reliability for this construct was .767. All items were retained in this domain. The measurement model for the latent construct, implementation (IMPL) is depicted in Figure 5. It shows the construct and the extent to which it reflects the observed variables I01 to I07.

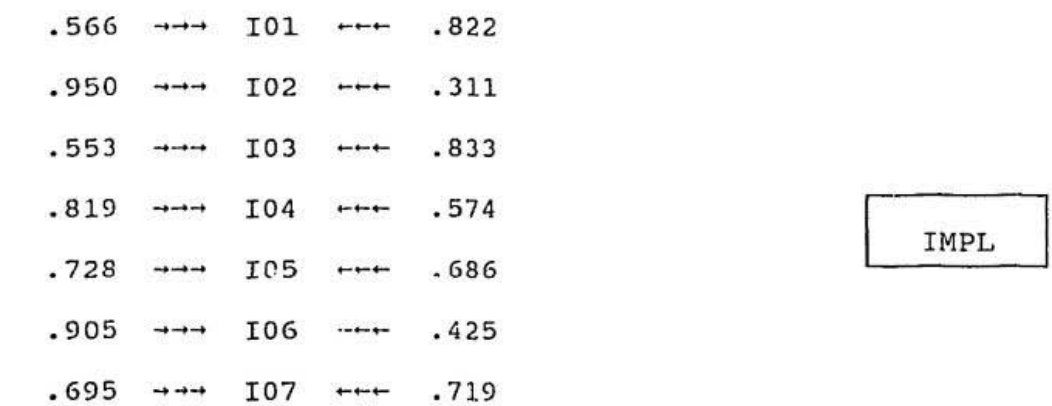


Figure 5. Measurement Model: Implementation (IMPL)

Table 5

Correlation Matrix for the Implementation Domain

Variables	I1	I2	I3	I4	I5	I6	I7	X	S D
I1	1.000							2 992	.892
I2	.350	1.000						3 447	668
I3	.700	.158	1.000					2 919	.893
I4	.392	.003	.474	1.000				2.517	.905
I5	.427	.111	.483	.388	1.000			2.732	.747
I6	.173	.004	.215	.227	.230	1.000		2.959	793
I7	.481	.207	.522	.237	.479	.223	1 000	2.846	800

Alpha Reliability = .7665

Table 6

Results of the Principal Component Analysis for the Implementation Domain

Items	Factor Loadings	Eigenvalue	Percentage Variance	Communality	Factor Score Coefficients
I1	.822	2.964	42.4	.676	.277
I2	.311	1.065	15.2	.097	.105
I3	.833	.858	12.3	.694	.281
I4	.574	.763	10.9	.329	.194
I5	.686	.623	8.9	.470	.231
I6	.425	.462	6.6	.181	.143
I7	.719	.263	3.8	.517	.243

Alpha Reliability = .766

Reflective teaching.

The eight items depicting reflective teaching were subjected to principal component analysis based on the correlation matrix shown in Table 7. This analysis was unsuccessful, showing only two items with factor loadings greater than 0.50 (Table 8). This result led the investigator to re-examine the data. On the basis of the substantive meanings of R02 and R03 it was decided to add an unused variable from the questionnaire (Q38), which is item 38 of the survey.

Table 7

Correlation Matrix for the Reflective Teacher Domain

Variables	R1	R2	R3	R4	R5	R6	R7	R8	X	S.D.
R1	1.000								3.215	.744
R2	.240	1.000							2.215	.906
R3	-.151	-.444	1.000						2.479	.776
R4	.220	.181	-.116	1.000					3.050	.546
R5	.000	.041	-.061	.147	1.000				2.357	.913
R6	.306	.036	-.080	.073	.281	1.000			3.025	.598
R7	.132	-.167	.016	.091	-.069	.014	1.000		3.504	.502
R8	-.025	-.142	.129	-.074	-.149	.001	.364	1.000	3.322	.609

Alpha Reliability = .1038

Table 8

Principal Component Analysis for the Reflective Teacher Domain

Indicator	Factor Loadings
R01	.433*
R02	.729
R03	-.676
R04	.382*
R05	.310*
R06	.344*
R07	.---*
R08	.386*

*Factor loading is below .50. Therefore, this item was dropped from the reflective teacher domain.

R02 - Unless I can see clearly the ways in which the new program is more effective than the old, I am uncomfortable trying to implement it.

R03 - I find the new program so demanding I have little time or energy left for assessing how well I am teaching.

Q38 - It is difficult to see the substantial advantages of the new program over the proven benefits of the old program.

Given these questions it seemed that low scorers were more likely to be resistors to change than high scorers, or, alternatively the low scorers would be less flexible when it came to adopting change than high scorers. The four point response scale for these items were: definitely agree (1), mostly agree (2), mostly disagree (3), and definitely disagree (4). Subsequent principal component analysis showed that they had high factor loadings and reliabilities and were related to the concept of reflective teaching (Table 9). The model was then modified appropriately.

Table 9

Principal Component Analysis for the Revised Reflective Teacher Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
R02	.808	.427	.589
R03	.797	.421	.604
Q38	.777	.411	.630

Alpha Reliability = .717 Eigenvalue = 1.892

Using the means and standard deviations from Table 7 and the factor score coefficients from Table 9, the level of reflective teaching was calculated for each teacher as follows:

$$\begin{aligned} REFL = \; & .427\,(R02 - 2.808)/.924 + \\ & .421\,(R03 - 2.492)/.800 + \\ & .411\,(Q38 - 2.700)/.860 \end{aligned}$$

Figure 6 depicts the latent variable, reflective teaching (REFL) and the extent to which it reflects the observed variables R02, R03 and Q38.

Figure 6. Measurement Model: Reflective Teaching (REFL)

The Domains of Quality of Teaching Life

Based on the correlation matrices this section presents the principal components analysis for the four hypothesized domains of Quality of Teaching Life. The four domains are Commitment, Alienation, Status and Identity. The correlation

matrices are presented in Tables 10, 13, 16 and 19 along with the standard deviations and means.

In the commitment domain there were two eigenvalues greater than one, indicating that there could be two factors rather than one. Given this, a full blown factor analysis was called for in each of the four hypothesized domains.

Principal component analysis for each hypothesized domain of QTL was conducted. Thus, the analysis for a hypothesized commitment domain was conducted in Tables 10, 11 and 12; for an alienation domain in Tables 13, 14 and 15; for a status domain in Tables 16, 17 and 18; and for an identity domain in Tables 19, 20 and 21. Since the commitment domain indicated two factors rather than one, a factor analysis in which all the items included in the four domains, was necessary. This was reported in Table 22 in which three (not four) dimensions emerged. As a result of Table 22 findings, the items were reallocated to three factors labelled teacher role, alienation and status respectively.

A reanalysis of the three factors dropped variables with low loadings. Three factors were created out of the indicators as shown in Tables 23, 24 and 25.

Table 10

Correlation Matrix for the Commitment Domain

Variables	C1	C2	C3	C4	C5	C6	C7	X	S.D.
C1	1.000							3.385	.519
C2	-.029	1.000						3.054	.874
C3	.152	.186	1.000					3.369	.544
C4	.279	-.141	.191	1.000				2.623	.900
C5	.369	-.043	.135	.401	1.000			2.762	.888
C6	.116	.047	.164	.031	.180	1.000		2.977	.792
C7	.185	.175	.370	.102	.248	.169	1.000	3.685	467

Alpha Reliability = .5110

Table 11

Principal Components Analysis for the Commitment Domain

Indicators	Factor Loading	Factor Loading
C01	.628	-.260
C02	.067	.702
C03	.576	.426
C04	.582	-.453
C05	.707	-.299
C06	.367	.225
C07	.603	.436

Alpha Reliability = .511
Eigenvalue = 2.066

Alpha Reliability = .511
Eigenvalue = 1.278

Table 12

Factor Analysis Initial Statistics for Commitment Domain

Variable	Communality	Eigenvalue	Percentage of Variance
C1	.462	2.066	29.5
C2	.497	1.278	18.3
C3	.514	.938	13.4
C4	.544	.822	11.7
C5	.589	.720	10.5
C6	.186	.664	9.5
C7	.553	.512	7.3

Table 13

Correlation Matrix for the Alienation Domain

Variables	A1	A2	A3	A4	A5	A6	A7	X	S.D.
A1	1.000							1.968	.822
A2	.116	1.000						1.200	.492
A3	.369	.226	1.000					1.984	.609
A4	.354	.239	.416	1.000				2.176	.934
A5	.355	.173	.527	.479	1.000			2.328	.645
A6	.294	.234	.363	.438	.328	1.000		1.832	.644
A7	.359	.272	.512	.545	.359	.455	1.000	1.752	.737

Alpha Reliability = .7920

Table 14

Principal Component Analysis for the Alienation Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
A01	.589	.188	.808
A02	.410	.131	.912
A03	.737	.235	.676
A04	.753	.240	.658
A05	.698	.223	.717
A06	.656	.209	.755
A07	.768	.245	.410

Alpha Reliability = .792 Eigenvalue = 3.133

Table 15

Factor Analysis Initial Statistics for the Alienation Domain

Variable	Communality	Eigenvalue	Percentage of Variance
A1	.347	3.133	44.8
A2	.168	.946	13.5
A3	.543	.739	10.6
A4	.567	.695	9.9
A5	.487	.557	8.0
A6	.431	.538	7.7
A7	.590	.392	5.6

Table 16

Correlation Matrix for the Status Domain

Variables	ST1	ST2	ST3	ST4	ST5	ST6	ST7	X	S.D.
ST1	1.000							2.949	.489
ST2	.451	1.000						3.180	.551
ST3	.265	.343	1.000					3.393	.491
ST4	.505	.520	.332	1.000				3.068	.468
ST5	.333	.350	.496	.388	1.000			3.564	.498
ST6	.423	.507	.246	.530	.358	1.000		3.103	.736
ST7	.378	.485	.380	.512	.515	.542	1.000	3.171	.562

Alpha Reliability = .8315

Table 17

Principal Component Analysis for the Status Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
ST01	.659	.189	.752
ST02	.730	.210	.684
ST03	.624	.179	.782
ST04	.726	.209	.688
ST05	.693	.199	.721
ST06	.733	.211	.680
ST07	.761	.219	.648

Alpha Reliability = .832 Eigenvalue = 3.481

Table 18

Factor Analysis Initial Statistics for the Status Domain

Variable	Communality	Eigenvalue	Percentage of Variance
ST01	.434	3.481	49.7
ST02	.533	.921	13.2
ST03	.389	.678	9.7
ST04	.527	.540	7.7
ST05	.480	.511	7.3
ST06	.538	.452	6.5
ST07	.580	.418	6.0

Table 19

Correlation Matrix for the Identity Domain

Variables	ID1	ID2	ID3	ID4	ID5	ID6	ID7	X	S.D.
ID1	1.000							3.073	.426
ID2	.265	1.000						3.565	.498
ID3	.370	.397	1.000					3.323	.469
ID4	.160	.350	.474	1.000				3.532	.501
ID5	.159	.473	.439	.529	1.000			3.677	.469
ID6	.210	.314	.256	.355	.400	1.000		3.355	.529
ID7	.357	.406	.464	.392	.441	.395	1.000	3.403	.555

Alpha Reliability = .7999

Table 22

Rotated Factor Matrix for Quality of Teaching Life Indicators

Indicator	Factor 1	Factor 2	Factor 3
ID5	.758		
C3	.708		
ST5	675	.454	
ID7	.610		
ID3	.598	.308	
C7	.586		
ID2	.585	.305	
ID4	.571		
ST3	.520	.406	
ID6	.425	.334	
C3			
C6			
ST4		.787	
ST6		.756	
ST7	.304	.704	
ST2		.657	
ID1		.638	
ST1		.573	
A7			.727
A4			.725
A6			.693
C5			-.597
A3			.594
A1			.591
C1			-.570
A5		-.383	.559
C4			-.482

Table 20

Principal Component Analysis for the Identity Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
ID01	.466	.148	.885
ID02	.691	.220	.722
ID03	.743	.237	.669
ID04	.702	.223	.712
ID05	.719	.229	.695
ID06	.571	.182	.821
ID07	.748	.238	.664

Alpha Reliability = .800 Eigenvalue = 3.142

Table 21

Factor Analysis Initial Statistics for the Identity Domain

Variable	Commurality	Eigenvalue	Percentage of Variance
ID01	.217	3.142	44.9
ID02	.478	.954	13.6
ID03	.552	.784	11.2
ID04	.493	.653	9.3
ID05	.517	.554	7.9
ID06	.326	.475	6.8
ID07	.559	.439	6.3

Table 23

Reanalysis of Quality of Teaching Life Indicators Factor 1

Indicator	Factor Loadings
ID5	.737
ST5	.707
C3	.686
ID3	.652
ID4	.625
ID7	.624
ID2	.607
ST3	.573
C7	.544
ID6	.486

Table 24

Reanalysis of Quality of Teaching Life Indicators Factor 2

Indicator	Factor Loadings
A7	.729
A4	.723
A6	.707
C5	-.604
A1	.592
A3	.588
C1	-.581
A5	.547
C4	-.483
A2	.357

Table 25

Reanalysis of Quality of Teaching Life Indicators Factor 3

Indicator	Factor Loadings
ST4	.795
ST6	.747
ST2	.682
ST7	.663
ID1	.647
ST1	.582

The factors were labelled TROLE (Teacher Role), ALIEN (Alienation) and STAT (Status). The survey items used to construct these revised variables were as follows.

Teacher role (10 items)

I5 - I have learned to work hard. (65)

S5 - I can get along well with my colleagues. (64)

C3 - Hardly a day goes by without my striving to improve my teaching. (13)

I3 - I am a success as a teacher. (57)

I4 - I get along with my students. (61)

I7 - I am secure about my work as a teacher. (73)

I2 - The skills I use are important to me. (53)

S3 - I am treated with respect. (56)

C7 - I am always on the lookout for new teaching ideas. (37)

I6 - I have learned a lot about myself. (69)

Alienation (10 items)

A7 - If I had known then what I know now I would never have entered teaching. (40).

A4 - I would not recommend my own children go into teaching. (14).

A6 - If a reasonable opportunity arose I would leave the teaching profession. (32)

C5 - I would be lost if I could no longer be a teacher.

(25)

A1 - Teaching is not a good way of getting ahead. (2)

A3 - Most teachers eventually regret going into teaching. (14)

C1 - One of the best decisions I ever made was to become a teacher. (1)

A5 - Sooner or later most teachers become disillusioned with teaching. (26)

C4 - If I inherited so much money I did not have to work I would still teach. (19)

A2 - Teaching is just a way of making money. (8)

Status (6 items)

S4 - My colleagues think a lot of me. (60)

S6 - My colleagues are among my best friends. (68)

S2 - My colleagues respect my ideas. (52)

S7 - I am made to feel important. ((72)

I1 - I am popular with my colleagues. (49)

S1 - My colleagues look up to me. (53)

Teacher Role

The 10 items depicting the Teacher Role domain were subjected to a principal component analysis based on the correlation matrix shown in Table 26. The alpha reliability for the construct was 0.862.

Table 26

Correlation Matrix for the Teacher Role Domain

Variable	ID5	ST5	C3	ID3	ID4	ID7	ID2	ST3	C7	ID6	X	S.D.
ID5	1.000										3.659	.476
ST5	.596	1.000									3.527	.501
C3	.462	.391	1.000								3.372	.546
ID3	.457	.537	.374	1.000							3.302	.478
ID4	.552	.518	.344	.481	1.000						3.519	.502
ID7	.430	.504	.351	.471	.404	1.000					3.380	.562
ID2	.456	.502	.342	.420	.363	.429	1.000				3.543	.500
ST3	.477	.524	.341	.636	.374	.350	.372	1.000			3.364	.483
C7	.331	.271	.366	.215	.194	.216	.259	.194	1.000		3.690	.464
ID6	.386	.394	.252	.261	.345	.395	.315	.296	.191	1.000	3.349	.525

Alpha Reliability = .862

Using the means and standard deviations from Table 26 and the factor score coefficients from Table 27, the Teacher Role for each teacher was calculated as follows:

$$
\begin{aligned}
\text{TROLE} = {} & .198\,(I5 - 3.659)/.476 + \\
& .161\,(S5 - 3.527)/.501 + \\
& .220\,(C3 - 3.372)/.501 + \\
& .155\,(I3 - 3.302)/.478 + \\
& .156\,(I4 - 3.519)/.502 + \\
& .149\,(I7 - 3.380)/.562 + \\
& .145\,(I2 - 3.543)/.500 + \\
& .120\,(S3 - 3.364)/.483 + \\
& .175\,(C7 - 3.690)/.464 + \\
& .160\,(I6 - 3.349)/.525
\end{aligned}
$$

Figure 7 depicts the latent variable Teacher Role. It shows the domain and the extent to which it reflects the observed variables I5, S5, C3, I3, I4, I7, I2, S3, C7 and I6.

Table 27

Principal Component Analysis for the Teacher Role Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
ID05	.737	.198	.648
ST05	.707	.162	.580
C03	.685	.220	.691
ID03	.652	.155	.692
ID04	.625	.157	.743
ID07	.624	.149	.726
ID02	.607	.145	.742
ST03	.578	.120	.715
C7	.544	.175	.641
ID06	.486	.119	.834

Alpha Reliability = .862 Eigenvalue = 7.249

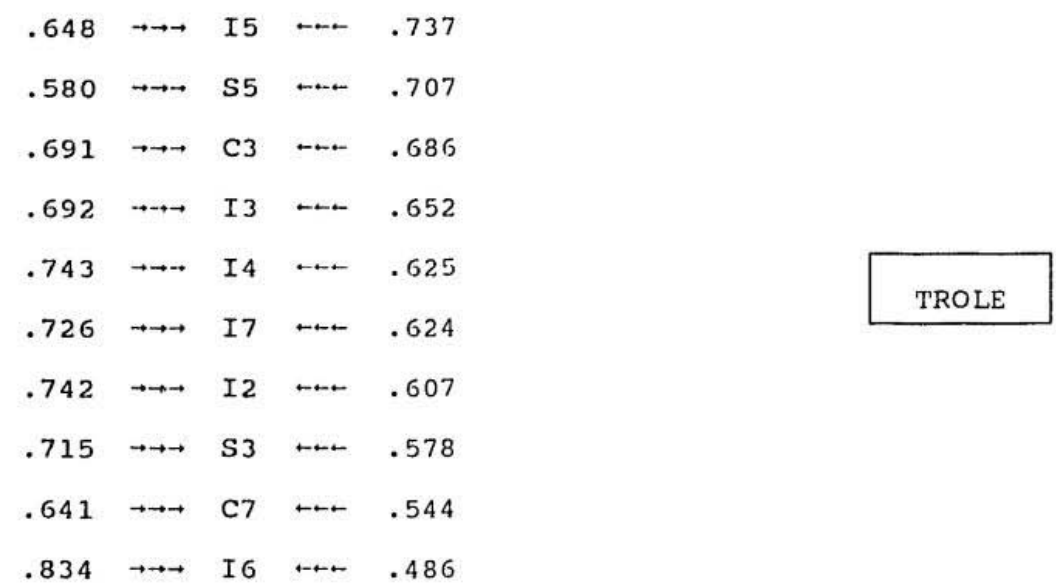


Figure 7. Measurement Model: Teacher Role (TROLE)

Revised Alienation Domain

The 10 items used to construct the revised alienation domain were subjected to principal component analysis based on the correlation matrix shown in Table 28. The alpha reliability for the construct was 0.817.

Using the means and standard deviations from Table 28 and the factor score coefficients from Table 29, the revised alienation was calculated for each teacher as follows:

$$\begin{aligned} \text{ALIEN} = {} & .210\,(A7 - 1.760)/.742 + \\ & .217\,(A4 - 2.207)/.930 + \\ & .207\,(A6 - 1.843)/.646 + \end{aligned}$$

-.176 (C5 - 2.207)/.856 +

.178 (A1 - 1.934)/.814 +

.158 (A3 - 1.992)/.599 +

-.160 (C1 - 1.603)/.524 +

.136 (A5 - 2.331)/.651 +

.140 (C4 - 2.397)/.908 +

.092 (A2 - 1.198)/.494

Figure 8 depicts the latent variable alienation (ALIEN). It shows the domain and the extent to which it reflects the observed variables A7, A4, A6, C5, A1, A3, C1, A5, C4 and A2.

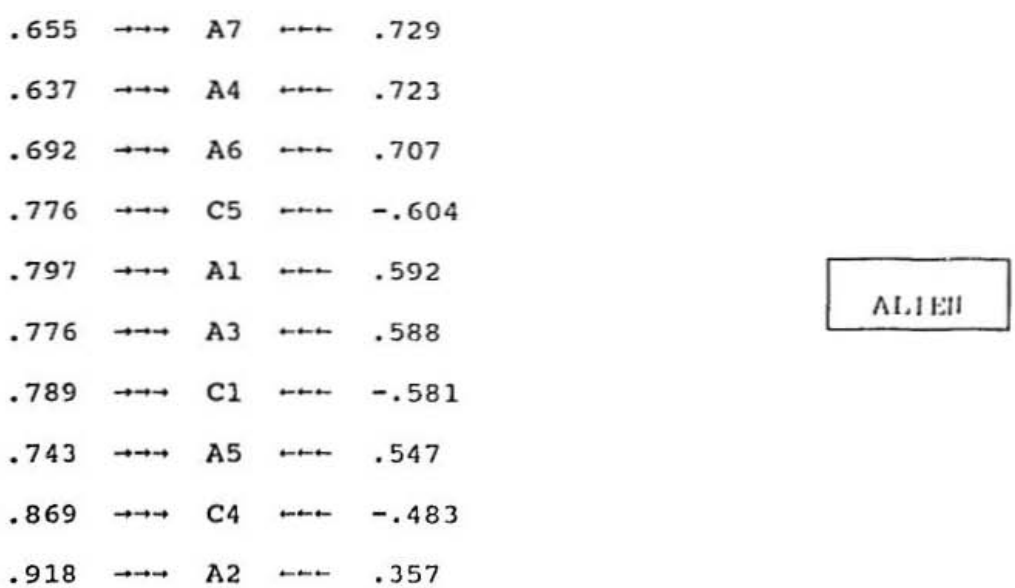


Figure 8. Measurement Model: Revised Alienation (ALIEN)

Table 28

Correlation Matrix for the Revised Alienation Domain

Variable	A7	A4	A6	C5	A1	A3	C1	A5	C4	A2	X	S.D.
A7	1.000										1.760	.742
A4	.543	1.000									2.207	.930
A6	.443	.429	1.000								1.843	.646
C5	.315	.302	.497	1.000							2.207	.856
A1	.388	.415	.329	.283	1.000						1.934	.814
A3	.502	.422	.342	.199	.410	1.000					1.992	.599
C1	.354	.323	.529	.370	.309	.149	1.000				1.603	.524
A5	.356	.492	.323	.296	.372	.521	.266	1.000			2.331	.651
C4	.254	.208	.292	.419	.318	.175	.246	.129	1.000		2.397	.908
A2	.267	.237	.229	.178	.116	.231	.242	.183	.065	1.000	1.198	.494

Alpha Reliability = .817 S.I. Alpha = .823

Table 29

Principal Component Analysis for the Revised Alienation Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
A07	.729	.210	.655
A04	.723	.217	.637
A06	.707	.207	.692
C05	-.604	-.176	.776
A01	.592	.178	.797
A03	.588	.158	.776
C01	-.581	-.160	.789
A05	.547	.136	.743
C04	-.483	-.140	.869
A02	.357	.092	.918

Alpha Reliability = .817 Eigenvalue = 2.621

Revised Status Domain

The six items used to construct the revised status domain were subjected to principal component analysis based on the correlation matrix depicted in Table 30. The alpha reliability for this construct was 0.835.

Using the means and standard deviations from Table 30 and

the factor score coefficients from Table 31, the revised status was calculated for each teacher as follows:

$$
\begin{aligned}
\text{STAT} = \; & .256\,(S4 - 3.069)/.470 + \\
& .241\,(S6 - 3.112)/.732 + \\
& .215\,(S2 - 3.181)/.553 + \\
& .184\,(S7 - 3.172)/.564 + \\
& .198\,(I1 - 3.078)/.440 + \\
& .166\,(S1 - 2.948)/.491
\end{aligned}
$$

Figure 9 depicts the latent variable status (STAT). It shows the domain and the extent to which it reflects the observed variables S4, S6, S2, S7, I1 and S1.

Figure 9. Measurement Model: Revised Status (STAT)

Table 30

Correlation Matrix for the Revised Status Domain

Variables	ST4	ST6	ST2	ST7	ID1	ST1	X	S.D.
ST4	1.000						3.069	.470
ST6	.533	1.000					3.112	.732
ST2	.520	.508	1.000				3.181	.553
ST7	.512	.522	.485	1.000			3.172	.564
ID1	.604	.405	.370	.401	1.000		3.078	.440
ST1	.505	.428	.451	.378	.502	1.000	2.948	491

Alpha Reliability = .835 S.I. Alpha = .844

Table 31

Principal Component Analysis for the Revised Status Domain

Indicators	Factor Loadings	Factor Score Coefficients	Residual
ST04	.795	.265	.596
ST06	.747	.241	.644
ST02	.682	.215	.709
ST07	.663	.184	.643
ID01	.647	.198	.729
ST01	.582	.166	.761

Alpha Reliability = .835 Eigenvalue = 2.219

The three factors identified as TROLE, ALIEN and STAT (that is, the identification with role as a teacher, alienation from teaching, and perception of teacher status respectively) were used as indicators in a second-order analysis. The resultant linear weighted additive composite was regarded as a measure of the perceived quality of teaching life (QTL) and is presented in Figure 10.

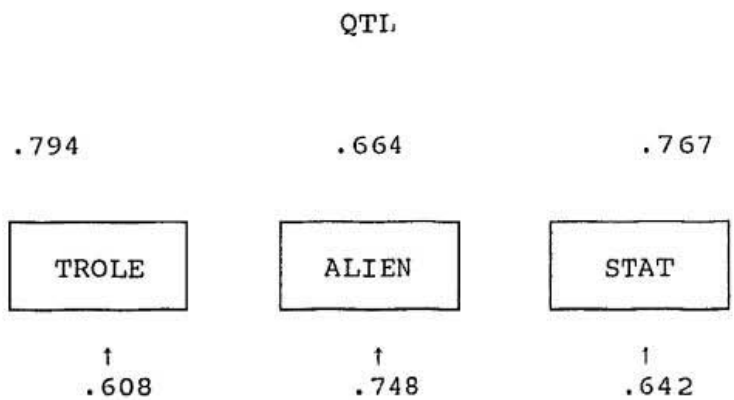


Figure 10. Measurement Model: Quality of Teaching Life (QTL)

The QTL equation was as follows:

QTL = .478 ((TROLE - 34.705)/3.152) - .400 ((ALIEN - 18.273)/3.924) + .462 ((STAT - 18.56)/2.168)

The results of the principal component analysis for the second-order factor analysis for the QTL construct are

reported in Table 32.

Table 32

Principal Component Analysis for the Second-Order Factor Analysis, QTL

Indicators	Factor Loadings	Factor Score Coefficients	Residual
TROLE	.794	.478	.608
ALIEN	-.664	-.400	.748
STAT	.767	.462	.642

Alpha Reliability = .593 Eigenvalue = 1.659

Reliability

One concept of reliability is internal consistency. Cronback's Coefficient Alpha is a general form of Kuder-Richardson's method of determining reliability of standardized tests (Borg & Gall, 1983, p. 285). This method is used to measure the internal consistency of tests which have multiple choice answers, such as the four-point scales used in the survey for this study. The true reliabilities of the scales approximate or exceed the alpha reliability which is a lower

bound estimate of the true reliability. Table 33 shows that in all cases the reliability is acceptable, ranging from .59 to .86.

Table 33

Alpha Reliability Co-efficients for the Constructs

Measurement Model	Mean	Standard Deviation	N Items	Alpha Reliability
REFL	8.000	2.069	3	.719
QTL	0.076	1.126	3	.593
TROLE	34.705	3.367	10	.862
ALIEN	18.273	4.328	9	.828
STAT	18.560	2.443	6	.844
SATIS	23.273	2.682	7	.841
IMPL	14.048	3.175	6	.807
MANAG	12.070	2.823	5	.677

The analysis of the instrument is now complete and the variables constructed to the specifications of the researcher. An analysis of the data which the relationships between them have presented is in order. The strength or weakness of these relationships is presented in Chapter IV, which follows.

CHAPTER IV

Analysis of the Data

Introduction

The purpose of this chapter is to report the findings of the relationships specified by the theoretical model in Figure 2 which was modified by the exclusion of the two background factors, namely years of university training and years of teaching experience. The model is as follows:

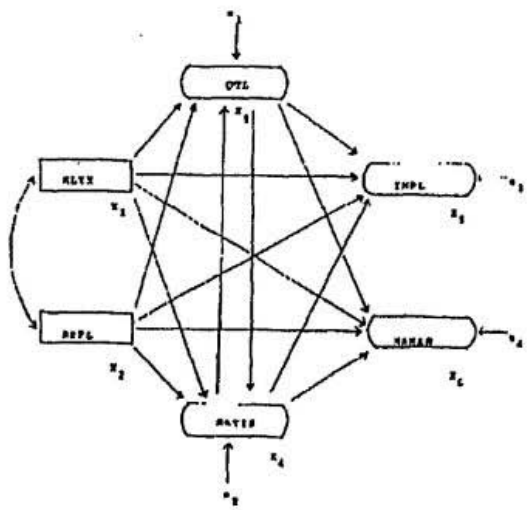


Figure 11. Respecified Theoretical Model: Whole Language Implementation and Management

The relationships indicated in Figure 11 are captured by the following structural equations:

$$x_3 = a_1 + b_{31}x_1 + b_{32}x_2 + e_1 \qquad (1)$$

$$x_4 = a_2 + b_{41}x_1 + b_{42}x_2 + e_2 \quad (2)$$

$$x_5 = a_3 + b_{51}x_1 + b_{52}x_2 + b_{53}x_3 + b_{54}x_4 + e_3 \quad (3)$$

$$x_6 = a_4 + b_{61}x_1 + b_{62}x_2 + b_{63}x_3 + b_{64}x_4 + e_4 \quad (4)$$

Initially the descriptive statistics for the variables are presented. Based on an earlier analysis and a lack of explanatory value in the model it was decided to drop the background factors of years of teacher training and years of teaching experience from the model. Years of teacher training did not correlate significantly with any of the other variables. Years of teaching experience correlated with only one variable, "management", with a correlation of -.160. The remainder of the findings will be addressed by dealing with each of the exogenous and intervening variables separately. First the findings dealing with QTL and its relationship to HLTH and REFL are reported, followed by the relationships of SATIS, IMPL and MANAG to HLTH and REFL, respectively. These findings will be followed by the findings of an indirect effects analysis. These findings will be followed by the direct least squares results for the hypothesized feedback model presented in Figure 12 and the equations which follow the model.

The relationships indicated in Figure 12 are captured by the following structural equations:

$$x_3 = a_1 + b_{31}x_1 + b_{32}x_2 + b_{34}x_4 + e_1 \quad (5)$$

$$x_4 = a_2 + b_{41}x_1 + b_{42}x_2 + b_{43}x_3 + e_2 \quad (6)$$

$$x_5 = a_3 + b_{51}x_1 + b_{52}x_2 + b_{53}x_3 + b_{54}x_4 + e_3 \quad (7)$$

$$x_6 = a_4 + b_{61}x_1 + b_{62}x_2 + b_{63}x_3 + b_{64}x_4 + e_4 \quad (8)$$

Equations (7) and (8) are identical to equations (3) and (4); hence, do not need to be re-estimated or interpreted at this point. The findings of equations (5) and (6) are followed by the findings of an indirect effects analysis. The chapter concludes with a summary of the findings.

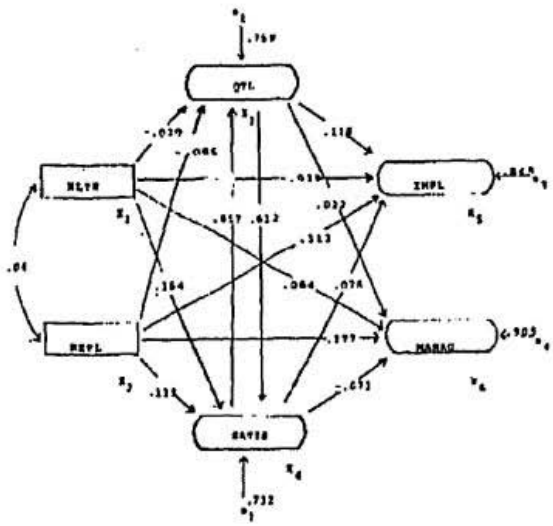


Figure 12. Feedback Model: Whole Language Implementation and Management

Descriptive Statistics

The descriptive statistics for each of the variables used

in the QTL model of Curriculum change are presented first. Although the descriptive statistics do not answer any of the questions in the study, they do give some insight into the nature of the variables studied. In addition to the means, standard deviations and the number of cases, the correlation matrix for the variables is presented in Table 34.

Table 34

Descriptive Statistics and Correlations Between the Variables of the QTL Model

Variable	HLTH	REFL	SATIS	QTL	IMPL	MANAG	X	S.D.	Cases
HLTH	1.000						.61	.49	147
REFL	.036	1.000					8.00	1.94	130
	(.332)								
SATIS	.260	.200	1.000				.04	.98	130
	(.001)	(.007)							
QTL	.150	.125	.651	1.000			.08	.94	103
	(.034)	(.066)	(.000)						
IMPL	.029	.424	.224	.222	1.000		14.05	2.93	125
	(.362)	(.000)	(.003)	(.003)					
MANAG	.065	.301	.066	.077	.381	1.000	12.07	2.64	129
	(.218)	(.000)	(.214)	(.176)	(.000)				

Note: The level of statistical significance (p) is presented in parentheses below each correlation coefficient.

Hypotheses Related to Quality of Teaching Life

1a. There will be a significant relationship between health levels and how teachers perceive the quality of their teaching lives, which will favor those reporting good health. (Reject)

3a. There will be a significant relationship between the degree of reflection and teachers' perceptions of the quality of their teaching lives. (Reject)

From the correlation coefficients presented in Table 34 and the beta coefficients shown in Table 35, there is an insignificant relationship between health levels and QTL. An insignificant positive relationship also exists between degree of reflective teaching and QTL. The relationship between teacher health and QTL, while in the direction predicted in hypotheses 1a., is insignificant with a correlation coefficient of 0.150 and a beta coefficient of 0.146. A correlation coefficient of 0.125 and a beta coefficient of 0.119 led to a rejection of hypotheses 3a., which indicated the relationship between reflective teaching and QTL.

Hypotheses Related to Job Satisfaction

1b. There will be a significant relationship between health levels and teachers' level of satisfaction with their career choice, which will favor those reporting good health. (Accept)

3b. There will be a significant relationship between the

degree of reflection and teachers' reported job satisfaction, favoring those considered to be reflective. (Accept)

Hypotheses 1b., with a correlation coefficient of 0.260 as indicated in Table 34, and a beta coefficient of 0.253 shown in Table 36, shows that the relationship between teacher health and job satisfaction with teaching is a highly significant one. Teachers reporting good health are more satisfied with their career choice than those reporting lower health levels. Teachers' degree of reflection does have a significant effect on the intervening variable SATIS with a correlation coefficient of 0.200 and a beta coefficient of 0.191 shown in Tables 34 and 36 respectively. Teachers who consider themselves to teach reflectively tend to have a higher degree of satisfaction with their choice of career.

Table 35

Regression Analysis Results for the Exogenous Variables on QTL

Independent Variables	QTL				
	B	SE B	Beta	t	p.
HLTH	.281	.157	.146	1.786	.076
REFL	.058	.040	.119	1.457	.147

Multiple R = .192

R^2 = .037

Table 36

Regression Analysis Results for the Exogenous Variables on SATIS

Independent Variables	SATIS B	SE B	Beta	t	p.
HLTH	.506	.158	.253	3.206	.002
REFL	.096	.040	.191	2.424	.017

Multiple R = .323

R^2 = .104

Hypotheses Related to Implementation

1c. There will be a significant relationship between health levels and teachers' perceptions of the effectiveness of the implementation process, which will favor those reporting good health. (Reject)

3c. There will be a significant relationship between the degree of reflection and teachers' perceptions of the implementation process, favoring those considered to be reflective. (Accept)

4a. There will be a significant positive relationship between teachers' perceptions of the quality of their teaching lives and their perceptions of the implementation process.

(Reject)

5a. There will be a significant positive relationship between reported job satisfaction and teachers' perceptions of the implementation process. (Reject)

The relationship predicted in hypotheses 1c. is in the wrong direction and also insignificant with a correlation coefficient of 0.029 and a beta coefficient of -0.021, as indicated in Tables 34 and 37. These findings led to a rejection of the stated hypotheses. Those reporting good health were less satisfied with the implementation process. A positive significant relationship, indicated by a correlation coefficient of 0.424 and a beta coefficient of 0.396, exists between degree of reflection and perceptions of the implementation process. These findings, shown in Tables 34 and 37, led to an acceptance of hypotheses 3c. The strength of this relationship indicates that teachers' degree of reflective teaching strongly influences their attitude towards the implementation of the new curriculum. According to Tables 34 and 37, the findings do not support either of hypotheses 4a. or 5a. Although the directions of the relationships were found as hypothesized, they were insignificant. These findings indicate that there is not a great difference in how teachers reporting low quality teaching lives and high quality teaching lives perceive the implementation process. The same perceptions are prevalent for teachers reporting low or high satisfaction levels.

Table 37

Regression Analysis Results of the Effects of the Independent Variables on Management and Implementation

Independent Variables	Management B	SE B	Beta	t	p.
HLTH	.311	.447	.058	0.696	.488
REFL	.410	.111	.302	3.702	.000*
QTL	.181	.295	.065	0.614	.540
SATIS	-.139	.295	-.051	-0.472	.638

Multiple R = .310
R^2 = .096

Independent Variables	Implementation B	SE B	Beta	t	p.
HLTH	-.128	.462	-.021	-0.277	.782
REFL	.596	.114	.396	5.202	.000*
QTL	.422	.305	.136	1.380	.170
SATIS	.184	.305	.062	.605	.546

Multiple R = .459
R^2 = .211

*t-values ≥ 2.0 are significant at the p ≤ .05 level

Hypotheses Related to Management Aspects

1d. There will be a significant relationship between health levels and teachers' perceptions of the management aspects of the innovation, which will favor those reporting good health. (Reject)

3d. There will be a significant relationship between the degree of reflection and teachers' perception of the management aspects of the innovation, which will favor those considered to be reflective. (Accept)

4b. There will be a significant positive relationship between teachers' perceptions of the quality of their teaching lives and their perceptions of the management aspects of the innovation. (Reject)

5b. There will be a significant positive relationship between reported job satisfaction and teachers' perceptions of the management aspects of the innovation. (Reject)

The findings presented in Tables 34 and 37 led to a rejection of hypotheses 1d., 4b., and 5b. Hypotheses 3d. was accepted based on these findings. Even though the relationship between teacher health and teacher perception of the management aspects of the innovation were found to be in the right direction, the relationship is insignificant. Teachers reporting good health did not perceive the management aspects more favorably than those reporting lower health levels. Teachers' degree of reflection strongly influences their perceptions of the management aspects as indicated in a

correlation coefficient of 0.301 and a beta coefficient of 0.302. Teachers who are considered to be reflective showed a more positive attitude towards the management aspects of the new curriculum. There is not a great difference in how teachers with low quality teaching lives and high quality teaching lives perceive the management aspects. There was an insignificant negative relationship between job satisfaction and the management aspects of the innovation indicating that the more satisfied teacher was less pleased with the way in which the management aspects were handled.

In the regression analysis the direct effect of the exogenous variables and the intervening variables are presented, as are the indirect effects and t-scores indicating the significance of the indirect effects. The t-scores can be estimated using the classical method. Bollen and Stein (1990) show that in moderately large samples the distribution of an estimator is close to that assumed by the classical method. The t-scores are calculated using the following formula:

$$t = TE\frac{\sqrt{N-2}}{1-TE^2}$$

where TE equal the total effect of the relationship between two variables and N equals the number of cases.

The indirect effects of teacher health on implementation, calculated through the intervening variables QTL and SATIS were not significant. The indirect effects of teacher health

on management aspects were also insignificant, with a t-value of .664 and a total effect coefficient of .055.

The indirect effects of reflective teaching on implementation substantiate the earlier direct effect with a t-value of 6.225. Reflective teachers perceive the implementation process more positively. The indirect effects of reflective teaching on management aspects, indicate a strong positive relationship with a t-value of 3.970 and a total effect coefficient of .300.

According to the correlation coefficients in Table 34 and the regression analysis results in Tables 39 and 40, which address equations (5) and (6) of the direct least squares measurement model in Figure 12, the rejection of hypotheses 1a. and 3a. is further substantiated. The t-scores below 2 indicate an insignificant relationship. The relationships between the independent variables, HLTH and REFL, and SATIS are significant with t-scores of 2.643 and 1.919 respectively. However, the most powerful predictor of teacher satisfaction is the perception of the quality of teaching life and vice versa. The direct effects of the two variables on each other are strongly significant with a t-score of 9.807.

Table 38

Correlations, Direct Effects (beta), Indirect Effects, Total Effects and T-Values for the Effects of the Independent Variables on the Outcome Variables

Outcome Variables	Independent Variables	Correlation (r)	Direct Effect	Indirect Effect	Total Effect	T-Value*
Implementation						
	HLTH	.029	-.021	.036	.015	.176
	REFL	.424	.396	.028	.424	6.225
	QTL	.222	.136	-	.136	-
	SATIS	.224	.062	-	.062	-
Management						
	HLTH	.065	.058	-.003	.055	.664
	REFL	.301	.302	-.002	.300	3.970
	QTL	.077	.065	-	.065	-
	SATIS	.066	-.051	-	-.051	-

*t-value $\geq$ 2.0 is significant at the $p \leq .05$ level. The t-value is for the indirect effects only.

The indirect effects and total effects in Table 41 are effectively complementary to those of the former nonrecursive

model presented in Table 38. HLTH does not have significant indirect effects on either of the outcome variables. REFL does not have significant indirect effects either, but its total effects on both IMPL and MANAG are significant with t-scores of 6.249 and 3.970 respectively. The relationship between the intervening variables, QTL and SATIS, remains the strongest.

Table 39

Regression Analysis Results of the Effects of the Latent Variables on QTL

Latent Variables	QTL				
	B	SE B	Beta	t	p.
HLTH	-.039	.126	-.020	-.307	.759
REFL	-3.167	.031	-.006	-.101	.920
SATIS	.632	.064	.657	9.807	.000

Multiple R = .641

R^2 = .424

Table 40

Regression Analysis Results of the Effects of the Latent Variables on SATIS

Latent Variables	SATIS				
	B	SE B	Beta	t	p.
HLTH	.327	.124	.164	2.643	.009
REFL	.060	.031	.118	1.919	.057
QTL	.636	.065	.612	9.807	.000

Multiple R = .681

R^2 = .464

Table 41

Correlations, Direct Effects (beta), Indirect Effects, Total Effects and T-Values for the Effects of the Exogenous Variables on the Outcome Variables

Outcome Variables	Indep. Variables	Correlation (r)	Direct Effect	Indirect Effect	Total Effect	T-Value*
IMPL						
	HLTH	.029	-.021	.021	.000	.000
	REFL	.424	.396	.029	.425	6.249
MANAG						
	HLTH	.065	.058	-.002	.056	.058
	REFL	.301	.302	-.002	.300	3.970

*t-value ≥ 2.0 is significant at the $p \leq .05$ level. The t-value is for the indirect effects only.

Summary of the Findings

Acceptance or rejection of the relationships specified in this study was based on the results of several types of analysis, from simple descriptive statistics to a regression analysis. All the relationships were tested by regression analysis and the results are presented in a path diagram shown

in Figure 12. The following relationships were shown to be statistically significant.

1. Both teacher health (t-score 3.206 and a significance of 0.002) and reflective teaching (t-score 2.424 and a significance level of 0.017) account for the satisfaction with the career choice of grade two teachers.

2. Teachers who are reflective were more satisfied with the implementation process used with the Nelson Networks program (t-score 4.093 and a significance level of 0.000).

3. Teachers who are reflective were satisfied with the management aspects of the whole language program (t-score 2.073 and a significance level of 0.040).

4. A t-score of 9.807 and a significance level of 0.000 indicated that teachers who perceived the quality of their teaching lives to be of high order had a greater sense of satisfaction with career choice and vice versa.

CHAPTER V

Summary and Conclusions

Introduction

The purpose of this chapter is to summarize the study and present the conclusions drawn from it. The theoretical and practical implication emanating from this study will be discussed as well. Finally, suggestions will be presented for further research in extending the current study.

Summary and Conclusions

The central issues to the whole language implementation and management model of the current study were how various factors affected teachers' perceptions of how well the whole language program was implemented in grade two and how the management aspects of the program were handled. Two broad questions are addressed in this study. First, how responsive is perception of the implementation process to the exogenous variables of teacher health, reflective teaching, quality of teaching life and satisfaction with career choice? Secondly, how responsive is perception of the management aspects of whole language to the exogenous variables of teacher health, reflective teaching, quality of teaching life and satisfaction with career choice?

The data for this study was taken from the Curriculum Change Survey Report, a project sponsored by the Division of

Evaluation and Research in cooperation with the Division of Curriculum and Instruction, Newfoundland Department of Education. The sample was taken from the population of grade two teachers in Newfoundland schools during the 1989-90 school year. A 72% return rate of surveys administered provided a relatively strong sampling of the opinions of grade two teachers in Newfoundland.

Regression analysis were conducted to examine the hypothesized relationships. Path analysis, using the results of the regression analysis was used to estimate the direct effects and indirect effects in the hypothesized relationships.

Summary of the Findings

The findings of the study are summarized below in three sections. The first section deals with the effects of teacher health, background factors and reflective teaching on teachers' perceptions of the quality of their teaching lives, teachers' perceptions of satisfaction with their career choice, teachers' perceptions of the implementation process and management aspects of the whole language curriculum and how they were handled during the implementation process. The second section deals with the intervening variables of quality of teaching life and satisfaction with career choice and their effects on perceptions of the implementation process and management aspects. The third section addresses the effects

of quality of teaching life and satisfaction with career choice and vice versa.

Effects of the exogenous and intervening variables on implementation and management.

Teachers reported health contributed significantly to satisfaction with career choice indicating that teachers in good health are more likely to be satisfied with their teaching careers. While the relationship between health and the other variables was a positive one the relationships were found to be statistically insignificant.

The background factors of teacher education and years of teaching experience were dropped from the final analysis. The relationships between the two background variables and the endogenous variables in the model were found to be insignificant by an earlier analysis.

Teachers who describe themselves as being reflective are continuously evaluating their performance in the educational process with the aim to improve performance and improve the quality of education for their students. The current study found that the relationship between teacher reflectiveness and quality of teaching life to be a positive one but an insignificant one. Analysis of the relationship indicates a strong relationship between the degree of reflectiveness and teachers' satisfaction with career choice. A similar positive significant relationship exists between this variable and

teachers' perceptions of the implementation process and the management aspects of the whole language program.

Effects of the intervening variables on implementation and management.

Quality of teaching life was found to be a poor predictor of teachers' perceptions of the implementation process or the management aspects of the program. Teachers with low quality teaching lives do not differ in their perceptions from teachers reporting high quality teaching lives. Satisfaction with career choice was non-supportive of the stated hypotheses. An insignificant negative relationship exists between satisfaction and the management aspects of whole language, indicating that teachers who were more satisfied with their career choice were less pleased with the management aspects and how they were handled during the implementation process.

Effects of the intervening variable on each other.

A direct least squares model indicated that the most powerful predictor of teachers' satisfaction with their career choice was how they perceive the quality of their teaching lives. The more positively teachers perceive the quality of their teaching lives the more satisfied they are with their career choice. Reciprocally, the more satisfied teachers are with their career choice the higher they rate the quality of their teaching lives.

Conclusions

On the basis of this study it was concluded that satisfaction with teaching career is dependent on both teacher health and reflective teaching. Those reporting good health were more satisfied, and those identified as reflective teachers were more satisfied. This latter relationship was probably a conservative one since the alpha reliability of the reflective teacher construct was satisfactory (r_{nn} = .719) but not as accurate as desirable. A more accurate measurement of the reflective teacher variable would have magnified its parameters on the outcome variables.

It was the reflective teacher construct which also accounted for most of the variance in the outcome variables. Thus, reflective teachers, as described in Chapter II, were the ones most satisfied with the way in which the new curriculum had been implemented and the manner in which the new curriculum had been resourced.

Teachers' perceptions of the quality of their teaching lives in the school is a good indicator of their satisfaction with their career choice and vice versa. Those who perceived the quality of their teaching lives to be of a high order were more satisfied with their career choice. Those who showed high levels of satisfaction with their teaching careers also perceived the quality of their teaching lives to be more positive.

Implementation of any new program is subject to evalu-

ation of not only the innovation but also the process by which it becomes accepted as feasible and practical. Factors influencing acceptance or rejection of the whole language curriculum in grade two classrooms have been the focus of the current study.

As stated earlier, reflective teachers were more receptive of change and more readily accepted the proposed curriculum. By their nature, which is described in the characteristics cited by Pollard and Tann (1987), the reflective teachers were able to recognize the dilemma facing them - accepting or rejecting a proposed new philosophy for the teaching and learning of reading and writing skills. They were able to evaluate their current and the proposed practices and find similarities between the two. They were also able to determine the unique qualities of the proposed innovation. In doing so they were able to evaluate the aims and consequences of the innovation in an open-minded and responsible manner.

It would seem logical to assume that the non-reflective teacher does not possess these qualities and would be more opposed to change. Hence, adaptation to the new methodologies or philosophy would be slow or non-existent.

The strong relationship between reflective teaching and satisfaction with career choice might be accounted for by the fact that such teachers are able to evaluate not only their curriculum but also the total work environment. They can affect change by examining the positive and negative compo-

their teaching lives positively or negatively were or were not reflective teachers.

Implications

The strong relationship which exists between teacher health and satisfaction with career choice should indicate to those negotiating working conditions for teachers, that they must strive for conditions which are neither too physically demanding nor mentally stressful on teachers. At a school level, parent support groups should prove helpful to decrease the physical demands of preparing new materials to support the whole language program and to assist in such aspects as the shared reading component. Consideration could also be given to developing system-wide resource banks for schools which are unable to acquire, individually, the resources required.

It was found that teachers demonstrating the qualities justifying the designation of "reflective teacher," as described in Chapter II, seem to be more flexible and adaptable when it comes to change. In so far as curriculum change and implementation is concerned, and in so far as the management and resourcing of curriculum change is concerned, the reflective teachers were more receptive of curriculum change. These are teachers who are constantly monitoring and evaluating their teaching; who are willing to go beyond the textbooks in pedagogy to find out what works for them; who recognize that many processes can be used to achieve the same valuable

nents of the work place and determining what they are personally and collectively able to do to improve the situation.

The strong relationship between reflective teaching, and then between satisfaction and quality of teaching life makes questionable the weak relationship between reflective teaching and quality of teaching life. This discrepancy leads the investigator to call for further study of the relationship.

While the relationship between teacher health and implementation was statistically insignificant, there was a positive relationship. Teachers who were in good health were more positive about their teaching lives and the implementation of the innovation. That being true, it is fair to assume that those in poor health are not as readily accepting of change and are more negative about their professional lives and new programs. Attempts to bring about change in a school system which has a large number of teachers reporting ill health would conceivably meet with little success.

Teachers who are reflective do not necessarily perceive the quality of their teaching lives to be in high order and vice versa. While the relationship between these two variables was a positive one, it was statistically insignificant. This is not to say that all reflective teachers do or do not perceive the quality of their teaching lives to be positive or negative. It cannot be assumed that because quality of teaching life was a poor indicator of teachers' perceptions of the implementation process that those who see the quality of

ends; that there is not one best way to teach but, rather, many ways of equal validity; and who use formative approaches to evaluation rather than summative. The practical implications of these findings regarding reflective teaching for faculties of education and for school administrative structures are quite profound. Curriculum methodology has to move away from the teaching tips and methodological gimmicks approach to one which emphasizes the role of teaching as a professional role. This role is one of self-discovery, self-assessment, identity formation, and one in which it is recognized that building up relationships of mutual trust, respect, and confidence between the students and teacher is central to the whole enterprise. Teachers in training should be required to complete courses in reflective thinking as it pertains to improving their teaching methods and their attempts to improve the education of students in their charge.

The reflective teacher is not likely to take kindly to authoritarian, hard-nosed, administrative leadership. Instead they are more likely to respond positively to collegial structures, to structures in which teachers can play significant roles in a school management team. In short, bureaucratic administration is out and a human relations orientation to teaching is in.

Based on the relationship between the reflective teacher and implementation and management, teachers who are reflective should prove an asset in piloting new programs and inservicing

other teachers. Schools having teachers who are considered reflective might prove to be the best schools to pilot new programs, particularly programs based on new philosophy.

Since satisfaction with career choice related negatively with the management aspects of the new curriculum, efforts could be made to determine whether the relationship is due to teachers being comfortable with what they are currently doing in classrooms and schools or if they are unwilling to take on the extra workload which accompanies the new program. If the latter is the case then efforts must be made to give teachers assistance in acquiring and managing the extra resources required for such a change.

Since quality of teaching life and satisfaction with career choices are so strongly related, efforts should be made to determine the aspects of each domain which negatively affect the other. Efforts should then be extended into improving these aspects. These efforts might include changes within the system structure which could comprise of buddie systems, aware systems, personal and professional development days included in the school year and recognition of special efforts being made by teachers.

Based on the preceding relationships, an investigation should be put in place to determine areas of the province where the process of implementation was perceived to be most positive. Those responsible for the implementation process in these areas could be utilized as resource people in assisting

those areas where the process was perceived more negatively, especially if the negative attitude was legitimately caused by non-support of district and school personnel.

Recommendations for Further Research

Several areas of this study indicate a need for further research. These studies are of two types: (a) verification studies; and (b) model extensions and respecifications.

Verification studies.

1. To further test the findings of the present study, a similar study could be done with grade three teachers who have been introduced to the Networks program.

2. A study should be done to determine whether the actual grade two language arts program in Newfoundland schools is the intended program of the Department of Education.

Model extensions and respecifications.

1. The indicators of the QTL domain are in need of improvement before being used in further research.

2. Once the domains of QTL have been improved, a study of the effects of QTL on other components of the teaching profession would be in order.

3. A study of the impact of satisfaction with career choice on other components of the teaching profession might prove beneficial to improving the profession.

4. The reflective teacher domain needs refinement and improvement through the process of testing of other indicators and increasing the reliability of the domain.

5. A limitation of the current study was the fact that teachers had to identify themselves on the survey. An anonymous study in which teachers did not have to identify themselves may prove beneficial for comparison purposes.

6. After grade two teachers have had access to Experiencing Language a study could be done to determine whether teaching practices meet the objectives of the guide.

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APPENDIX A

Central Points of Whole Language

Central Points Recognized by the Whole Language Philosophy

1. All language processes interact.

2. Language is for making meaning.

3. Language is functional; therefore, it is important that classroom environments provide meaningful purposes for language use.

4. Skills are learned in context.

5. To understand print, children use three different kinds of information:

   (a) background experience, context clues (semantic cues)

   (b) knowledge of how language works: word order, sentence structure, etc. (syntactic cues)

   (c) knowledge of print symbols, picture clues, configuration clues, etc. (grapho-phonemic cues)

These cues are used simultaneously as the child reads and writes.

6. Children need quality language models.

7. How the process of language is important as well as the product.

8. Children need to experience the joy of sharing in stimulating and challenging language classroom environments that make whole language come to life.

APPENDIX B

Correspondence to NTA

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF EDUCATION

P. O. BOX 4750
ST. JOHN'S, NFLD.
A1C 5T7
FAX #576-5896

March 05, 1990.

Mr. Wayne Russell,
Executive Director,
Newfoundland Teachers' Association,
3 Kenmount Road,
St. John's, Newfoundland,
A1B 1W1

Dear Mr. Russell:

Your letter of January 8, 1990, to Dr. Wayne Oakley, arrived on my desk three weeks later. I am replying in my capacity as Channing Fellow - an independent researcher located in the Division of Evaluation and Research, Department of Education. The Department of Education may or may not endorse the views expressed in the attached reply to your inquiry; hence, cannot be accountable for them.

As director of the curriculum change project I assume full responsibility for its conception, inplementation and the eventual dissemination of the research findings. I welcome this opportunity to address your thoughtful concerns. Because you address some seven issues in your letter to Dr. Oakley, my reply will have to be lengthy. Rather than answer in letter form, therefore, I have replied to your questions in Addendum #1 to this letter.

Before the project was implemented, the research had the approval in principle of the Department of Education. It was the third of four projects that I proposed to undertake while holding the Channing Fellowship. All Assistant Superintendents (Curriculum) and all primary/language arts coordinators in the province were informed about the project in advance. They were forwarded a copy of the questionnaire and their cooperation in conducting the study was solicited. It did not occur to me to consult the N.T.A., an oversight that in retrospect I regret.

I trust that you find my reply to your questions satisfactory and that your organization will continue to support educational research designed both to improve the quality of education and to promote improved equality of educational opportunity in the province.

Kindest regards.

Yours sincerely,

Jeffrey W. Bulcock,
Channing Fellow.

JB:ark.
Enclosures (4),
cc. Dr. Wayne Oakley,
Dr. Lenora Perry Fagan.

ADDENDUM # 1

A Reply to the Concerns of the Newfoundland Teachers' Association Regarding the Grade Two Curriculum Change Research Project by Jeffrey W. Bulcock, Project Director.

In a letter dated January 08, 1990, Mr. Wayne Russell, Executive Director, Newfoundland Teachers' Association, requested information on seven matters related to the grade two curriculum change project. Mr. Russell's letter is appended as Addendum #2. The purpose of Addendum #1 is to reply to each concern.

Concern #1: The Purposes of the Curriculum Change Project

The project falls under the general heading of curriculum development research. In particular, it addresses the topic of developmental (or change) strategies in a system where curriculum development is externally based, but where curriculum control is assumed to be a shared responsibility. A description of the specific research purposes follows.

A. Descriptive Issues

(i) Are teachers' assessments of the ways in which the Nelson Networks language arts program was implemented by schools and school boards favourable (ie., positive)? Questionnaire items related to this issue are: #4, 10, 16, 22, 28, 34, and 42.

(ii) How highly motivated are the grade two teachers to teach the language arts using a whole language approach (as opposed to the more traditional basal reader/basic skills orientation)? The questionnaire items related to this concern are: #3, 9, 15, 21, 27, 33, and 41.

(iii) How do teachers rate the management aspects of whole language implementation; for example, class size, time available, materials and supplies? See questionnaire items #6, 12, 18, 24, 30, 36, and 44.

(iv) At the end of the first year of teaching using the Nelson Networks program how satisfied are the teachers, and how do teachers' perceptions of the program compare to their motivation to use a whole language approach at the beginning of the year? Note that this issue will be addressed in the follow-up survey, May 1990. A copy of this second survey instrument can be forwarded on request. Note that the first survey instrument is included here as Addendum #3.

(v) By the end of the 1989-90 school year to what extent do grade two teachers believe that they have met the whole language curriculum objectives? This issue will be addressed in the follow-up questionnaire to be administered in May 1990.

(vi) At the end of the school year teachers will also be asked to evaluate the whole language program in terms of how well their students responded to the new program compared to the old program. Like the issues identified in A. (i), (ii),and (iii), this issue, and issues (iv) and (v), will be based on response to a set of seven questionnaire items

B. Analytic Issues

(vii) There is a good deal of interest in the development of rationality or the ability to think and reason in a critical fashion (Bowen, 1980; Brabeck, 1980); thus, instruments have been designed to measure these abilities (Watson and Glaser, 1964; Ennis and Millman, 1971; Norris and Ennis, 1989). Steve Norris, a St. John's native, is probably the foremost Canadian scholar working in this tradition. Norris, however, is interested largely in the development of critical thinking in school children (Norris, 1986, 1987, 1990a, 1990b, 1990c; Norris and Phillips 1987; Phillips and Norris, 1987). The development of critical thinking in teachers is sometimes referred to in the literature as reflective teaching. See Cruickshank et al. (1981). Efforts have been made to promote reflective teaching in teacher education programs (though not formally at MUN). The notion is that those teachers who reflect critically on their experiences will generate hypotheses about which aspects of their teaching best promote student learning and student satisfaction. In other words, reflective teaching focuses on the effects of teaching rather than the practice of teaching. It stresses the formative assessment of teaching performance and the importance for teachers of exploring for themselves the many ways in which their teaching can be successful.

In the present study we are interested in constructing a reflective teaching scale with desirable psychometric properties. For this aspect of the project to be successful we would prefer the scale to have an alpha reliability greater than 0.75. (This aspect of the study is exploratory, in that construction of a teacher based reflective teaching scale has not been undertaken before.) The reflective teaching items are: #5, 11, 17, 23, 29, 35, 43, and 45. Note that there are eight items (rather that the seven items for the constructs referred to above under "Descriptive Issues"). This is because some of the items may not scale, in which case they will be dropped. By increasing the number of potential items without unduly lengthening the questionnaire we are protecting ourselves against the possibility of coming up with a weak scale.

Ms. Ruth Dawe, Vice-Principal, McDonald Drive Elementary School, is currently completing her doctorate in educational administration at OISE University of Toronto, in the area of reflective teaching. As a consultant on this project she has been instrumental in helping with the construction of a reflective teaching scale. Ms. Dawe is not using the survey data for dissertation purposes.

(viii) In addition to constructing a reflective teaching scale, an effort will be made to test the validity of reflective teaching theory. One would expect on the basis of the theory that the reflective teacher would be a successful teacher; hence, a teacher who would be highly motivated to teach; committed to teaching and the teaching profession, and, in general, one who would rate the quality of his or her teaching life highly. To test this proposition a quality of teaching life (QTL) construct is required. Measures of environmental quality, which is effectively what a QTL variable consists of, are not easy to construct. Because the measurement problem is complex it is not discussed here in detail. (See footnote 1). Suffice it to say that instead of measuring the objective features of the teacher's work environment we measure the teacher's experiences of the work environment in terms of their motivation to teach, their commitment to teaching, their identification with the school, and their organizational status. Actually, we measure the obverse of motivation; namely alienation. The quality of teaching life is a four dimensional construct which reflects the teacher's perception of these four indicators. Each indicator, alienation, commitment, identity and status is itself a construct; and each has seven indicators. Thus QTL is what is called a second order composite. Questionnaire items 2, 8, 14, 20, 26, 32, and 40 are designed as the indicators of alienation. The commitment indicators are items 1, 7, 13, 19, 25, 31, and 37. Identification is captured by items 49, 53, 57, 61, 65, 69, and 73; and status by items 48, 52, 56, 60, 64, 68, and 72.

Given the successful construction of a variable which reflects accurately the teachers' perceptions of the quality of their teaching lives; and given that the reflective teaching construct was also accurately measured (in the sense of consistency or reliability), it becomes possible to estimate the responsiveness of QTL to reflective teaching. If the theory is correct the reflective teaching/QTL relationship should be highly significant. If it is, it would make sense to disaggregate QTL into its separate dimensions to see to what extent reflective teaching accounted for motivation (the adverse of alienation), commitment, identify and status.

(ix) The "QTL Model" is outlined in Figure 1. It shows the relationships between the constructs discussed above under the headings of descriptive and analytic issues. It also adds a set of variables, which are not identified in detail, called background factors. They may be seen as a vector of covariates. In addition, a health variable based on the worker socialization literature which posits a stress component to worker behaviour is included in the model.

FIGURE 1 HERE

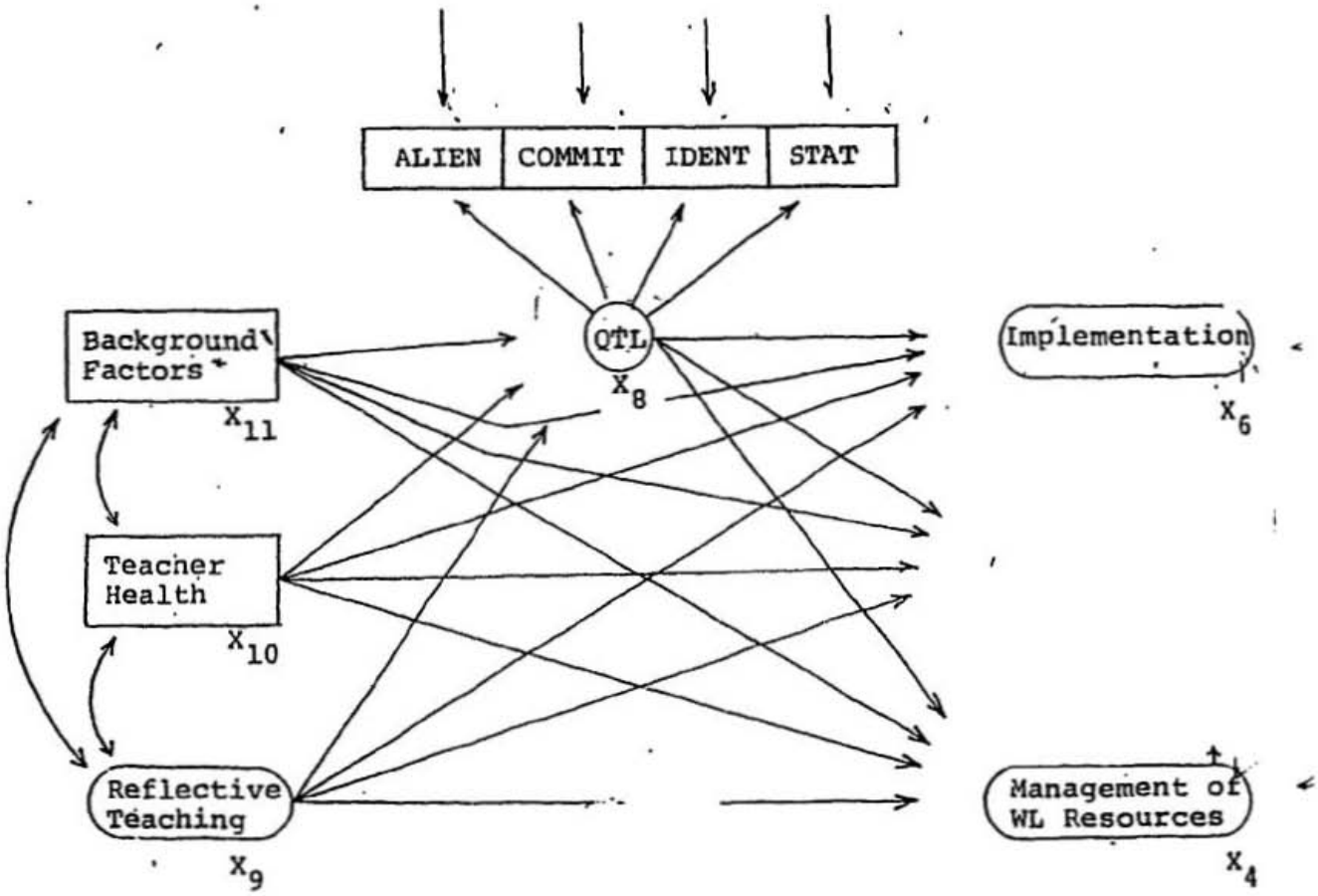

FIGURE 1. QTL Model of Curriculum Change*

* Background factors (as covariates) include: age, sex, teaching experience, social status, qualifications, and number of specialized language arts/reading courses.

Note that observed variables are placed in rectangles and latent variables (linear composites) in circles.

The logic of the stress model of worker behaviour is referred to in footnote 1.

The groups to the left of the Figure (ie., X_9, X_{10}, X_{11}) are treated as exogenous variables and seen as influences of all the model components lying to the right of them. All other structural elements are endogenous variables whose variation is explained within the model. These variable groups are influenced by all others to the left of them.

The following structural equations describe the model:-

$$X_8 = b_{8,11} X_{11} + b_{8,10} X_{10} + b_{89} X_9 + e_1 \quad (1)$$

$$X_6 = b_{6,11} X_{11} + b_{6,10} X_{10} + b_{69} X_9 + b_{68} X_8 + e_2 \quad (2)$$

$$X_5 = b_{5,11} X_{11} + b_{5,10} X_{10} + b_{59} X_9 + b_{58} X_8 + e_3 \quad (3)$$

$$X_4 = b_{4,11} X_{11} + b_{4,10} X_{10} + b_{49} X_9 + b_{48} X_8 + e_4 \quad (4)$$

What this means is that we can postulate:

a. Three sets of exogenous variables identified as background factors, teacher health, and reflective teaching, which influence (b);

b. A measure of the teacher's perceptions of the quality of their teaching environment; which, in turn influences (c); and

c. Three measures of teachers' perceptions of the way in which the new curriculum was implemented, their motivation to teach the new curriculum, and their assessment of how the resources required to implement the new curriculum were arranged; all of which are conditioned by all the influences noted in (a) and (b) above.

(x) Equations (1) through (4) are what might be referred to as the basic equations. It is intended to extend the model in two ways. First, it is hypothesized that the variables depicted as X_4, X_5, and X_6 will be influenced by a second intervening variable called career satisfaction X_7 (not depicted in Figure 1) which will be reciprocally related to QTL. In other words X_9 through X_{11} constitute common causes of X_7 and X_8 which feedback on each other. Without going into detail suffice it to say that the inclusion of career satisfaction calls for the estimation of an additional 5 equations of which two will be nonrecursive. Second, as noted under A (iv), (v), and (vi), above, the end of year outcomes will include the teacher's orientation to the new programme at the end of the year (X3), a measure of whether the teacher

believes the objectives of whole language instruction were achieved (X2), and the teacher's perceptions of student responsiveness to the new curriculum (X_7). Inclusion of these outcome variables to the basic model would call for the estimation of three additional equations. In total some 11 equations will be estimated before we can judge whether the QTL theory of curriculum change is supported. It is unlikely that any equation will have more than ten predictors. Thus, if the response rate to the survey is high there should not be undue sampling fluctuation due to the low ratio of predictors to cases.

Concern #2: Why are so many questionnaire items related to how teachers view themselves?

As explained in B (viii) the research is designed to measure a construct called quality of teaching life (QTL). QTL is a second order construct which has four dimensions -- alienation, commitment, identification, and status. And each dimension is composed of seven indicators. Each of these (4 x 7 = 28) indicators is concerned with how teachers view themselves. It was noted in passing in B (x) that the implementation, motivation, management outcomes (X_4 through X_6 in Figure 1) would be influenced not only by QTL and the three exogenous variables, but also by overall teacher well-being (X_7). Like QTL the well being variable is a second-order construct.

As the literature points out, the absence of positive work situations, is not equivalent to the presence of positive work situations. In fact, the research literature (Herzberg, 1976) shows that workers can be high (or low) on both poles at the same time. This kind of disequilibrium can be built into the model through the measurement of a bipolar second-order composite called well-being. The first dimension may be referred to as career satisfaction (positive affect), and the second as career dissatisfaction (negative affect). Items 46, 50, 54, 58, 62, 66, and 70 measure positive affect and items 47, 51, 55, 59, 63, 67, and 71 measure negative effect. Again, these are questions regarding how teachers view themselves. In total, then, there are (28 + 14) or some 42 items which may be regarded as related to teachers' perceptions of themselves. We would regard these items as necessary if we wish to construct scales with desirable psychometric properties. And as we have pointed out under Concern # 1 measurement models (scales) are called for by the theory underlying the career change
project.

Concern #3: What use will the Department make of the data?

This writer has no idea how the Department of Education will use the information to be reported by the investigators of this project. While the Department is assisting with the data gathering the data file is the property of the writer. The Department of Education's policy governing data confidentiality is presented at Addendum #4. The data records will be turned over to other bone fide authorities or researchers (e.g. the NTA, the Department of Education, MUN graduate students in education, etc.) only after safeguards are in place to protect the anonymity of the respondents and the respondents' schools.

This writer's experience has been that few educational authorities are interested in

system (the teaching profession) is responsive to the changes occurring in society.

Suppose for the sake of argument that the two theories are found to be sound explanations of teacher responses to change processes. In the case of theory number one presumably faculties of education would begin to take the literature on reflective teaching seriously and organize instruction in student teaching and curriculum and instruction divisions accordingly. It is fair to say that currently the theory is ignored at Memorial University. In the case of theory two one would presume that it would be in the best interests of society to have a teaching profession which is adaptable to worth while change; that is, changes for the better. If the model specified above proved accurate, then to promote positive response to change one would have to involve the support of teachers' professional associations. How else would one enhance the motivation of teachers (reduce alienation), boost commitments to teaching and the teaching profession, strengthen identity of the organization (one's school and one's colleagues), and promote the professional status of teachers? These are among the goals of the teaching profession. The proposed research would complement these goals.

A side effect of the research would be an examination of the impact of health considerations on teacher well-being and the quality of the teaching environment; and identification of the effects of reflective teaching and environmental quality on teacher well-being. Again, one presumes that these matters are of some relevance to organizations such at the NTA.

Concern #7: Should the co-operation of teachers be obtained?

The route taken to obtain teacher co-operation was through informing all assistant superintendents (curriculum) and all primary/language arts co-ordinators at the Board level. Their active co-operation was solicited. We do not believe that this was a mistake. Our mistake was in not informing the NTA (in addition to Board personnel) of our plans. Addendum #1 is a belated attempt to do this. What about the informed consent of teachers? This is difficult (and expensive) to do. Ideally, teacher co-operation through informed consent should be obtained regardless of the expense of doing so. An obstacle in obtaining the informed consent of the grade two teachers in the present study was the fact that the Department does not have information on the grades that teachers teach. Hence, we had to sample schools, not individuals.

Footnote #1. This footnote explains the controversy in the literature over the problem of measuring environment quality. In the present study this is called "the quality of teaching life". Research on environmental quality may be traced back to the nineteenth century studies dealing with the organization of production. Most of these studies by Marx, Torqueville, Weber, Durkheim, Simmel, and Toennies dealt at length with the alienation/anomie/depersonalization/estrangement/helplessness theme. For a review of work in this tradition see Nisbett (1966). Currently, studies of the organization of production (especially in the professions) are showing that individual responses to work settings are neither situationally determined, nor purposively rational. There is growing

the secondary analysis of data; hence, it is unlikely that bodies such as the Department of Education (or the NTA) will make direct use of the data. On the other hand, it can be anticipated that the Division of Instruction, here, will be interested in the descriptive analyses discussed under "Descriptive Issues" A (i), (ii), (iii), (iv), (v), and (vi) above. Hopefully, both the NTA and the Faculty of Education will be interested in the reports stemming from the project. The data analyst on the project, Mr. Simeon Priddle, an NTA member, and teacher at the all grade school, Cartyville, will be using the data for his Master's thesis in the Department of Curriculum and Instruction, Faculty of Education, MUN.

Concern #4: What kind of teacher profile will be completed by the Department utilizing this data?

If the Department of Education expresses an interest in using the curriculum change data it will not be available in a form which will enable anyone to construct a teacher profile. As explained in Concern #4 and as will be noted from Addendum #4 the raw data set will not contain personal identifiers such as names or SIN numbers.

Concern #5: Why do teachers have to identify themselves on the questionnaire?

The curriculum change project requires a longitudinal design. Data is gathered at time one (early in the school year in this instance) and at time two (toward the end of the school year). In fact, there have been delays in sending out questionnaires largely because we had to satisfy the Department on virtually the same questions being asked by the NTA. The delay took two months out of the schedule.

We tried to use SIN numbers for ID purposes. If we had we would have been able to contact the sample respondents directly instead of going through school principals. We were unable to do this. Neither could we obtain the names of the grade 2 teachers in the schools because each year there is a lot of grade switching. The task of identifying the grade that each teacher teaches each year is too demanding for Government given that such information is not often required.

The alternative was to ask teachers to provide us with their names so that we could contact them for questionnaire follow-up. This was the only alternative left to us. Given the policy governing questionnaire confidentiality in Addendum #4 it is hoped that teachers will have no fear on this score.

Concern #6: Is the study in the best interests of teachers?

As is apparent from the discussion of the research purposes in Concern #1, the project is designed to test two theories of curriculum change. One states that the reflective teacher will be more likely to respond positively to curriculum change than other teachers. The other claims that positive attitudes toward curriculum change depend largely on the structure of the organization and the way(s) it is experienced by workers. In fact, we believe the two theories are complementary. If the findings verify the theory presumably the study will be replicated by others at other levels of the system until a sufficient body of research exists to justify efforts to promote conditions for ensuring that the educational

evidence that work environments and worker behaviour are reciprocally related (i.e., feedback on each other) and have a set of common causes. See Fine (1984), Hedberg 1981) Pfeffer (1985), and Stryker and Stathran (1985).

In school effectiveness studies, for example, student responses to the objective features of the school and/or classroom have been estimated but seldom are the reliabilities of the school climate/school environment variables reported. They are not reported for the reason that when they are estimated (mostly they are not) the reliability coefficients are so low that to all intents and purposes the effort to measure them accurately has failed. This research both on school environment factors and work place factors has focused on trying to find the quick fix for classroom or work place effects. What the research shows is that there is no Holy Grail. Adding science labs to small rural schools will not make much difference in terms of science achievement. Even finding highly qualified teachers and stuffing the labs full of expensive chemicals will not help very much. Ask the science teacher at Sops Arm. The same holds for worker environments in industry. If a quick financial fix were available it would have been found a century ago. Then, why are we still looking?

If workers' responses to their work settings are not situationally determined then what does account for the variance in response from worker to worker (teacher to teacher)? the research suggests that it is not so much the objective features of the production processes themselves which are important; rather, it is the manner in which workers (teachers) experience these structures. Worker responses are manifest as motivation, commitments, identification with the organization and perceptions of their organizational statuses. In other words, workers perceptions are what count. The argument is grounded in the notion that perception covers a sequential set of events from sensory input to the phenomenological experiencing of it. Further, the experiences may be physical and neurological as well as cognitive and effective. For literature on the psychology of perception see Vernon (1966) and for work on the theory of perception see Gregory (1973).

In response to these notions about how workers experience their work environment a good deal of literature on worker socialization has been generated. The fundamental question being addressed in worker socialization research is: How do job conditions effect worker behaviour? Three theories should be considered. The first is social learning theory where work is viewed as a complex set of stimuli to which an organism responds. Social learning theories hold that behaviour is largely a response to the perceived consequences of it; and especially to its perceived instructional rewards and deprivations (Breer & Locke, 1965; Kohn & Schooler, 1983; Lott and Lott, 1985). The second theory known as expectancy theory is an expansion of the first. As developed by Lawler (1983) and Vroom (1964) the theory holds that it is the value placed on work experience which is important. Research in this tradition shows that the value placed on work experience is seldom learned on the job; rather it is based on a host of exogenous factors including childhood experiences and need orientations that have to be taken into consideration. Some of the best work in this tradition is reported by Kallenberg (1977). The third theory of worker socialization is a recent import from medical science, and may be referred to as stress (or coping) theory. Stress theory focuses on conflict, relative deprivation, the mismatch of worker attributes

with job demands (French et al., 1982; Pearlin and Schooler, 1978; Pearlin et al., 1981).

In the curriculum change project elements of all three worker socialization theories have been incorporated in to the model. These elements are not discussed here but will be presented at the International Sociological Association X11 World Congress in July 1990. The abstract of this research is attached in Addendum #5.

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APPENDIX C

The Instrument

CURRICULUM CHANGE SURVEY

About the Survey

A random sample of grade two classrooms was selected by computer as the units for participation in this study of curriculum change. Your classroom was one of 173 selected. The purpose of the survey is to evaluate the implementation of the new Networks program which was introduced this fall into all grade two classrooms. This is the first of two questionnaires which will be forwarded to you. The second will be sent to you in May after you have used the program for about 32 weeks.

Anonymity of Respondents and Schools

In order that your responses to the May questionnaire can be matched with those on this questionnaire you are asked to give your name, the name of your school and school board. Your anonymity will be safeguarded and your answers treated in the strictest of confidence. None of the reports or other publications stemming from the study will identify individual teachers or individual schools.

Feedback

Each participating school, each language arts co-ordinator and each assistant superintendent (programs) will receive a report about a year from now summarizing the findings and identifying the survey highlights. There is space on the questionnaire where you may indicate whether you would like a copy of the summary report forwarded to you, care of your school.

The Survey Researchers

The survey is conducted by the Division of Evaluation and Research with the cooperation of the Curriculum Section, Division of Instruction, Department of Education. The Principal Investigator is Professor Jeffrey Bulcock, 1989-90 Channing Fellow, Department of Education. The Research Analyst is Mr. Simeon Priddle, Vice-Principal, E.A. Butler All-Grade School, Cartyville. The Research Consultants are Ms. Delphine Brake, Education Consultant - Language Arts (K-6), Curriculum Division, Department of Education; Ms. Ruth Dawe, Vice-Principal, MacDonald Drive Elementary School, St. John's, and Dr. Mona Beebe, Department of Curriculum and Instruction, Memorial University.

Name: _____

School Name: _____

Telephone: _____

Board: _____

A. Teaching and the Curriculum

Please indicate your agreement or disagreement with each of the following statements. Circle your preferred response.

		Definitely Agree	Mostly Agree	Mostly Disagree	Definitely Disagree
1.	One of the best decisions I ever made was to become a teacher.	DA	MA	MD	DD
2.	Teaching is not a good way of getting ahead.	DA	MA	MD	DD
3.	I have been looking forward to using the Networks program.	DA	MA	MD	DD
4.	The way the Networks program was introduced in my Board was satisfactory.	DA	MA	MD	DD
5.	When I am teaching I find myself continuously thinking about what I am doing.	DA	MA	MD	DD
6.	My class is too large for effective whole language instruction.	DA	MA	MD	DD
7.	I have too little time to devote to my teaching preparation.	DA	MA	MD	DD
8.	Teaching is just a way of making money.	DA	MA	MD	DD
9.	I would like to continue using a whole language curriculum for many years.	DA	MA	MD	DD
10.	The administrators in my District voice strong support for the Networks program	DA	MA	MD	DD
11.	Unless I can see clearly the ways in which the new program is more effective than the old I am uncomfortable trying to implement it.	DA	MA	MD	DD

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	Definitely Agree	Mostly Agree	Mostly Disagree	Definitely Disagree
12. My supply of trade books is quite sufficient to implement the Networks program.	DA	MA	MD	DD
13. Hardly a day goes by without my striving to improve my teaching.	DA	MA	MD	DD
14. Most teachers eventually regret going into teaching.	DA	MA	MD	DD
15. Given a choice I would not have adopted the Networks program on my own.	DA	MA	MD	DD
16. The inservice programs I attended were successful in introducing me to the Networks program.	DA	MA	MD	DD
17. I find the new program so demanding I have little time or energy left for assessing how well I am teaching.	DA	MA	MD	DD
18. The whole language classroom is too noisy to be an effective learning environment.	DA	MA	MD	DD
19. If I inherited so much money I did not have to work I would still teach.	DA	MA	MD	DD
20. I would not recommend my own children go into teaching.	DA	MA	MD	DD
21. Using a whole language approach is one of the most satisfying aspects of my grade two teaching.	DA	MA	MD	DD
22. The parents of my grade two children were well informed about the new program.	DA	MA	MD	DD
23. I make time every day to think about what my students have been doing in the Networks program.	DA	MA	MD	DD
24. The language arts program provides adequate time for the completion of worthwhile learning experiences.	DA	MA	MD	DD
25. I would be lost if I could no longer be a teacher.	DA	MA	MD	DD

	Definitely Agree	Mostly Agree	Mostly Disagree	Definitely Disagree
26. Sooner or later most teachers become disillusioned with teaching.	DA	MA	MD	DD
27. I have been a supporter of the principles of whole language for several years.	DA	MA	MD	DD
28. I was well prepared for implementing the new program.	DA	MA	MD	DD
29. In my school teachers get together regularly to discuss implementing the new program.	DA	MA	MD	DD
30. Whole language is too dependent on the availability of resource materials.	DA	MA	MD	DD
31. There are few things I am more committed to than teaching.	DA	MA	MD	DD
32. If a reasonable opportunity arose I would leave the teaching profession.	DA	MA	MD	DD
33. I feel secure in my use of the Networks program.	DA	MA	MD	DD
34. It is difficult to find someone to talk to about implementing the whole language curriculum.	DA	MA	MD	DD
35. I have gone to some trouble to think through for myself the purposes of the Networks program.	DA	MA	MD	DD
36. It is difficult to find the time to handle all the resource materials called for by the new program.	DA	MA	MD	DD
37. I am always on the lookout for new teaching ideas.	DA	MA	MD	DD
38. It is difficult to see the substantial advantages of the new program over the proven benefits of the old program.	DA	MA	MD	DD
39. If curriculum change is warranted it is better to introduce it gradually rather than in "one fell swoop".	DA	MA	MD	DD

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	Definitely Agree	Mostly Agree	Mostly Disagree	Definitely Disagree
40. If I had known then what I know now I would never have entered teaching.	DA	MA	MD	DD
41. I am committed to a whole language philosophy.	DA	MA	MD	DD
42. I was given ample opportunity to familiarize myself with the Networks program before it was introduced.	DA	MA	MD	DD
43. I use my own discretion in order to decide which practices work best with my students.	DA	MA	MD	DD
44. I have sufficient materials and supplies in my classroom to be able to meet program objectives.	DA	MA	MD	DD
45. If a teaching method or strategy does not work with my students, I feel justified in dropping it.	DA	MA	MD	DD

B. Attitudes Toward Teaching

Assess each of the following statements by circling the response which best describes your experience. Each statement is preceded by the stem phrase "THE SCHOOL WHERE I TEACH IS A PLACE WHERE..."

The school where I teach is a place where...	Definitely Agree	Mostly Agree	Mostly disagree	Definitely Disagree
	DA	MA	MD	DD
46. I find great enjoyment.	DA	MA	MD	DD
47. I feel depressed.				
48. my colleagues look up to me.	DA	MA	MD	DD
49. I am popular with my colleagues.	DA	MA	MD	DD
50. I really like to go each day.	DA	MA	MD	DD
51. I feel restless.	DA	MA	MD	DD
52. my colleagues respect my ideas.	DA	MA	MD	DD
53. the skills I use are important to me.	DA	MA	MD	DD

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	Definitely Agree	Mostly Agree	Mostly disagree	Definitely Disagree
54. my work has a fun component.	DA	MA	MD	DD
55. I feel lonely.	DA	MA	MD	DD
56. I am treated with respect.	DA	MA	MD	DD
57. I am a success as a teacher.	DA	MA	MD	DD
58. the atmosphere is cheerful.	DA	MA	MD	DD
59. I get upset.	DA	MA	MD	DD
60. my colleagues think a lot of me.	DA	MA	MD	DD
61. I get along with students.	DA	MA	MD	DD
62. I feel I am successful.	DA	MA	MD	DD
63. generally speaking I am unhappy.	DA	MA	MD	DD
64. I can get along well with my colleagues.	DA	MA	MD	DD
65. I have learned to work hard.	DA	MA	MD	DD
66. I feel I belong.	DA	MA	MD	DD
67. the work I do makes me depressed.	DA	MA	MD	DD
68. my colleagues are among my best friends.	DA	MA	MD	DD
69. I have learned a lot about myself.	DA	MA	MD	DD
70. I find some of my greatest pleasure.	DA	MA	MD	DD
71. I am dissatisfied with the way problems are handled.	DA	MA	MD	DD
72. I am made to feel important.	DA	MA	MD	DD
73. I am secure about my worth as a teacher.	DA	MA	MD	DD

C. Personal Information

In this section we ask you for some factual information about your background and yourself. You should know that your answers are strictly confidential.

74. How many years have you been teaching? (Circle one.)

Less than two	1
two to five	2
six to ten	3
eleven to fifteen	4
greater than fifteen	5

75. What is your date of birth? Year 19 __ __

76. Would you say your health is: (Circle one.)

Excellent	1
Good	2
Fair	3
Poor	4

77./
78. What was the highest level of education your parents received? (Circle one for each parent.)

	Father	Mother
Elementary School	1	1
Some high school	2	2
Completed high school	3	3
Completed vocational school	4	4
Some university	5	5
Completed technical college/community college	6	6
Completed university with degree (BA, BSc, BEd, etc.)	7	7
Completed graduate level degree (Law, Medicine, Master's Degree, Ph.D., Etc.)	8	8

79. How many years (or full-time equivalent years) of university education do you have? (Circle one.)

Less than four	1
Four	2
Five	3
Six	4
Seven	5
Greater than seven	6

80. How many years experience do you have teaching at the primary grade level: Kindergarten to grade 3? (Circle one.)
(42)

Less than two	1
two to five	2
six to ten	3
eleven to fifteen	4
greater than fifteen	5

81. Most days I leave school: (Circle one.)

Early, before 4:00 p.m.	1
Late, after 4:00 p.m.	2

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Please indicate which of the following courses in the language arts you have taken for university credit (or their equivalent at universities other than Memorial University). Circle as many as necessary.

82.	Education 3305	Language arts in the primary grades	1
83.	Education 3315	Language arts in the elementary grades	2
84.	Education 3540	Reading in the primary grades	3
85.	Education 3545	Reading in the elementary grades	4
86.	Education 2060	Literature for children in the primary grades	5
87.	Education 2065	Literature for children in the elementary grades	6
88.	Education 3340	Literature for adolescents	7
89.	Education 3510	Current approaches to the teaching of reading in the primary grades	8
90.	Education 3520	Current approaches to the teaching of reading in the primary grades	9
91.	Education 3040	Corrective reading in the elementary school	10
92.	Education 3350	The teaching of reading in the secondary school	11
93.	Education 3530	The reading institute, 1	12
94.	Education 3531	The reading institute, 2	13
95.	Education 3532	The reading institute, 3	14
96.	Education 6000	The language arts curriculum in the primary and elementary school	15
97.	Education 6030	Literature for children and adolescents	16
98.	Education 6040	The foundations of reading	17
99.	Education 6070	Advanced course in remedial reading	18
100.	Education 6071	Clinical practicum in remedial reading	19
101.	Other (please specify) _____		20
102.	Other (please specify) _____		21

103. How much time do you spend on professional reading? (eg. professional books, magazines, and journals) (Circle one.)

More than most of my colleagues	1
About the same as my colleagues	2
Less than my colleagues	3
Virtually none	4

104. How much time do you spend on recreational reading? (eg. newspapers, general magazines, fiction, non-fiction) (Circle one.)

More than most of my colleagues	1
About the same as my colleagues	2
Less than my colleagues	3
Virtually none	4

105. Which of the following best describes your language arts program? (Circle one.)

Networks, language experience, children's literature and other resources	1
Networks, language experience, children's literature, plus selected elements from the old Nelson program	2
Networks, language experience and selected elements from the old Nelson program	3
Networks, children's literature and selected elements from the old Nelson program	4
Networks plus selected elements from the old Nelson program	5
Networks exclusively	6
Other cluster (please specify) _____	7

5. Classroom Environment: (time spent after regular school hours preparing an atmosphere conducive to whole language learning; eg. student work displays, posters, paintings).

6. Parental Support: (support for new program, knowledge and understanding of new program, parental concerns, etc.)

7. Program Strengths: (e.g. some advantages of the new program, etc.)

8. Other comments (e.g. Was change necessary?)

We thank you for your participation in the survey. In stage two of the survey toward the end of the school year we shall be evaluating your satisfaction with the Networks program and whether you believe that program objectives have been achieved. Please place this questionnaire in the return envelope provided and forward to: Curriculum Change Survey, Evaluation and Research Division, Department of Education, P. O. Box 8700, St. John's, NF A1B 4J6

APPENDIX D

Frequencies Analysis

```
get file='c:\spss\jeff\jeffccs.sys'.
The SPSS/PC+ system file is read from
    file c:\spss\jeff\jeffccs.sys
The file was created on 10/29/90 at 16:02:06
and is titled                          SPSS/PC+
The SPSS/PC+ system file contains
    147 cases, each consisting of
    149 variables (including system variables).
    149 variables will be used in this session.
```

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```
This procedure was completed at 13:54:05

set blanks=0.

missing value c1 to stress8 (0).

recode q76 (4,3=3).

compute hlth1=0.
if (q76 = 1) hlth1=1.

compute hlth2=0.
if (q76 = 2) hlth2=1.

compute hlth3=0.
if (q76 = 3) hlth3=1.

descriptives variables=c1 c2 c3 c4 c5 c6 c7
The raw data or transformation pass is proceeding
    147 cases are written to the uncompressed active file.
        /statistics=13.
```

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Number of Valid Observations (Listwise) = 130.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
C1	1.60	.52	1	3	143	
C2	2.01	.92	1	4	146	
C3	1.62	.54	1	3	143	
C4	2.39	.90	1	4	134	
C5	2.25	.89	1	4	139	
C6	2.03	.76	1	4	141	
C7	1.30	.46	1	2	145	

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```
This procedure was completed at 13:54:37

descriptives variables=a1 a2 a3 a4 a5 a6 a7
        /statistics=13.
```

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Number of Valid Observations (Listwise) = 125.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
A1	3.03	.81	1	4	141	
A2	3.77	.51	1	4	145	
A3	3.04	.60	1	4	135	
A4	2.83	.93	1	4	134	
A5	2.68	.64	1	4	136	
A6	3.16	.64	1	4	139	
A7	3.26	.74	1	4	139	

This procedure was completed at 13:54:48

```
descriptives variables=m1 m2 m3 m4 m5 m6 m7
        /statistics=13.
```


Number of Valid Observations (Listwise) = 119.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
M1	1.72	.72	1	4	138	
M2	1.71	.73	1	4	139	
M3	2.89	.91	1	4	137	
M4	2.01	.68	1	4	138	
M5	2.07	.68	1	4	137	
M6	2.13	.70	1	4	139	
M7	1.84	.61	1	4	140	

This procedure was completed at 13:54:58

```
descriptives variables=im1 im2 im3 im4 im5 im6 im7
        /statistics=13.
```


Number of Valid Observations (Listwise) = 123.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
IM1	2.07	.91	1	4	137	
IM2	1.55	.67	1	4	135	
IM3	2.11	.89	1	4	135	
IM4	2.45	.90	1	4	137	
IM5	2.28	.74	1	4	136	
IM6	2.99	.78	1	4	142	
IM7	2.18	.81	1	4	142	

This procedure was completed at 13:55:09

```
descriptives variables=r1 r2 r3 r4 r5 r6 r7 r8
```

```
       /statistics=13.
```

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Number of Valid Observations (Listwise) = 121.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
R1	1.80	.76	1	4	142	
R2	2.80	.91	1	4	139	
R3	2.49	.78	1	4	139	
R4	1.94	.56	1	4	139	
R5	2.46	.90	1	4	137	
R6	1.99	.63	1	4	139	
R7	1.51	.50	1	2	144	
R8	1.64	.62	1	4	143	

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This procedure was completed at 13:55:21

```
descriptives variables=man1 man2 man3 man4 man5 man6 man7
       /statistics=13.
```

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Number of Valid Observations (Listwise) = 125.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
MAN1	2.69	1.02	1	4	143	
MAN2	2.59	.98	1	4	139	
MAN3	3.14	.61	1	4	142	
MAN4	1.95	.64	1	4	139	
MAN5	2.49	.72	1	4	144	
MAN6	2.03	.77	1	4	139	
MAN7	2.44	.81	1	4	141	

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This procedure was completed at 13:55:31

```
descriptives variables=s1 s2 s3 s4 s5 s6 s7
       /statistics=13.
```

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Number of Valid Observations (Listwise) = 132.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
S1	1.75	.55	1	4	139	
S2	1.75	.54	1	4	143	
S3	1.71	.52	1	3	139	
S4	1.71	.54	1	3	140	
S5	1.69	.51	1	3	140	
S6	1.49	.53	1	3	142	
S7	1.76	.61	1	4	140	

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This procedure was completed at 13:55:42

```
descriptives variables=d1 d2 d3 d4 d5 d6 d7
       /statistics=13.
```

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Number of Valid Observations (Listwise) = 133.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
D1	3.46	.57	2	4	142	
D2	3.43	.54	2	4	142	
D3	3.51	.60	1	4	142	
D4	3.09	.66	1	4	138	
D5	3.58	.59	2	4	140	
D6	3.59	.57	1	4	141	
D7	3.00	.74	1	4	136	

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This procedure was completed at 13:55:53

```
descriptives variables=wld1 wld2 wld3 wld4 wld5 wld6 wld7 wld8
       /statistics=13.
```

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Number of Valid Observations (Listwise) = 83.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
WLD1	3.00	.93	1	4	92	
WLD2	1.86	.77	1	4	93	
WLD3	3.47	.60	2	4	92	
WLD4	3.48	.67	1	4	93	
WLD5	3.57	.54	2	4	93	
WLD6	2.81	.86	1	4	91	
WLD7	2.72	.83	1	4	87	
WLD8	3.51	.58	2	4	92	

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This procedure was completed at 13:56:02

```
descriptives variables=wls1 wls2 wls3 wls4 wls5 wls6 wls7 wls8
       /statistics=13.
```

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Number of Valid Observations (Listwise) = 80.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
WLS1	2.19	.74	1	4	93	

WLS2	1.61	.61	1	3	93
WLS3	2.00	.58	1	3	83
WLS4	1.90	.59	1	3	84
WLS5	1.90	.63	1	4	93
WLS6	1.71	.56	1	3	93
WLS7	1.65	.60	1	3	93
WLS8	1.88	.67	1	4	89

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This procedure was completed at 13:56:12

```
descriptives variables=wlobj1 wlobj2 wlobj3 wlobj4 wlobj5 wlobj6 wlobj7 wlobj8
        /statistics=13.
```

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Number of Valid Observations (Listwise) = 82.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
WLOBJ1	1.97	.69	1	4	86	
WLOBJ2	1.92	.63	1	3	88	
WLOBJ3	2.03	.74	1	4	87	
WLOBJ4	1.88	.61	1	4	93	
WLOBJ5	1.67	.52	1	3	92	
WLOBJ6	1.64	.60	1	3	92	
WLOBJ7	1.51	.58	1	3	93	
WLOBJ8	1.65	.62	1	4	93	

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This procedure was completed at 13:56:22

```
descriptives variables=stres1 stres2 stres3 stres4 stres5 stres6 stres7 stres8
        /statistics=13.
```

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Number of Valid Observations (Listwise) = 73.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
STRES1	3.28	.65	2	4	92	
STRES2	3.05	.66	1	4	91	
STRES3	1.80	.74	1	4	84	
STRES4	2.90	.58	1	4	89	
STRES5	1.72	.62	1	3	90	
STRES6	1.92	.60	1	3	90	
STRES7	1.64	.57	1	3	91	
STRES8	3.43	.58	2	4	87	

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This procedure was completed at 13:56:31

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