A PRELIMINARY INVESTIGATION TOWARDS INITIATING
COOPERATIVE LEARNING WITH MAINSTREAMED
DEAF/HARD-OF-HEARING STUDENTS

by

Jean Duffy Biro

A thesis submitted in conformity with the requirements for
the Degree of Doctor of Education
Department of Adult Education,
Community Development, and Counselling Psychology
Ontario Institute for Studies in Education
of the University of Toronto

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Abstract

This study by an experienced practitioner describes initiation procedures in cooperative learning with deaf/hard-of-hearing students mainstreamed in regular elementary and secondary classes in two School Boards of Education in Ontario. The purpose of the study was to investigate the potential of initiating a cooperative learning approach toward being helpful to deaf/hard-of-hearing students in the mainstream, in easing communication by encouraging interaction with peers sharing common academic goals and training teachers in using small group work as an option to whole-class teaching. Fundamentally, qualitative measures were used in this investigation. Students activities, verbal interactions and interviews were documented. Numerical measures were also used as evaluative criteria to determine if a cooperative learning approach had been initiated and if successful to evaluate the effects of a cooperative learning approach on the deaf students primarily. Three frameworks were developed to enumerate the results of the initiation procedures: 1) The Principles; 2) The Stages and Skills; and 3) The Behavioural Effects of Cooperative Learning. The study indicated that the initiation and behavioural effects of cooperative learning was more successful with the elementary students than with the secondary students. The study also revealed that key issues for the success of the initiation of cooperative learning depended on teacher collaboration, teacher and student intervention in communication and social skills and the involvement of the research as participant-observer in the classrooms. Partnering teachers in a new learning approach necessitated new teaching strategies and was dependent on attitudes and influences of teachers towards change.
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To my mother, Jeanie Duffy and my siblings, James, Edward and Marion, I give thanks for their unconditional support and interest in my well-being. In memory of my late father, Edward and sister, Essie, who encouraged me to do my best, I give credit. Lastly, I acknowledge the support of my husband, Miklos. Perhaps now I can re-visit the New 3R's a la Hunt (1987) with Miklos.
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Chapter One: Introduction

Transitions

The intention of this study has been two fold: first, to attempt to initiate cooperative learning among deaf students mainstreamed in Grades 3, 6, 10, 11 and 12, working with normal-hearing students and their teachers and second - if cooperative learning is successfully initiated -- to consider its effects on the deaf students, the normal-hearing students and their teachers. The attempts to initiate cooperative learning were successful in some but not in all the grade levels. The effects of cooperative learning were favourable for some but not all of the deaf students and were generally considered positive among the normal-hearing students. The experience of a cooperative learning approach, however, may have ultimately had more of an effect on the teacher participants than on the students.

The first chapter of the study relates a personal perspective on mainstreaming deaf/hard-of-hearing students and continues with the transition periods in my life connecting me to this investigation. Chapter 2 follows that strand of my work to a literature review that represents studies on cooperative learning as it relates to this same population and as it concerns normal-hearing students. The methodology of the study discussed in Chapter 3, incorporates both numerical and qualitative measures to evaluate the attempt to initiate cooperative learning its effects with mainstreamed deaf/hard-of-hearing students and their peers. Chapter 4 discusses the results of the intimation attempts and the effects on the participants. Finally, Chapter 5 discusses the results of the investigation, which is followed by a discussion of the components considered necessary for change to occur when a new learning approach is introduced. Recommendations are presented for initiating a cooperative learning approach in mainstream classes for deaf/hard-of-hearing students. This last chapter includes suggestions for implications for researchers and practitioners and ends with a brief narrative on personal changes as an effect of the study.

To set the stage that led to my interest in interactive cooperative learning pedagogy, I begin in a retrospective light with my personal and professional development. Beginning with myself brings an awareness of the signposts that have influenced my direction at points in various places. I begin the narrative in Scotland, my country of origin, and end the events in Ottawa, Canada. I journey to five major cities: Montreal, Vancouver, London (England), Toronto and Ottawa. The inspiration for this
work germinated in my experiences in those specific settings, which I now recognize as a tendency, on my part, to seek out balance and integration. The balance I prefer in teaching and learning allows me along with my students:

- to have the freedom to share opinions
- to learn from others
- to give voice to my ideas and
- to work towards being part of a group solution in task-oriented activities

I give an account of my experiences and how they have contributed to my curiosity about learning interactively versus learning independently or competitively. Interactive learning is simply a chance for students to work together in pairs or groups of four. Working independently means that students work by themselves with given text or material and find the resources for assignments. Evaluation in this case only refers to the individual's degree of success or failure -- a method that places emphasis automatically on competition. All these approaches to learning have some value in classrooms today. This thesis argues that an interactive learning approach in classrooms where there are mainstreamed deaf/hard-of-hearing students would impact positively on their communication and social development.

Reflecting on a balance, of integrating independent and interactive learning, during the investigative process, raised questions for me about the mainstream education of deaf/hard-of-hearing students. What style of teaching and learning is practised in classrooms where there are deaf/hard-of-hearing students with a communication exceptionality? How do these students function in large groups, both academically and socially? How and what do they achieve? Is there any balance in their style of learning? Would there be any similarities to my own preferred style of learning? To what extent did my own schooling and teaching experiences influence my preferences and choices in learning? This first section gives a voice to my teaching experiences with mainstreamed deaf/hard-of-hearing students and allows for speculation on those questions.

A. A Personal Perspective on Mainstreaming Deaf/Hard-of-Hearing Students

Since my experience has been primarily in mainstream programs in public schools, I am aware that my preference is in favour of regular education for many deaf/hard-of-hearing students. I have to acknowledge that there is a difference of opinion among experts in this regard. My point of view is based on the quality of education and personal success I have observed in many students over the years. I have a noticeable
lack of teaching experience in provincial schools for the deaf or in programs espousing sign language as the major mode of communication and instruction. I have some experience with mainstream deaf students whose main mode of communication is sign language, but my experience has been mainly with oral deaf/hard-of-hearing students in the mainstream.

It is my perception that there are many mainstreamed deaf/hard-of-hearing students who seem to experience little frustration, sense of failure, peer rejection, isolation, or, loneliness. Many students, whom I know personally, appear to feel a sense of personal success no matter what the learning situation. I have always been curious about the factors that contribute to their apparent sense of well-being and achievement, compared with the students who state they have difficult experiences.

Despite the problems which may be encountered by some deaf/hard-of-hearing students, there is also evidence of many joys. Many students are able to achieve academically, they acquire linguistic competency, and socialize with their peers. They succeed in going to university or college and/or entering trades and serving employers in various fields of work. They are professionals, and some have their own business. They are students who have the communication, social and academic skills necessary to learn. Kluwin & Stinson have found that there was participation among deaf students in motivation, resilience and ability to cope with communication barriers with normal-hearing students (1990).

Then there are the less positive experiences for mainstreamed deaf/hard-of-hearing students. Deaf/hard-of-hearing students can experience considerable frustration during class discussions. They may misinterpret what has been said by others, misunderstand the meaning of a phrase or sentence, be unfamiliar with a phrase or sentence, be confused by a speaker's vocabulary, miss a vital part of a conversation or lack the necessary skills in the semantic or pragmatic use of language. Students whose communication level is below that of the general level of communication in the classroom, encounter difficulty with academics and socializing. Everyday language among deaf/hard-of-hearing students and their normal-hearing peers, can be difficult, but sentence structures in instructional language in classrooms is probably even more complex. Students may be penalized when non-interactional learning prevents them from understanding material on class subjects.
In an atmosphere of competitiveness, a student with a hearing loss is at a disadvantage with regard to teacher instructions, directions from peers and general discussion periods. Being part of a large group can diminish full participation and comprehension. An example of not feeling part of a situation was that of a student with a profound hearing loss who reported: "Sometimes when everybody's laughing, I have to tell people to slow down. I want to know what they found so funny, but they don't always tell me." These tension-producing activities can sometimes result in attention-seeking misbehaviour and guidance may be required with regard to psychosocial issue connected to participation in the classroom.

As a teacher of deaf/hard-of-hearing students giving support to the regular classroom teachers, I have routinely withdrawn these students from the class for individual work. In my observations of my students in regular classes, I realized that for some there were academic concerns, for others issues of a social nature, and for others difficulties with spoken and/or written communication. The additional support from the specialist teacher was considered essential by administration, staff and parents.

I have always been interested in the classroom interactions of teachers and students, from Kindergarten level to Grade 13. I frequently assisted deaf/hard-of-hearing students in their classes. I relished those situations because they allowed me to observe and intervene by listening to the interactions of the deaf/hard-of-hearing students and their normal-hearing peers. However, there was usually little chance for me to actually spend much time in the classrooms intervening, when appropriate, on behalf of these mainstreamed students. Teachers normally presented material while students listened or responded individually to teacher questions or prompts, or, else students worked independently. I generally observed little opportunity in classes for any interactive group learning. I became interested in finding out what positive experiences could be used to encourage feelings of belonging and self-esteem in students whom I observed. The idea of deaf/hard-of-hearing students meeting together to share experiences gathered momentum.

During the period between 1981 and 1993 other colleagues who were interested in the social well-being of our deaf/hard-of-hearing adolescent students joined me in inviting students from the school boards in the Ottawa/Carleton area to form a social group outside school. Eventually, we had 20 members who met once a month on a Friday evening. We created this support group to allow students the opportunity to meet and
share their experiences. The group setting was to be a place where they could develop new friendships and enjoy themselves, and we shared those objectives with the group. I wanted to observe whether or not they would find something in common with one another beyond the fact that they all used hearing aids and were in regular classes in different schools.

I was surprised when they did not become “bosom pals” immediately. I expected them to find comfort in the fact that other students the same age used hearing aids. I took for granted the notion that they would show patience in communicating with each other. I based that assumption on my teaching experiences in Montreal and Burnaby. While teaching deaf/hard-of-hearing adolescents in Montreal I had observed a genuine feeling of ease and camaraderie amongst them; of course, these students had been together frequently and knew each other quite well.

The deaf/hard-of-hearing teens in this group had experienced few, if any, interactions with others like themselves. We thought perhaps they lacked the necessary awareness of how to communicate with peers whose speech patterns were unfamiliar. Outwardly, the majority of the adolescents in our teen group behaved towards one another just as if they understood everything that was being said to them. I realized however, that some of them were hardly even trying to understand when engaged in a conversation. Some looked as if they were merely pretending to understand.

It became obvious that several teens in the group did not in fact understand much of the information in dialogues or in group discussions, but neither were they asking for clarification from any one. We were surprised at how impatient some were in giving up trying to understand before another person had finished explaining something. Some of the teens did not know how to initiate a conversation or when to take leave. Turn-taking for a few, posed major difficulties.

My colleagues Deirdre Neuss and Elizabeth Fitzpatrick and I discussed our concerns and shared ideas about how to develop communication within the group. We reflected on the experiences shared by the teenagers in their schools. Some of our teen group members were simply not used to conversing with other students who were unfamiliar with their style of communication. We came to the conclusion that there was a strong possibility that the mainstreamed students may have felt more accustomed to talking and sharing with normal-hearing friends. We speculated that they were in the habit of coping in conversations with peers and were used to having to make
accommodations in dialogues. I had observed many normal-hearing students capable of using common clarification techniques of re-phrasing. The communication behaviours of the deaf or hard-of-hearing students usually involved having to look at the normal-hearing person when they spoke, or being within earshot to follow and participate in the conversation. In my experiences in the high schools, I had observed some of the deaf or hard-of-hearing students communicating on an individual basis with normal-hearing peers taking part in small or large-group discussions in hallways when entering and leaving classes. These listening situations were obviously not always smooth and easy for communication.

In the teen group, we invented activities that would necessitate interaction both verbally and non-verbally. The students participated in activities which we believed encouraged them to talk about themselves and respond in an empathetic way to one another. We encouraged the teens to talk about personal issues. They role-played scenarios based on their experiences. Sometimes they had scripts to follow, while other times performances would be improvised. In pairs or in groups of four they would sometimes problem-solve a given task, for example, matching hero, movie or TV stars games. They shared funny situations that occurred in school when they misheard information for example using an FM amplification system they might have overheard a teacher whose microphone was left on inadvertently in a private conversation.

This process of communication engagement took considerable time and effort on the part of all of us in the first several months. The students had to learn to develop repair strategies and clarifications of misunderstood messages. Some of the teens already communicated well and they helped by modelling ways of communicating effectively to others who were obviously confused at times. Instructions, information, gossip, jokes and stories were shared in the group until everyone understood the discourse. When we observed a communication problem we intervened by re-phrasing, or requesting another way of expressing their ideas. Frequently another student would contribute suggestions or use comparable language to ease the flow of communication.

Our teen group progressed to a greater ease in communication as they got to know one another better. As well, spacing people in positions where everyone could be seen helped to facilitate discussion. One technique we used if some group members were not sure who was speaking was to point to the person speaking in the circle and call his/her name so that group members could get time to respond to the topic. Another strategy was
to give the person talking a kerchief or a short stick to hold up indicating that attention was to be given to the speaker.

Some of our teens reported to us that:

- They did not like group work in their classes because there was usually too much noise and the teacher frequently had to request the class to be quieter.
- They did not know if their group work could be called cooperative learning.
- In whole-class discussions they reported that they had major problems hearing the verbal responses of their classmates, and could not follow unless the teacher repeated the responses of the other students.
- Sometimes participation was almost impossible, and that the more their level of participation decreased, the less they felt they could contribute to the discussion. Consequently, they sometimes felt left out.
- They sometimes felt anxious, discouraged and annoyed and that they suffered pangs of low self-esteem.

I purposely used some of the group members as role models for others who appeared to lack the appropriate conversational skills. I asked one or two of them to be leaders and help organize our events. These students would frequently direct the discussions or assist in giving advice to others. By showing their willingness to participate and by demonstrating a positive attitude, they gained respect from students who initially had some negative attitudes about being part of a group of deaf/hard-of-hearing teenagers.

The contributions these chosen role models made to the well-being of the group seemed to be related to their personal qualities and social interest. Whatever characteristics they possessed, they helped to create a high comfort level and trust among the group. Their social skills were appropriate. We could observe how they listened intently to the speaker, took turns, and used encouraging and supportive talk. Some of them showed a great sense of humour, which contributed to the general climate of the group. Along with my colleagues we realized that some of the communication breakdowns could occur because of lack of common experiences rather than inability to communicate. The contributions of these role models helped to build up these necessary shared experiences. I believe the social skills and ease in communication improved for the group members who had been having difficulty.
We went bowling, swimming, had parties, took dancing lessons and went on camping trips. Evenings and sometimes weekends were spent skating, skiing, on movie nights, playing games, and having lots of discussions on issues related to being adolescents and coping with a hearing loss. We hired a bus and visited another group of deaf/hard-of-hearing students in Montreal. After a tour around the city we organized a baseball game, and a swim-party. The teens communicated with one another via e-mail and/or Bell Relay telephone systems, and ended up visiting the homes of one another. Often they would request to meet as a group on their own for parties and other events. This group flourished with positive social outcomes up to 1996, after which most of them went to college or university or entered employment.

Returning to my perspective on mainstreaming, I believe it is important to consider the effectiveness of mainstreaming in terms of interactions not only during academic tasks but also in everyday social interactions. Observing deaf/hard-of-hearing students with their normal-hearing peers in hallways, technical classes, physical education classes and activities outside school can be particularly helpful in evaluating communicative ability. Students can then be viewed in situations with their normal-hearing peers in which conversations are more likely to be expected. Dialogues can occur despite the possible difficulties in comprehension even in noisy situations where it is more difficult.

In my view, mainstreaming offers the most beneficial educational setting for many students with hearing loss, provided the support services are in place as stated (p. 16). I strongly support the theory and practice of mainstreaming whenever possible for students who are deaf or hard of hearing. I believe there are many learning opportunities that exist for students in mainstream settings such as technological support with amplification equipment, auditory management of listening ability, peer to peer instruction, (if encouraged), and independent learning. Of equal importance is the exposure to ideas and opinions of others that help to broaden the experiences of deaf/hard-of-hearing students. This type of learning can be accommodated and encouraged through small-group work or carefully orchestrated whole-class discussion.

Nevertheless, it would be misleading to suggest that any one program or class placement could completely meet the needs of all mainstreamed students. There is no one educational setting or system or communication method designed specifically to fit every individual deaf or hard-of-hearing child. The needs of particular students determine
which setting is most appropriate for them, and the ultimate decision resides with the parent. In my view, involved parents of deaf/hard-of-hearing children can be the best allies of the professional in most circumstances in the school life of their child particularly in mainstream. Since many deaf/hard-of-hearing students are in their local schools, parents have easy access to teachers and frequently take part in a lesson with the specialist teacher working individually with their child. This situation may or may not be an integral part of procedures in mainstream settings. Mainstream education is simply one option, and a highly effective one for many students.

In contrast, most provincial schools for the deaf provide services for deaf/hard-of-hearing students whose families may live great distances from the schools, or students may have needs that might be better met in a day/residential environment. Close collaboration and consultation with parents may be limited except via newsletters and or bi-annual parent teacher meeting and conferences. Some students may need significant modified instruction and materials in special classes and students who require social interaction with other students with hearing loss. That said, provincial schools are nevertheless considered viable, positive options for deaf/hard-of-hearing students by many educators, myself included. Some of the provincial centres have integration settings in partnership with nearby public schools for those deaf/hard-of-hearing students able to access appropriate programs. Weber reports that in Ontario, at least, enrolment of deaf/hard-of-hearing children in special residential schools is decreasing (1995, p.82). In fact, student population in these special schools now includes deaf/hard-of-hearing students with other exceptionalities. There is a tendency for educators to suppose that special facilities for students with hearing loss only accommodate those students with a profound hearing loss and/or additional handicapping conditions. While this may be true, the population of students with severe to profound loss is relatively small compared to the number of students with lesser degrees of hearing loss, both in segregated schools and in mainstream settings. However, students who have a severe to profound loss and who use sign language are usually educated in self-contained classes or in a regular class with a Sign language interpreter who accompanies the students or in segregated settings at the present time. Undoubtedly, there are exceptions to these findings.

Mainstream placements for students with significant hearing loss may be addressed successfully with the following considerations:
Important Considerations

- Classrooms should be acoustically treated and the listening conditions be at the best for the deaf/hard-of-hearing student (use of FM equipment where appropriate).
- Support services (by qualified staff) should include direct/indirect support of students’ abilities and academics and considered adequate by educators and well-informed and supportive parents.
- Opportunities for communication with interpersonal discourse in language learning and subject matter in a form of naturalistic, group-supported learning should be part of classroom activities.
- Parents/caregivers should be involved in partnership with the teacher(s) in supporting the students’ progress whenever possible.
- Modifications and teaching interventions should provided through on-going consultation with modelling by and support personnel.
- Provisions and opportunities should be made for deaf/hard-of-hearing students to meet for social and educational events both in and out of school time.
- Presentations on hearing impairment in the classes about deafness gave the regular students a greater awareness of the difficulties faced by the deaf/hard-of-hearing student in their class.

I will now describe the experiences that have positioned me in support of small-group work in regular education and in mainstream settings for deaf/hard-of-hearing students.

B. Signposts on the Journey

1. Influences from Scotland (1947-1957)

My own schooling in a traditional British system left me dissatisfied as a high school graduate entering teacher-training college. In the strict streaming system of that era, there was no value placed on group discussions or any small group work. Questions from students were not particularly encouraged. I recall that teachers emphasized independent work in class, and assigned several hours of homework. Most of the teachers in high school taught by lecturing or by making notes to copy, or by writing comments in our notebooks. Teachers talked and students responded individually. I remember being reprimanded and even strapped for making comments or interacting with my classmates to discuss the subject being presented. I believed then that teachers viewed themselves as
transmitters of information and producers of competence. However, it was only those who were eloquent, witty or humorous, who had my undivided attention. As a high school student, I identified the "good" teachers as those who knew their subject well and could communicate their knowledge. The teachers I admired and respected were the very few who made the effort to share with the students their values and beliefs in a personal way. While these characteristics were all too uncommon, I can still recognize these qualities in teachers I know today who also are able to try new teaching approaches with their students.

Although I learned to be independent and quite competitive in those high school years, I was aware that I knew or understood very little of how anyone else in my class thought about their learning. I actually looked forward to tests and examinations, for that was a change from the routine of sitting and listening to instruction passively. The fact that sharing information was not encouraged made students feel that their opinions or responses to teacher probes were not always acceptable. I, for one, complained bitterly about the situation to anyone who would listen. I now feel that seeds were being planted then towards an awareness of other possible ways of learning material.

The first signpost directing my thoughts toward becoming a teacher emerged from my negative experiences in that early schooling. I had the idea that I could perhaps make a difference in young peoples' lives by contributing to a more positive learning experience. A strong influence on my learning came from the time in Teachers College in Edinburgh and Ayr (Scotland). I learned best when professors presented the task and material, guided us to the resources and then allowed the group process to occur. Participation by questioning, giving opinions and solving the problems in the assignment gave me more satisfaction than when teachers lectured and handed sheets of assignments for us to complete individually.

During my teacher training in Scotland there were a few outstanding colleagues and professors who shared their underlying theories and beliefs about children and interactive learning. I remember well the resounding theme in both theory and in practice from our many discussions: Reach the child's meaning and listen. This phrase was used consistently by the professors I respected most and it prompted me to respond to my students by encouraging them to listen and learn from each other. The writings of Froebel, Montessori and Piaget greatly influenced my work with young children in a similar way.
Group learning was beginning to take shape as sound educational practice in the school systems in Britain at that time (1950's). As my teaching experience developed, I continued to listen more carefully to what my normal-hearing students talked about when working on a task in a small group. Their interaction with one another helped me understand what they needed to explore. The questions they raised, the ways they reported to each other and their explanations and descriptions of the subjects all helped to guide my work. I sought out better strategies to "match the moment" in classroom activities. I became intent on allowing the students to have more participation. I set up learning centres, placed materials in strategic places for children to use, and found ways to get involved in direct discussions.

At the same time, I encouraged independent work from my students in an attempt to create balance in their learning. I realized that group work took more work to organize and that structure was important to make it successful. I know that my small groups were not what would be considered cooperative learning as it is now known. My teaching approach was not always child-centered because I was constantly intervening and directing the students. The combination of small group work with independent or competitive learning situations, did create balance in my teaching and learning appeal in my students.

My enthusiasm for group work dwindled as I gained teaching experience in other schools. For several reasons, I soon realized not everyone appreciated my efforts in fostering small group learning situations. New young teachers were being trained to encourage the trend in favour of group work, but not to substitute it for whole-class teaching. Some principals and colleagues in a few of the programs where I taught did not appear to be interested in any kind of group work in the classroom. I remember feeling very discouraged. I speculated about searching for another teaching placement in the Scottish system, but instead, I made plans to leave Scotland for new experiences in Montreal, Canada. After all, I was twenty years old, ignorance was bliss, and I imagined then that I had only good things to look forward to, with perhaps a more open approach in the Canadian school system.
2. Montreal, Quebec (1957-1964)

My initial teaching experience in Montreal schools was quite a revelation. The students seemed talkative and responsive even when they were not required to participate -- more so than my students in Scotland. I considered them ready to participate in small group work. However, when I suggested to my colleagues that we try a collaborative group approach with our students, they expressed concern about the possibility of students being "out of control", or of high-achieving students being burdened by lower achieving students (a concern raised later by teachers (p. 72). They stated that they felt quite bound by the restrictions of the curriculum and they could only consider real change as coming from the administration, not from themselves. I felt slightly out of place because I did not share the perceptions of my Canadian colleagues and felt that the situation was in a sense very similar to teaching positions in Scotland where I had felt quite confined. Just as before, I did not feel free to make changes independently of the administration.

I recognized a familiar dilemma, that of wanting to pursue my interest in group learning while maintaining "whole-class teaching". Despite these initial obstacles, I still felt assured that my perceptions of children's learning were educationally sound. The recurring pattern of balance affirmed my sense of the value of my position. Participation and interaction among students and teachers still seemed more favourable to me than teacher-only led instruction. I did not have to wait long for an opportunity to put my principles into practice which gave direction to my future teaching.

Through a chance encounter with a friend, I heard of an opening for a teaching position in a small private school for English deaf/hard-of-hearing children in Montreal. This private day school opened in 1950 and was the first of its kind in Canada. The Montreal Oral School for the Deaf was unique in that a small group of parents of young deaf/hard-of-hearing children were advocating special classes for their children outside the public system which had no classes for such children at that time. Parents and staff were committed to the development of spoken language for the children. The general perspective of the educators was to foster a verbal approach in language learning through the use of 'speech-reading' supplemented by the technical amplification equipment available at the time. I could not resist an opportunity to teach children where interactive learning was both the practice and the theoretical position of the teaching staff.
Taking this new teaching position in Montreal was the beginning of one of the most fascinating work experiences of my life. My first assignment was to work with a group of preschool deaf children. The next few years gave me plenty of practice as I responded intuitively to being both participant and observer in my work. I found myself learning right alongside these small beginners in communication. I learned to develop ways of teaching concepts that paralleled their language development. It was as if I had to discover the world of language.

The process of interaction was vital in all aspects of my work as I observed and intervened while the children reacted to sound through their hearing aids and tried to develop spoken communication. I tried to expand their experience by giving them reasons to communicate with me, with their peers and with their families. My personal metaphor for that period of learning was that we were all actors on a stage, our lines interwoven, each person dependent on the voices and movements of all the others. Each of us, teacher and learner, played a part, sometimes fluently and coherently, sometimes hesitantly, and sometimes silently. Guiding the communication efforts of the children sometimes required moving forward, sometimes holding back, at times in rapid motion and at others in slow motion. Gradually, with the support and involvement of the parents, the children began to learn to communicate, to interact with one another and to engage in academic learning.

Under the leadership of the first principal, Isabel Inkster, we teachers kept up with current teaching practices for deaf/hard-of-hearing students. From the preschool classes to the upper elementary aged students there was a strong emphasis put by the staff on teaching academics, language and literacy through structured sentence development. As teaching practices evolved, a more “natural language” was used in our approach to developing communication and literacy -- but there still had to be structure within the natural language approach. In small groups, interaction for developing communication depended very much on teacher direction, with questions and responses from individual students. We teachers used as many experiences as possible to allow natural conversations to develop, but I had a growing feeling that this process was not enough to allow many of the students to become completely fluent.

Although many of our students showed progress, both in communication and academics, the special class curriculum was perceived by some of us teachers to inhibit higher level learning. Furthermore, I felt that the deaf/hard-of-hearing students needed to
participate in regular classes with exposure to the regular curriculum with normal-hearing students rather than in self-contained classes in order to advance their academic and social skills.

Dr. Daniel Ling, the school’s second principal, shared his expertise in technology, classroom acoustics and speech teaching with the staff and the parents. He was instrumental in promoting the beginning trends towards mainstreaming deaf/hard-of-hearing children by integrating them into regular classes with the normal-hearing children in the school we were housed in. I was responsible for implementing a summer program in a local preschool where our deaf children could attend alongside normal-hearing peers. The experience was considered a positive one for the children by the preschool teacher and myself, and by the parents of both the normal-hearing and the deaf children. All those involved shared an attitude of acceptance and willingness, and the experience allowed for teaching reflection as well as observations on the communication skills and play patterns of the children.

I continued teaching at the primary and junior levels and later gained experience as vice-principal. My experiences at this private school for the deaf enabled me to formulate my beliefs about teaching deaf/hard-of-hearing children. Those ideas and experiences at The Montreal Oral School for the Deaf led to my objective to teach in a public school system where students with hearing loss could have access to learning alongside their hearing peers. I left Quebec to find such a school in Western Canada.


I came to B.C. to teach a group of deaf/hard-of-hearing elementary students who had been together in a small congregated class for several years -- not in their neighbourhood schools, but within a regular school chosen as a designated centre for deaf/hard-of-hearing students in Grades 3 to 7. It was an exciting period of working in the environment of a public school, where I was part of the teaching staff. I felt that I belonged there, whereas in Montreal, I was aware that the special class teachers were not really an integral part of the larger regular teaching staff. I was instrumental in initiating access for my students to classes with their normal-hearing peers in a public school in Burnaby. Teachers were highly receptive to having my students included in their class activities. This time, the administration and staff of the regular school were interested in an integration experience. I realize now this step was a preview of
mainstreaming as it exists today in most public school systems. This area is discussed further in the literature review in Chapter 2, (pp. 24 to 39).

There were very few school boards with special services for deaf/hard-of-hearing students at that time in B.C. There was an established provincial school for deaf/hard-of-hearing children, plus three oral programs in public schools, including my class in Burnaby, and a small private school in Vancouver. The teachers in these oral programs became my allies in establishing mainstream programs in the lower mainland of B.C.

My position was that of teacher, facilitator, guide, and tutor in a resource room for the students. I often took part in the activities in the general classes, working with small groups and acting as a resource support for any teacher who had one or more of my students. In this situation, my work with the students and other teachers might be viewed as a form of “mutual adaptation“ (Hunt, 1987, p.129). In Hunt’s words, it was “respect, acceptance of differences in others, cooperation, and reciprocality” that characterized my way of teaching. Interpersonal transactions reflecting our personal experiences and beliefs in teaching fostered a mutual respect between the regular teachers and myself. There was “a relationship of equality” in place with a mutual acceptance and willingness to cooperate and collaborate (Hunt, 1987, p.131). I sensed that the teachers felt that I supported them on behalf of my students.

I worked with my students to develop fluency in communication and attempted to parallel the regular curriculum to pave the way for integration in classes and in the general milieu of the school. This inclusion of the students fostered improvements in communication. Being part of the regular class helped to develop social skills so that the students and the normal-hearing students could relate positively. I had observed the same situation occurring in the early years with the preschool children in Montreal.

The deaf/hard-of-hearing students had exposure to more subject learning than I had ever thought them capable of absorbing. This resulted in higher academic standing for them than they had previously attained. The fact that they responded well to the additional stimulation was evidenced from academic and language testing which showed some gains had been made. I was convinced this educational path was of benefit to the students and I felt I was a better teacher for the experience. I had learned that my standards had exceeded my expectations and that professionally I had developed teaching skills I might not have, in a specialized curriculum and school setting. Being aware of the
classroom teachers' academic expectations for their normal-hearing students was important in guiding my objectives in working with my deaf/hard-of-hearing students.

I realized however, that I needed more specialized training in audiology, speech-sciences linguistics and the psychology of hearing loss. When I discovered such training was available at the Institute of Education in London, England, I took the opportunity to go there and leave my position in Burnaby, B.C. I felt confident that I had learned valuable teaching strategies there that supported an integrated setting for the education of deaf/hard-of-hearing students.


My decision to obtain some formal qualifications to work with deaf/hard-of-hearing students led to my return to Britain in 1996. I attended the program for training teachers of deaf and partially-hearing students that provided an opportunity for much practice teaching. This opportunity proved to be invaluable.

During my practice teaching in London, I learned to apply what was known about the acoustics of speech to developing spoken language with deaf/hard-of-hearing children. I also studied audiology, hearing aid technology, educational curricula and teaching methodologies, language development and the psychosocial impact of hearing loss in children. Parent guidance was also a major part of the course work.

This was also an exciting time as it was the beginning of a more widespread interest in mainstreaming deaf/hard-of-hearing children into regular classes. The guiding light for this concept was the senior lecturer at the Institute of Education, Dr. D’Arcy Dale who was a wonderful teacher and an excellent model for me. He was one of the first educators in New Zealand to promote the placement of normal-hearing and deaf/hard-of-hearing children in the same classroom, and he introduced this practice in the public school systems in the south of England. He reinforced my beliefs in the capabilities of deaf/hard-of-hearing students and the value of my teaching experiences in B.C.


I returned to Canada in 1967 to work at the same private school for deaf/hard-of-hearing children in Montreal, at which I had been previously employed. I felt a sense of fulfilment as theory, practice and my own knowledge merged together. From the late Sixties into the mid-Seventies, educational practice shifted to a focus on "self-discovery" and a more open approach to learning. It became commonplace to find a classroom where
desks were pushed aside to make room for children and teachers to find their own learning style. It was not uncommon to see children, teachers, books, and projects all over the classroom space. It was the age of the individual teacher and student, and my school was no exception to the "freedom to learn" philosophy of the day. A.S. Neil's *Summerhill* stirred most of us into new territory with regard to the rights of children to learn by following their own interests. I adopted a child-centered approach, whereby the students followed their own academic pursuits with teacher intervention to help them access materials and references in their chosen subjects. There were elements of success for some teachers and students in the achievement of autonomy. For others this approach bridged a gap between academics and interactive learning and allowed opportunity for social learning with peers. The open concept in the school not only meant much shared space but also encouraged teachers to mentor one another and share teaching strategies.

These new values and beliefs in self-learning and discovery were introduced to the teachers by staff and support groups from the faculty of education of McGill University in Montreal. There was an emphasis on personal and professional growth. Group discussions with colleagues influenced my work and guided reflection on and in my teaching. We read widely on recent educational thinking, which usually initiated more discussion. My colleagues and I spent time after school hours sharing ideas and beliefs about children, the values in education and society in general. Some staff members were harsh in their judgment towards those teachers who were considered structured in their teaching approach and very supportive of those teachers whom others viewed as laissez-faire. I positioned myself in the middle position, and perceived myself as balanced between two polar opposites.

It was sometimes a struggle for me to reconcile my intervening to encourage communication with my students with my belief in just "letting children learn themselves" without teacher involvement. I do not think I ever stayed out of a learning activity completely but the conflict between my attempts to adopt the current thinking on teaching and learning and my belief in being part of the communication process presented a constant dilemma. Avoiding being either too deeply involved or a mere spectator was a main concern in my teaching. This same issue emerged later in my attempts to initiate small cooperative learning groups in regular classrooms.

I concluded that my teaching intervention was necessary if deaf/hard-of-hearing students were to acquire linguistic and academic competencies. I was grounded in a belief
gained from my experience, that my students would be unable to acquire the tools of language unless there was provision for interaction with many fluent speakers of English. Teaching had to include a didactic and inductive approach towards generalization of language learning. I believed that the people who were available to encourage spoken language development were the parents, families, teachers, and normal-hearing peers in the large public school where our classes were housed.

The move to integrate deaf/hard-of-hearing students into the regular classes for academic and social learning was gaining momentum about the year 1970 at The Montreal Oral School. I turned for support and resources to the teachers and students in the regular system rather than those in special education, just as I had done several years before in the public school in Burnaby, B.C. The art of inclusion was then skilfully applied by the administrative personnel, and spearheaded by the principal, Steve Mecham. The staff made countless presentations on the impact of hearing loss on communication and education and demonstrations of students’ work, for the benefit of administrators and staff in local school boards. The strong advocacy platforms helped to generate a climate of acceptance for future mainstream settings. Doris Leckie was one of the first teachers to provide support services for mainstreamed students. Later, as principal, she and the staff took on a leadership role in furthering education for deaf/hard-of-hearing children in regular classes with support from the staff of the school for the deaf.

My teaching role at that school changed from that of classroom teacher to one of supervision. I was a teaching coach, a small group instructor and a trouble-shooter, moving between staff and students in regular and self-contained classrooms. Teaching staff and the parents of the students constantly raised questions regarding the appropriate time and most appropriate class or school in which to integrate the students. Decisions were based on the students’ ability to communicate, their ability in academics, and their social skills, personality, and general attitude to learning. The amount of parent involvement and support given to students entering a mainstream setting was given priority in the decision-making process. The students usually required support when they were integrated into the regular classrooms. In those early years acceptance of the deaf/hard-of-hearing students by the regular classroom teachers was considered of equal importance to the learning ability and coping methods of the students.

My interest by this time had expanded to the socialization of deaf/hard-of-hearing students in congregated special classes and those integrated into regular classes. I entered the Masters degree program in the psychology department of the University of British Columbia. My focus shifted from a specialization in deafness to the broader perspective of counselling psychology. The program involved the training of guidance counsellors in regular elementary and secondary schools in the Vancouver area. During the training I observed and participated in regular classes in addition to as counselling individuals and families in the community. Again, the interactions among teachers and students highlighted the importance of the psychological aspects of communication.

With my new knowledge of counselling psychology, and my interest in the psychosocial characteristics of individuals with hearing loss, I decided to embark upon a study as part of my thesis on the responses to a survey which I sent across Canada. The study relied on findings from a questionnaire requesting responses from school personnel and other agencies on the availability of counselling services for deaf/hard-of-hearing students and their families.

The basis for the survey was rooted in early research findings of psychosocial concerns regarding deaf/hard-of-hearing students in both segregated and mainstreamed school systems (Dale, 1972; Hus, 1979; Myklelbust, 1960; Kennedy & Bruinshinks, 1974; Kennedy, 1973; Schlesinger & Meadow, 1972, 1972a; Peterson, 1971; Sussman, 1971). The results of my early research showed that the majority of the respondents perceived a need for more counselling services. At that time, in 1979, the counselling services in the various settings were reported to be less than adequate in each province of Canada. The major problems encountered by deaf/hard-of-hearing individuals were perceived by the respondents to be related to behaviour, conflicts within the family, and/or communication in general. Respondents in the survey emphasized the need for individual and group counselling of deaf/hard-of-hearing individuals and their families. In the M.Ed. thesis, I recommended social skill programs emphasizing self-esteem, reflection and self-exploration to encourage positive social behaviours in the deaf/hard-of-hearing population. I presented various models of counselling designed to meet the psychosocial needs of deaf/hard-of-hearing individuals.

My wish was to remain in British Columbia and find a position in the regular school system as a guidance counsellor. However, job prospects for my husband were not
at all favourable so we made the return journey to Ottawa in 1980, where I had found a teaching position.


I acquired a new position as a teacher/consultant working with mainstreamed deaf/hard-of-hearing students in the Ottawa/Carleton area. The concerns I had at the beginning of working with the teen group gave me the impetus to search intently for learning environments that encouraged and placed value on small groups of students working and learning together. The group had had the experience of solving problems together in groups of two or four. They had taken different roles of cooperation and collaboration in organizing and leading discussion sessions. I considered these ingredients necessary for the development of a cooperative spirit in a classroom with mainstreamed deaf/hard-of-hearing students.

My work with those teens in Ottawa led me back to the same essential questions that had prompted me to found the group. How would a small cooperative group work for those students for whom large class instruction and interaction was unsatisfactory? Could a measure of experience in cooperative learning groups have a more positive effect on their learning and self-esteem than previously reported by the deaf/hard-of-hearing students in the teen group?

A recurring theme in my mainstreaming experiences was the belief that it was not enough to hope that interaction would occur naturally in small group learning. I knew there had to be planning and structures by educators prior to and during small group work to make it work. I agreed with Smith & Greenberg who commented that the intent and spirit of mainstreaming into regular classes requires situational structuring to the potential benefits of integration (1981).

These thoughts, which had solidified during my involvement with the teen group, made me resolve to investigate the possibility of initiating small-group learning approach with deaf/hard-of-hearing students within mainstream education.


Further speculation resulting from discussions with Dr. David Hunt and interviews with other colleagues during my doctoral course work at the Ontario Institute for Studies in Education (O.I.S.E.) led to my first encounter with the theory and practice of small-group learning. This learning approach used in classrooms was called
Cooperative Learning. The fact that this kind of group process had acquired the label of “cooperation” deepened my curiosity about its educational claims.

My thesis emerged as an exploration of cooperative learning as a way of fostering independence, helpfulness and mutual cooperation among groups of students. I wanted to investigate how a deaf/hard-of-hearing student could function in a classroom with normal-hearing students, discussing tasks in a small-group discussion. In cooperative learning, the objectives of the group tasks are shared by all the participants. Students have to take different responsibilities in problem-solving activities. Investigating interaction with emphasis on communication strategies used among students became very appealing as a thesis topic.

In 1989-90, the year I was in residence at O.I.S.E., University of Toronto, I joined other educators in workshops and seminars on cooperative learning sponsored by the Great Lakes Chapter Association of Cooperative Education in Toronto. I immersed myself in learning to be a group member collaborating with others on learning tasks. In the activities set up by the group facilitators, the tasks were not difficult and did not involve real problems. Nevertheless, negotiations had to be made with other group members; relationships developed in the interactions and it was difficult not to participate to some degree. However, as we were all probably cooperative to begin with, the whole process seemed effortless for the instructor and group members alike. At the very least I learned about the procedures and activities that could be incorporated into this learning approach.

In preparation for conducting this study, I explored the possibility of working with teachers who were already engaged in cooperative learning and who had a deaf/hard-of-hearing student in the class. However, I knew that such an opportunity might be quite remote at that stage, and that I would probably have to present myself as the initiator of cooperative learning with deaf/hard-of-hearing students. I needed to find out if the investigation could be pursued, and what effect the study might have on deaf/hard-of-hearing students who experience difficulties communicating in group discussions.

Having described the experiences that led up to this study I shall now report on research studies conducted and clinical experience reported in the areas of mainstreaming, specifically with deaf/hard-of-hearing students. This review reflects current philosophy and pedagogy within public school systems. The literature centres on
the benefits and limitations of educating deaf/hard-of-hearing students alongside their normal-hearing peers. It includes findings about the effects of cooperative learning with mainstreamed deaf/hard-of-hearing students and on normal-hearing students in general education and in special education.
Chapter Two: Literature Review

Overview

In this chapter, there are two major sections. The first section comprises a literature review of studies on mainstreamed deaf/hard-of-hearing students. The second section discusses cooperative learning. The first section covers three areas: a) policy and law for mainstream students such as those with hearing loss with handicapping conditions in the regular school system; b) rationale and general concepts of mainstreaming deaf/hard-of-hearing students; and c) a review of empirical and clinical studies of mainstreamed deaf/hard-of-hearing students.

The second section discusses cooperative learning, and consists of a) a brief history of cooperative learning in education; then b) a description of the characteristics of cooperative learning, c) a literature review of cooperative learning as it relates to (normal-hearing) students in general education; d) a literature review as it relates to (normal-hearing) students in special education; and e) a review of studies of cooperative learning with mainstreamed deaf/hard-of-hearing students. I conclude the chapter with a statement related to the present study from the research findings.

A. Mainstreaming Studies of Deaf/Hard-of-Hearing Students

1. Policy and Law References

Legislation (U.S. P.L. 142) passed in 1975 concerned the inclusion of students with handicapping conditions into classes in the regular school system in the United States. This law mandated that learners with special needs be integrated and provided with an appropriate educational opportunity in public school systems, and given access and constructive interaction with non-handicapped peers (Slavin, 1980).

The Education Amendment Act, Bill 82, was incorporated into the Education Act in the Revised Statutes of Ontario in 1980. Bill 82 meant that school boards were required to provide special education programs and services to meet the needs of all exceptional students in Ontario (Memorandum: Ministry of Education; Ministry of Colleges and Universities, 1981). Bill 82 gave assurance that every exceptional pupil in the Province of Ontario would receive an education suited to his or her needs (Memorandum: Ministry of Education; Ministry of Colleges and Universities, 1981). Before Bill 82, school boards were not required by law to offer special education but could do so if desired.
Students who are deaf or hard-of-hearing students are in the grouping of students with "exceptionalities." Such students have a degree of hearing loss which is defined as an impairment, characterized by deficits in speech and language development causing delays in communication. Diminished or non-existent auditory response by individuals to sound or spoken language with or without amplification creates the need for special education programs and/or special education services. (see Weber, 1990, p. 134). Weber (1990) quotes figures from the 1985 Canada Year Book showing that 1% of the population of congenital or prelingual students are considered "hearing impaired" that is, those children born with a hearing loss or with a hearing loss prior to early language learning. A description of measures of hearing loss and other technical information is in Appendix A.

As an example of implementation with the provision of support personnel and equipment, it has been the policy of the English boards of education in the Ottawa/Carleton area, to place deaf/hard-of-hearing students in their neighbourhood schools if possible. At this time (2000), in this area, there are approximately 570 students with some degree of hearing loss. The majority require the direct or indirect service of a specialized teacher as a support to the regular classroom teacher. Twenty-three percent of those students have a hearing loss of 70 decibel level or greater (ANSI 1969). This level is defined as educationally "deaf" according to the Ontario Ministry of Education criteria for special education funding purposes (Ministry of Education, Policy /Program Memorandum 1991, 1994, No. 76c, p. 2).

It is the practice of most major school boards in Canada to place deaf/hard-of-hearing students according in local school settings wherever possible, to their educational and social needs. At this time (1999), there are students with some degree of hearing loss in boards of education across Canada who require the direct or indirect services of a specialized teacher as a support to the general classroom teacher. Some of these students may require the additional support of a teaching assistant (to supplement teacher instructions or to assist in communication) or an interpreter (using sign language and/or oral communication) in the classroom. Some deaf/hard-of-hearing students across Canada may be in special education classes with a small group of normal-hearing students with academic and/or social difficulties or in self-contained classes with a small group of students with hearing loss. Many more deaf/hard-of-hearing students are in regular classes fully mainstreamed for all subjects.
Over the past twenty-five years, the number of students with hearing loss mainstreamed in the United States into classrooms with normal-hearing peers has increased significantly (Hulsing, Luetke-Stahlman, Loeb Nelson & Wagner, 1995; Ross, 1990). In 1993, Schildroth & Hotto reported that 51% of students with hearing loss in the United States are currently integrated into mainstream education.

In Ontario alone, the present percentage is higher. This is according to current applications for funding to the Ontario Ministry of Education by local boards of education for over 2000 deaf students with hearing loss of 70 decibels and higher. (Paul Bartu, former Director, Ernest C. Drury, Provincial School for the Deaf, 1999). Bartu reported that in all probability there were another 1000 students with mild hearing loss and/or unilateral hearing loss plus another 1000 deaf/hard-of-hearing children in preschool programs in Ontario (Voice, Toronto 1999). On the other hand, there are only about 450 deaf/hard-of-hearing students enrolled in the three provincial schools for the deaf (Bartu, 1999). It is difficult to obtain exact numbers of students in Ontario at the present time who have hearing loss. There are probably students who may not require the use of hearing aids, some who may not be reported as having a hearing loss, and perhaps some who may not yet be identified. (Executive Director of OEDHH: (Ontario Educators of the deaf/hard-of-hearing, 1987)).

2. Rationale and General Concepts

Parents, educators, and audiologists recognize the children with hearing loss exhibit the same range of basic intellectual capacities as their normal hearing peers and should be given the same opportunity to use their innate capabilities (Northcott,1990; Ross, 1990, in Flexer et al,1990, p.xx). This concept was not always recognized by professionals. It is interesting to note, however, that the concept of mainstreaming deaf/hard-of-hearing children did not just take hold in recent years. There are references and anecdotal comments from sources as far back as the early 1800’s (Ross,1990).

Northcott (quoted in Ross,1990), refers to time when the audiogram (standard measure of hearing) was the major basis for the educational placement of deaf children, who were usually placed in segregated classes and/or special schools in the 1940s and 1950s. There were few educational alternatives for deaf/hard-of-hearing students integration in the United States and Canada in the early years.
By the 1970s there was a perceived need for an increase in programs towards placement of deaf/hard-of-hearing students in regular schools and the "hearing world". The reasons educators and parents give for integration are:

- that they may be given the opportunity to realize their maximum academic achievement and
- that they CAN learn, through experience, to socialize with the "real world". Bunch (1989).
- that exposure to the "normal" educational and social environment in regular schools will be of more value than exposure in segregated education (Ross, 1978; 1978)
- that the availability of classes and the goals and objectives of the regular curriculum are considered as an educational advantage. Ross (1978, p. 202)

There are criticisms of mainstreaming deaf/hard-of-hearing students in general. Not all of these students do well academically or socially (Cappelli et al., 1996; Health Canada, 1994; Leigh & Stinson, 1991). Although it is not part of this study mention is made of one study critical of programs in segregated or partially segregated settings. Wood, Wood, Griffiths & Howarth (1996, p. 348) reported from classroom observations that communication methodology currently employed in segregated classes of deaf children in Britain was limiting and resulted in issues of self esteem and poor linguistic development. The researchers discussed evidence that teachers who ask frequent questions of their students, exhibit fewer grammatical structures and who also spend more time repairing students' communication, in turn, have students whose utterances are shorter, who ask fewer questions and who communicate less often with peers, among other less desirable results. Wood et al. (1996) suggested that teachers could change their management of conversations with children with hearing loss towards more productive interactions. In mainstream classes this communication goal is of high priority. This study did not consider the benefits and/or limitations of segregated educational settings, however such research would undoubtedly be purposeful.

Another major disadvantage of mainstreaming stems from the lack of experience of regular educators working with deaf/hard-of-hearing students. While educators may take special education courses, there are few that offer specific interventions for working
with deaf/hard-of-hearing students. Rittenhouse (1987) reported that there was general support for mainstreaming from teachers in mainstream and partially mainstream settings, but there was a need for better communication between special and regular educators and more support from the administration was perceived as necessary.

Educators and parents of deaf/hard-of-hearing children need to be fully aware of available options in educational settings (Gjerdingen, 1987; Boothroyd & Draffin, 1989). Preferences for educational placements depend on a variety of factors for both educators and parents. There are those who may not be in favour of any inclusive or mainstream placements in regular education and who support segregated or partly segregated placements exclusively. There may also be those who are solely committed to mainstream education in regular schools, without consideration of educational options.

More recent research studies and clinical experience reported by researchers and practitioners at national and international conferences are placing less emphasis on aggressive reactions to one or the other philosophy, methodology and educational setting. More relevant topics concern issues within mainstream education; for example, social issues and factors which encourage and facilitate success in classrooms; with deaf/hard-of-hearing students. Educators teaching in special education classes are equally interested in and concerned with academic issues, literacy development and social issues.

It is relevant in this section to understand that regular classroom listening conditions for students can be less than optimum. Brackett (1997) contends that regular classes are usually highly verbal and are considered by educators as beneficial for the promotion of social, academic and communicative behaviours. While that is probably the case, it is important to state that those mainstreamed students with profound hearing loss are generally more likely to have communication difficulties than those students with a lesser degree of hearing loss. The latter population comprises the majority of mainstreamed students. In the past, the students who were most likely to be mainstreamed were hard of hearing. More recently, documentation of positive findings on mainstreamed students with hearing loss of severe and profound degrees has been of particular interest to practitioners and researchers (Boothroyd-Turner, 1990; Geers & Moog, 1989; Paul & Quigley, 1990; Lynas, 2000).

In discussing the literature on mainstreaming deaf/hard-of-hearing students, a distinction must be made between empirical studies and clinical claims by researchers and practitioners in this field of education. Publications of a clinical nature typically
espouse a particular type of programming by practitioners. Empirical studies are conducted to detect causal relationships between variables. Quantitative and/or qualitative measures and analysis are used in the research design and methodology (Borg & Gall, 1989, p.324). Most of the related literature in this study is considered as clinical research. A review of this area of literature on mainstreaming is included under the sub-headings of Early Intervention, Communication, Academics and Social Issues.

3. Research Findings on Mainstreamed Deaf/Hard-of-Hearing Students

i) Early Intervention

Researchers in clinical studies have reported that predictors of success in the mainstream environment include the early fitting of hearing aids and auditory learning (Boothroyd, 1982; Marlowe, 1986; Flexer & Wray, 1992; Ling, 1989; Ross, 1990). Students who were diagnosed with a hearing loss early on -- are better able to access the speech signal through amplified sound using hearing aids or other sensory aids, allowing for at least some auditory learning of spoken language (Ling, 1990 in Estabrooks, Ed., 1994). Programs emphasizing auditory learning and spoken communication revealed that the majority of students from such programs were thriving in mainstream programs and were developing adequate levels of spoken language, as reported by early intervention practitioners (Crawford, 1986; Simser, 1986). Furthermore, deaf/hard hearing students who were identified early on were found to be appropriately placed in mainstream settings and were evaluated as reading at or above their grade level (Wray, Flexer & Vaccaro, 1999). Early amplification and early educational programming involving parent participation have been identified as key components in the language development of young deaf/hard-of-hearing children (Cole, 1992; Estabrooks, 1993; Green, 1990; Simser, & Stacie, 1993). However, Geers (1991) concluded that even-early mainstreamed students who had parental involvement and were identified early on, evidenced delays in vocabulary and used simplified expressive and receptive syntax relative to their normal-hearing peers.

As reported above, early diagnosis, fitting of hearing aids and communication intervention all have a bearing on the success of mainstream placements, yet it has been reported that students may still show evidence of delayed language as they continue in general classrooms.
ii) Communication

The functional adequacy of oral communication skills is probably the one single most important factor in assessing a mainstream placement for students with hearing loss (Brackett, 1997; Geers & Moog, 1989; Phlaster, 1978). Consider what is involved in a communication exchange in a classroom: normal-hearing students are required to have the ability to comprehend, organize, formulate and structure language to both give and receive ideas and thoughts. It cannot be assumed that all deaf/hard-of-hearing students are able to handle those demands.

English language competency of mainstreamed deaf/hard-of-hearing students was the overall primary predictor of achievement in literacy (Geers & Moog 1989; Gjerdingen & Manning, 1991). Interestingly, students mainstreamed at an early stage of schooling performed at higher levels on communicative measures of performance than those mainstreamed later in secondary schools settings (Brackett, 1997). A likely reason for this difference is that students mainstreamed at an earlier stage may have more frequent opportunities and exposure to instructions allowing interactions with normal-hearing peers to develop communication performance. Goldberg & Flèxer (1993) also reported that the speech intelligibility of students with hearing loss was superior to that of students in other segregated settings. Brackett contends that regardless of degree of hearing, students with hearing loss continue to evidence difficulty in fully accessing the speech of teachers and peers (1997, p. 357). This factor then affects language development which impacts in turn on academic acquisition. Remediation and development of the concepts is then necessary by consistent teacher intervention. Students who exhibit difficulties in communication skills still are considered to experience benefits through being educated in mainstream settings (Dewar, Boothroyd-Turner, 1994).

The importance of acoustics and amplification cannot be underestimated in mainstream settings for deaf/hard-of-hearing students. Hearing aids are still considered by far the most important tools that exist for promoting spoken-language development in children who are deaf/hard-of-hearing (Ling, 1994). Despite this factor, Brackett stated that the most obvious negative aspects of mainstream classes are the acoustics, which cause poor listening conditions for a student with hearing loss (1997, p. 356). It is a fact that deaf/hard-of-hearing students have to learn to extract acoustic cues from the speech signal and incorporate this information into their basic knowledge. However, well-treated
acoustic conditions in classrooms can ease communication between deaf/hard-of-hearing students their teachers and their normal-hearing peers.

Deaf/hard-of-hearing students often have delays in vocabulary development which make it difficult for them to function in mainstream classes. Geers & Moog (1989) concluded that low oral vocabulary scores were most likely a factor in the competency of the spoken language of deaf students. The authors considered the lower level vocabulary of the deaf students to be a possible contributing factor towards the less than comparable literacy scores in relation to normal-hearing high school students. In the Geers & Moog study only 10% of the students achieved adult-level vocabulary scores on the expressive test, and 12% of the students achieved adult-level vocabulary scores on the receptive test. Comprehension of vocabulary concepts have a bearing overall on achievement for all students—not only for those with hearing loss. If deaf/hard-of-hearing students do not understand the subject material, full participation is not possible (Kretschmer, 1994, p. 376).

Perceived success in the mainstream is highly dependent on communication skills as well as attitude (Geers, 1990; Pfaster, 1980; Saur & Stinson, 1986). Spoken language skills are superior in students in mainstream classes compared to students in partially mainstreamed or segregated settings. Although mainstreamed deaf/hard-of-hearing students’ communication skills may be generally good, fully accessing information can be difficult for them. For example, teachers who generally move around the classroom cause problems if students are trying to speechread and/or listen to the teacher. When lights are dimmed for showing of movies or videos in classrooms, deaf/hard-of-hearing students are usually at a disadvantage (Youdelman & Messerly, 1996, p.101).

Brackett & Mason (1986) studied the performance of students with mild, moderate and profound hearing loss, all of whom evidenced communication delays. Communication delays cause difficulties even for students with hearing loss in only one ear. Bess (1986) reported that 35% of students with unilateral hearing loss had failed one or more grades. In the study by Bess (1986) teachers reported that only 22% of the students with hearing loss were rated as above average compared to 42% of the normal-hearing students. In addition, Blair, Peterson & Viehweg (1985) reported on students with hearing loss of a moderate degree which can also interfere with fluency. These students performed at grade level, but they were still significantly below their matched normal-hearing peers.
Concluding comments generated from the studies cited on communication success factors include:

a) oral communication and speech intelligibility;

b) competency in English and adequate vocabulary levels;

c) accessing information can be limited by poor listening conditions;

d) students with even minimal hearing loss can experience communication delays

iii) Academics

Success in integration has usually been considered in the literature in terms of academic performance, which in turn has been associated with language skills (Phlaster, 1980; 1981). Geers & Moog (1989) conducted a study of factors predictive of the development of literacy in the United States and Canada involving 100 profoundly deaf 16-and 17-year-old students educated in mainstream settings. Although these students were profoundly deaf, they were reported as having well-developed auditory speech perception skills, and 88% percent demonstrated proficiency in English spoken language. Their verbal intelligence scores were in the average range when compared to normal-hearing adolescents. In academic testing, 30 % of the sample demonstrated reading skills at or above the 10th grade level, with the mean grade level at the 8th grade level for reading comprehension on the Stanford Achievement Test.

While the literature provides positive findings regarding mainstreamed deaf/hard-of-hearing students who had improved their reading levels, Paul & Quigley (1990) found that most students with severe to profound hearing impairments who graduate from high school do not read as well as their normal-hearing peers. Geers & Moog (1989) also found that the average reading level for deaf/hard-of-hearing students to be below that of normal-hearing peers at the end of high school.

Several studies of the academic performance and achievement of deaf/hard-of-hearing students integrated into mainstream settings have found these students to be superior to the performance of deaf/hard-of-hearing students in segregated settings (Brackett, 1977; Geers, 1990; Gjerdingen & Manning, 1991; Goldberg & Flexer,1993; Lombard, Nuzzo, Kennedy & Fosham,1994; Wang & Baker,1985). However, an earlier study by Schildroth & Karchmer (1986) reported low reading levels equivalent to a 3rd grade level for mainstreamed deaf/hard-of-hearing students.

Contrary to what one might expect, academic success does not always depend on the degree of hearing loss. Deaf graduates of an auditory-verbal approach in
communication therapy went on to post-secondary education despite severe to profound hearing losses (Goldberg & Flexer, 1993). Biro and other colleague practitioners (1986) tested mainstreamed deaf/hard-of-hearing students using standard academic and language measures normed on a normal-hearing population matching age and grade levels. In most of the sub-tests, the students with hearing loss of a severe-profound degree performed at or above the standard norms for normal-hearing students and above the level of most of the students with a lesser degree of hearing loss.

An interesting aspect of mainstreaming was a report of a study of the cumulative effects of mainstreaming on the achievement of deaf adolescents who attended academically demanding classes. It was found that they had higher achievement levels than students in segregated or partially segregated classes (Holcomb, 1990). It could be speculated that these students were placed appropriately in the advanced level of instruction, therefore expectations for high achievement were fulfilled.

Additional clinical studies of deaf/hard-of-hearing students who attend provincial or state schools for the deaf have shown that they also have experienced academic success with access to programs in mainstream schools (Anderson, 1992). Deaf/hard-of-hearing students enrolled in mainstream classes in state schools in the United States are considered able to be successful. Seaman (1987) has determined that the success of mainstreamed students depends upon support by adequate staff, strategic planning, - (a common requirement in mainstreaming planning) - and maintenance of contact with the school for the deaf.

Academic achievement continues to be more favourable in integrated settings, although concerns are still evident in academics, particularly in relation to vocabulary, -- regardless of type and degree of hearing status. Mainstreamed students tend to have higher levels of achievement than do students in segregated settings, but there are still mainstreamed students who do experience academic difficulties. The reports on the academic and social aspects of deaf/hard-of-hearing students in segregated or congregated educational settings are not part of this review as stated previously (p. 45). However, an educational review was conducted in Ontario (1988) of deaf/hard-of-hearing students from segregated, partially mainstreamed and mainstreamed programs. The findings of this review did not indicate that higher overall academic achievement was contingent on placement of the students.
iv) Social Issues

Social development is fundamental in any school situation. Researchers in the early years of mainstreaming up to the present time have reported on social issues being of some concern as more deaf/hard-of-hearing students are educated in regular classes in the mainstream (Antia, 1982; 1985; Arnold, 1979; Brackett & Henniges, 1976; Farrugia & Austin, 1980; Hummel & Schirmer, 1984; Hus, 1979; Kennedy & Bruininks, 1974; McCauley, Bruininks & Kennedy, 1976; Reich, Hambelton & Houldin, 1977; Vandell & George, 1981).

The socialization of mainstreamed deaf/hard-of-hearing students continues to be of interest to researchers (Brackett & Mason, 1979; Ross, 1979; Schloss & Smith, 1990). Those students attending their local schools have the advantage of being part of events in the community and are more likely to have their peers in the classroom as friends. Northcott (1990) considers important questions about mainstreamed deaf/hard-of-hearing students. Identity issues in terms of friendships and a sense of belonging should be considered as well as the importance of students being competitive and motivated in school (Northcott, 1990).

Positive relationships among mainstreamed deaf/hard-of-hearing and normal-hearing students have been described in a study by Augustine et al (1990), although an earlier study by Reich, Hambelton & Houldin (1977) indicated that although integration was beneficial, personal and social problems may occur the longer integration continues. Predictions about Integrated students were also reported some years later in studies to the effect that deaf/hard-of-hearing students in regular classes for normal-hearing students may have social difficulties in peer relationships (Vandell & George, 1981; Levy-Shiff & Hoffman, 1985). Other studies show deaf/hard-of-hearing students to be isolated and marginalized within mainstream environments (Health Canada, 1994). Researchers and clinicians usually refer to inadequate verbal communication with their normal-hearing peers and/or poor self-esteem and feelings of failure in academics to explain social inadequacies (Leigh & Stinson, 1991).

In the Ottawa/Carleton area Cappelli et al (1996) studied proficiency in the skills that contribute to positive social interaction and relationships among students with hearing loss and their normal-hearing peers. The authors investigated the psychosocial functioning of 23 deaf/hard-of-hearing students mainstreamed from grades 1 to 6. A comparison was made with a matched group of normal-hearing students. Using
sociometric assessments, self-report measures were used by both deaf/hard-of-hearing and normal-hearing students in the affective domains of social competence, social anxiety and social knowledge.

Results of the Cappelli et al study (1996) showed that the deaf/hard-of-hearing students had lower social status than the normal-hearing students (35% rejected compared to 5% of the normal-hearing students). Nine out of the 23 (39%) deaf/hard-of-hearing students were rated as having low social status and a perception of themselves as less socially accepted than the normal-hearing group. Self-reports indicated that the deaf/hard-of-hearing students were aware of peer rejection. The older deaf/hard-of-hearing students, related feelings of social anxiety and were more fearful of negative evaluation from their normal-hearing peers.

There were no significant differences between the two groups of older and younger deaf/hard-of-hearing students on social anxiety scales, nor were there differences in their self-perceptions with regard to competence. However, the older group of deaf/hard-of-hearing students were found to be better accepted than the younger deaf/hard-of-hearing students by their normal-hearing peers.

Cappelli et al (1996) implied that deaf/hard-of-hearing students lack some of the social skills that encourage positive social relationships in classes with normal-hearing peers. In contrast to other findings that communication difficulties affect social situations, involving deaf/hard-of-hearing individuals, this small sample group of students were reported as performing academically at or near expected level for their age, and they communicated at a sophisticated level with well-developed spoken language.

Mootilal, Musselman & MacKay (1996) found that deaf adolescents in segregated and partially integrated settings reported better adjustment with peers who were also deaf than with peers with normal hearing, whereas mainstreamed deaf students reported better adjustment with normal-hearing peers. There were no significant differences found among the groups in perceived social competence. However, partially integrated students were the best adjusted overall with no clear differences among segregated, mainstreamed or normal-hearing students. The partially mainstreamed and more fully mainstreamed students did have established contacts with other deaf peers.

Deaf/hard-of-hearing students in classes with other students with hearing loss may have fewer social-adjustment problems than those deaf/hard-of-hearing students fully mainstreamed. These students in smaller congregated classes would not have to be
withdrawn as readily for academic support. Other findings on deaf students in self-contained classes indicated that these students expressed significantly more negativism than did students from other educational settings in the mainstream or in special school settings. The reasons for the students in the self-contained classes having a more negative attitude are not made clear in this comparison study (Kluwin, 1996).

Researchers have posited that the social ties to other deaf students contributed to mainstreamed students' sense of social competency. The findings of Mootilal, Musselman & MacKay (1996) have added to my initial reflections on factors related to social language problems for some of the members in the teen group who had few, if any, social ties with other deaf/hard-of-hearing adolescents prior to joining the teen social club. I concur with suggestions that deaf/hard-of-hearing students should have the opportunity to socialize and develop friendships with other deaf/hard-of-hearing students. This opportunity could serve to encourage positive social adjustment in the balance of both academic and social development in mainstream classes.

Using a self-concept inventory (North York Self-Concept Inventory, 1988), Biro, Fitzpatrick, Kronik & Moon (1988) compared deaf/hard-of-hearing teenagers with normal-hearing adolescents (belonging to teen groups). The groups of deaf/hard-of-hearing and normal-hearing students attended high schools in the Ottawa/Carleton and Montreal areas. Questions asked related to self-esteem, feelings of success and a sense of belonging. Students in both the deaf/hard-of-hearing and normal-hearing groups showed more similarities than differences in terms of self-knowledge and feelings about themselves. The two groups of students expressed similar feelings of being lonely, feeling left out, and not achieving as well as they would have liked. Both groups of students, however, reported more positive than negative feelings about high school. Interestingly, degree of hearing was not related to the students' responses on the questionnaire. Cappelli, has reported similar findings in his study in that the degree of hearing loss and the effect on communication was not relative to the students' perception of themselves or others in the study (1996, p. 206).

In recent practice, when teachers of deaf/hard-of-hearing students are giving academic and language-related support to students, they usually withdraw them from activities in the regular class. Students may be engaged in academics which are heavily-laden with language content and speech and auditory activities. Although withdrawing students is generally considered a productive service, it may not always be in their
interest. They may feel resentment about missing class instruction, or feel different for being singled out. The main reason for withdrawing students for academic assistance in a special education learning centre and/or withdrawn on an individual basis is that they are experiencing a bit of difficulty in the regular class.

It was stated earlier that deaf/hard-of-hearing students frequently have difficulty in participatory activities which require attention to many different speakers. They may have inadequate social skills due to faulty language skills and they may have poor self-esteem or feelings of being left out by peers. Communication problems and/or academic difficulties may be factors inhibiting positive peer relationships. Researchers have found that although hearing-impaired students may be competent communicators they are often deficient in subtle social communication skills that affect social status and acceptance by peers (Antia, 1985; Hummel & Schirmer, 1984; McCauley et al., 1985).

The studies discussed in this review of the literature on the pros and cons of mainstream settings have tended to focus more on concerns of a social nature relating to mainstreamed deaf/hard-of-hearing students and less on positive examples of social competency. Since social adjustment and social competence are factors that researchers find lacking in the overall development of mainstream students, there have been attempts to alleviate these factors. Programs and teaching tools have been developed to help foster positive social skills and interaction between deaf/hard-of-hearing and normal-hearing peers (Bowden, 1989; 1991; Brem, 1992; Schloss & Smith, 1990).

Bowden (1988) designed a program to promote interaction in small groups as an alternative to large-class discussions. The program was considered beneficial to normal-hearing group members and particularly of benefit to the deaf students who participated with higher frequency in the small-structured group than in whole-class discussions. The activities were divergent and created much interest from the students (personal communication with Bowden, 1992).

Brem (1992) proposed a ten-week intervention program for teaching social skills for deaf/hard-of-hearing students in the primary grades. The author made the point that it cannot be taken for granted that for such students learning the words to a song or learning the vocabulary in a social studies unit are simple tasks. Brem suggested that the deaf/hard-of-hearing student may require more time to absorb the information, or require reinforcement of the material in a one-to-one or small group setting. The intervention program the author proposed is based on the work of Duck (1989), who pronounced that
social skills have both a non-verbal and a language component, with social skill and competence being related to the ability to hold the interest of a conversational partner. Brem (1992) quotes Dodge & Mallard (1982), who maintained that the role of the person directly teaching the program was to manage the student in a communicative environment. For a deaf/hard-of-hearing student this emphasis on communication is of high priority.

The two basic components of the program based on Duck (1989) are:

i) brainstorming, where students were asked to express their ideas on a given topic, and

ii) students act outing and rehearsing the principles learned in the brainstorming session. Students learn the social skill by experiencing the concepts as soon as they are taught and carrying them over into classroom activities. A table of the social skills proposed by Brem (1992) is provided in Appendix B.

While studies indicate success in the development of communication and academic skills of deaf/hard-of-hearing students in mainstream settings, much less is known about other psychosocial factors that facilitate or inhibit successful mainstreaming conditions. An assumption still exists that success is related only to academics, but positive social expectations do not necessarily follow for deaf/hard-of-hearing students in the mainstream.

In the Ottawa/Carleton area there is recent research in progress to study the factors that have facilitated the integration of students with hearing impairment. Participants in this study have included groups of deaf/hard-of-hearing and normal-hearing individuals, parents and specialized teachers. An interesting component of this investigation is the inclusion of perceptions of regular teachers who have had experience in mainstreaming deaf/hard-of-hearing students. Initial findings of this research show positive outcomes when comparing the responses of a normal-hearing group with the responses of a deaf/hard-of-hearing group of adolescents and young adults with regard to academics, language and self-perceptions. A limitation of this study is the small number of participants (only 24 adolescents/young adults). Further objectives of the study include implications for policy and practice in mainstreaming (in progress) (Durieux-Smith & Olds, 1999).

Educators advocating full inclusion need to consider equal opportunity, not just equal treatment. According to Liu (1995), mainstreaming concerns should address a
cultural, pluralism in order to adequately meet the educational, cultural and social needs of mainstreamed deaf students who use sign language. In this sense, the culture and language of the Deaf community would be considered as beneficial in supporting mainstream settings. (Deaf is capitalized here to indicate the official name of the community of individuals who communicate primarily using Sign language). Liu’s study implied that a bilingual/bicultural view of deafness was an important issue in the educational placement of students who communicate using sign language. Similarly, Jaussi (1991) found that factors such as family dynamics, teacher attitudes, and lack or interaction between deaf and hearing children can result in many deaf students becoming perennial ‘outsiders’ in mainstream classrooms.

4. Summary of Studies of Mainstreamed Deaf/Hard-of-Hearing Students

There are obvious limitations to all of the studies cited in that deaf/hard-of-hearing students. The subjects were not necessarily randomly assigned to educational placement. The fact remains that it is uncertain whether deaf/hard-of-hearing students do better because they are mainstreamed, or that they are mainstreamed from segregated classes because they are achieving (Ross, Ed. 1990; and similarly quoted by Musselman in review of this work, 1999).

Family background, the support services available in the schools, and the student’s cognitive and communication skills, speech and hearing level, personality, participation, motivation and social interaction all have a bearing on the effectiveness of mainstreaming (Berry, 1992; Biklen, 1990; McCartney, 1984; Phlaster, 1981; Schildroth, 1988).

Meanwhile, mainstreaming remains and continues to be the most accepted educational setting for the majority of children with hearing loss. The role of parents and caregivers deserves more than a mention and should not be underestimated: Researchers and practitioners have indicated that children with hearing loss learn language most easily when interacting with supportive parents and caregivers (Kretschmer & Kretschmer, 1978; Ling, 1990; Ross, 1990 in Estabrooks (Ed.)., 1990).
B. Cooperative Learning

1. History

In the last twenty years, there has been an increase in the adoption of a cooperative approach in classrooms in North America. Secondary school teachers were using this aspect of collaboration in social study groups and history classes as early as 1970. Cooperative learning methods, development, evaluation and support documents are readily available in educational studies at the present time (Great Lakes Association for the Study of Cooperation in Education; Ministry of Education, Ontario, 1995). The early proponents and developers of cooperative learning are Johnson & Johnson (1984); Kagan (1986) and Slavin (1986). In Ontario, under the (Great Lakes Association for Cooperation in Education) Clarke, Wideman & Eadie (1990); Rolheiser-Bennett et al (1990) and Wright (1991) continue to offer workshops and courses in cooperative learning implementation in classrooms up to this time. Johnson & Johnson (1988), outlined the major differences between cooperative and traditional learning groups, as listed below:

Groups: Cooperative Learning
- positive interdependence
- individual accountability
- heterogeneous membership
- shared leadership
- shared responsibility for each other
- task & maintenance emphasized
- teacher observes and intervenes
- groups process their effectiveness

Traditional Learning
- little interdependence
- competitive accountability
- homogeneous membership
- one appointed leader
- responsible only for self
- only task emphasized
- teacher may intervene or observe
- no group processing

It is important to point out that cooperative learning must include structures designed to enable students of different abilities to learn together. Learning outcomes are decided by the teachers as are the assessments and evaluation of the tasks and assignments. The structures allow collaboration among group members. However, other small learning groups may be collaborative but not use the structures, roles or responsibilities of a truly cooperative grouping. Group members are given rules to follow along with roles and responsibilities to assume.
2. **Characteristics of Cooperative Learning**

Cooperative learning is a term used to denote a collaborative type of learning involving small-group discussion in classrooms. It aims to employ students' personal knowledge and interest, to develop student's social understanding of themselves in relation to a group, and to nurture thinking skills collectively and individually. At the centre of cooperative learning is the development of communication skills through listening, attending, responding and contributing to the learning of each student (Eadie, 1985). One of the main features of a cooperative learning approach is that each group member is supposed to contributing the process and outcome of the task at hand. The Teacher Educational Journal (1989, pp.1003-1006) elaborates on the various meanings of cooperation:

i) **Cooperation as Structure**

Cooperation refers to an overall structure established for learning taking into account the general nature of the goal, the value of the goal, the amount of interaction expected among participants in the task and the types of interdependence to be created among participants.

ii) **Cooperation as Trait**

Cooperation as trait refers to a personality trait of the learner. Such a trait is fundamental to the response by the learner to the goal structure being employed. Because of differences with regard to this trait, students may perceive the value of cooperation to be difficult and/or feel ambivalence about such learning. On the other hand, just as the trait of cooperation enhances the receptivity of a student to a cooperative goal structure, so also does the actual experience of cooperative learning reinforce and extend the cooperative disposition of the student.

iii) **Cooperation as Behaviour**

Cooperation also refers to the observable behaviour of the student in cooperative settings. A student with a disposition towards cooperation may act differently in a group situation than when engaged in a competitive or individual activity, especially when an external reward is the outcome of the group activity. The actions of the group must be observed and analyzed to distinguish between cooperative and non-cooperative behaviour. It also may take considerable effort to change such behaviour. Cooperative behaviours expected include general abilities, unambiguous communication, giving and receiving feedback, sharing, understanding and listening. (Johnson & Johnson, 1975).
3. Cooperative Learning with Normal-Hearing Students

i. In General Education

**Academic Achievement: Positive Findings**

As early as 1981, 12 studies on achievement and social interdependence were reported by Johnson et al (1981). The authors estimated that students working in cooperative learning groups achieved about the 80th percentile compared to students working in either individual or competitive learning situations. Ten years later Slavin (1991) discovered that 61% of the studies found significantly greater achievement in cooperative learning practices; 37% of the studies found no differences and in only one study did the traditional classroom control group outperform the cooperative learning group.

Newmann & Thompson (1987) stated that in studies involving cooperative versus individualistic and competitive methods of learning, the majority of the comparisons favoured cooperative learning. Numerous studies conducted in regular classes found significantly positive achievement favouring the cooperative learning groups, and only one study found greater learning in a control group (Slavin, 1983). There was some indication that the ability to give and receive explanations was positively related to learning in small groups. Chapman (1991) found reading comprehension to be increased through cooperative learning structures rather than through direct instruction. Wideman & Kagan (1987) found consistent moderate increases in Stanford Achievement scores following cooperative learning structures. A common theme running through the studies of Clarke (1988) and Watson (1989) was that students learned more working together than working individually or competitively. Retention scores slightly favoured a cooperative learning method over individualistic methods in two grade 7 classrooms (Miller, 1992).

**Social Status: Positive Findings**

With regard to social status, student self-image and the development of mutual respect for others, there were positive changes reported. Clarke, (1988); Watson, 1989) found that the students' participation in cooperative learning groups developed higher levels of self-esteem. Success in cooperative learning activities has been shown to enhance student self-perceptions of ability (self-efficacy) and to better reveal the value of the subject content than traditional lecture classes (Nichols & Miller, 1993). The use of group rewards tends to encourage a greater degree of cooperation among students.
(Chang, 1993; Chapman, 1991; Williamson et al 1992). In curriculum areas, Duin (1984) suggested that students achieved and were more positive about school after cooperative learning. Brandt (1990); Brubacher (1990); Johnson & Johnson (1986); and Kagan (1990), claimed that learning is in essence a social process and that verbal interaction is a better method than passive learning. The authors stated that passive learning does not promote interdependence. Social implications comparing cooperative and competitive peer-group activities showed an increase in agreement statements and a decrease in aggressive rule-breaking statements during cooperative activities (Jacobson, 1988). Intergroup relations improved when there was cooperative activity (Sharan, 1980; Slavin, 1980). The students in this study reported in self-ratings that they:

- liked school better
- liked the other students
- wanted their classmates to do well
- they were more likely to be altruistic and to believe in cooperation; and
- they had a better understanding and tolerance of the viewpoints of others.

It was difficult to find any negative assessments of cooperative learning, but I pursued the following examples of studies as a contrast to the otherwise overwhelmingly positive reports of the benefits of cooperative learning.

**Academic Achievement: Negative/Neutral Findings**

Any negative findings of studies using cooperative learning have been difficult to locate in both recent and current research studies. However, specific negative comments have been reported. Cooperative learning did not prove to be superior to competitive or individual tasks in comprehension activities using basal reading instruction (Palincser, 1987; Sherman, 1976). In other earlier studies, two biology classes were compared under similar conditions; cooperative versus competitive learning was compared using a Group Investigation Model by Sharan & Sharan (1976) and an Individually Competitive Goal Structure by Sherman (1976). Both strategies had positive effects on academic achievements. Although there were no significant differences in responses to the comprehension tasks, students reported that they preferred the cooperative learning strategies. There were also fewer behaviour problems exhibited by the students during cooperative learning than in more competitive tasks. Duin (1984) reported on a study by researchers using questionnaires designed to assess cooperative learning with secondary students in shared writing activities. Researchers experienced problems evaluating the
written compositions of these students in contrast to traditional writing assignments. Evaluation and assessment has been of concern, although there have been reports from educators that this area is being addressed and that texts and other evaluation materials are now readily available (Rolheisser & Bennett, 1989).

Social Status: Negative/Neutral Findings

Other inhibiting factors in any transition to using a cooperative learning approach in classrooms include reports of students spending too much time in group brainstorming, thus reducing the amount of time available for individuals to state their ideas (Hill, 1982; Lamm & Trommsdorff, 1973). Group efforts from some members have been characterized by self-induced helplessness (Langer & Benevento, 1978). Latane, Williams & Harkin (1979), observed diffusions of responsibility and social loafing while Solomon (1981) noted other forms of resistances such as ganging up against a task.

Dysfunctional divisions of labour (the thinkist vs the typist) inhibited positive interdependence among group members (Sheingold, Hawkins & Char, 1984). Other factors such as inappropriate dependence on authority (Webb, Ender & Lewis, 1986) and destructive conflict, debilitated group performance (Johnson & Johnson, 1979). More recent documentation on any negative or neutral findings by researchers on cooperative learning however, continues to be elusive.

Teachers Concerns

The greatest concern of teachers in implementing cooperative learning is how to manage the cooperative learning process, particularly in terms of grading, timing and getting each student to do his/her part (Ross, 1992). Additional concerns include the level of understanding that administrators have of cooperative learning (Sandeen, 1991). Kagan (1991, p.12) responded to some of the concerns of classroom teachers, as quoted in summary below:

Q. Why cooperative learning and not competitive or individual learning?
R. All learning situations must include cooperative, interdependent learning situations along with competitive and individualistic situations.

Q. What about low-achieving students achieving at the expense of high-achieving students? Could high-achieving students learn more if they were not stuck in teaching?
Leadership skills, self-esteem gains, conflict resolution and role-taking abilities are seen as profiting high-achieving students.

Q. What about difficult management problems when students are to discuss and argue among themselves?

R. When students need to participate, question, argue and share, teachers have to learn to channel the energy in positive directions.

Q. Is cooperative learning in conflict with back to basics and direct instruction?

R. Some of the methods in cooperative learning are tightly structured with clearly defined objectives and expectations. Direct instruction is an important component of a cooperative lesson. Observation and feedback of group process, assigning students to teams, and social skill instruction are essential in the lesson design.

Q. Does cooperative learning force students to work with others they do not like?

R. If teachers try to force students, they, the students, probably will not be cooperative. Positive team-building, drawing hostile and reluctant students into full participation will eventually occur.

Q. What if only a few members do the work? Is it a free ride for some and extra work for others?

R. Formal cooperative learning methods ensure accountability from all members of the group. Informal cooperative learning does not ensure contribution from each member. Coasting is discouraged with each member individually assessed and accountable for his/her own learning. This is probably one of the most frequent concerns expressed by classroom teachers, that less able members sometimes create a Free rider effect. On the other hand, the more able group member may expend more or less effort to avoid the sucker effect.

Q. Does process have too much focus at the expense of content? Is there a conflict for teachers 'getting through the curriculum'?

R. Cooperative learning encourages mastery of basic skills and information; completion of complex projects; higher level thinking skills. Cooperative learning will take a different form depending on the values and beliefs of the teacher.

Q. How much time is involved in establishing and maintaining Cooperative learning?
R. Once a day—every day. Academic and social goals must be established. Use it in a limited way at first; second, management of teams/groups with one structure is helpful; and third, add other techniques as you get more practice.

Q. What about rewards, credits, marks etc.?


In personal discussions with colleagues at several workshops in cooperative practices, I asked for comments on their personal experience using a cooperative learning approach. At the time I did not realize how significant the comments of teachers would be (see discussion in Chapter 5) as I prepared for my own investigation of initiating cooperative learning with deaf/hard-of-hearing students.

In sum, the teachers' responses were that:

- primary teachers had better opportunities to integrate subject material;
- younger children found it easier to collaborate with each other;
- intermediate children seemed to respond better than primary age children in learning the skills of cooperative learning;
- teachers in secondary schools were finding cooperative learning difficult to implement and maintain and
- that assessment and evaluation were areas for further discussion and research.

ii) Cooperative Learning with Special Education Students

Slavin & Madden (1989) and Stevens & Slavin (1991) found that at-risk students (those from low socio-economic backgrounds, those assessed with low levels of ability, or those experiencing learning difficulties) can benefit from cooperative learning structures. In a review of the research on ability grouping, Slavin (1991a) found no evidence in support of grouping gifted students, together but rather that they would benefit more from being in heterogeneous groupings. Special education students mainstreamed into cooperative learning classes have been found to achieve higher on standardized achievement tests and are more socially accepted by their peers than comparable special education students in traditional classroom settings (Stevens & Slavin, 1991).

Cooperative learning activities were reported to promote integration of mainstreamed students (Lew, et al., 1986). In cooperative learning activities handicapped
students were included in group discussions and were not ignored (Johnson, Johnson, Scott & Ramola,1985). Self-esteem, interpersonal attraction, and social acceptability between handicapped and non-handicapped students was enhanced through cooperative learning strategies (Yager et al, 1985).

An interesting study by Pomplun (1997) examined the overall performance as well as the amount and nature of participation by students with disabilities in cooperative learning groups. The author found that the groups with students with behavioural disorders or students with mental impairments interacted differently from groups of students with physical impairments, students with speech impairments and students with learning disabilities.

Pomplun studied the nature of the participation showing that groups of low achievers were frequently passive during the cooperative activities with less than half of these students successfully participating. This study indicated that the use of presentation of open-ended tasks resulted in maximum participation, rather than the group having only one obvious correct answer with a routine solution procedure. Pomplun concluded that further studies of using cooperative learning among exceptional students were needed involving direct measures of participation such as observations and interviews of students in groups. Furthermore, specific cooperative behaviours that needed remediation could be identified, such as social-skill training, listening, speaking, questioning, helping and collaborating. Instructional techniques and teaching strategies are applicable to deaf/hard-of-hearing students in terms of their comprehension of directions in task assignments and class participation.

4. **Summary of Cooperative Learning with Normal-Hearing Students in General and Special Education**

   The benefits of cooperative learning with normal-hearing students are presented in sum by quoting McManus & Gettinger (1996) who examined the use and evaluation of cooperative learning by teachers along with reactions of students to working in groups and their verbal interaction behaviours during group activities. The teachers perceived that academic performance, social behaviour and overall attitudes improved as a result of having students work in groups. The students rated the social benefits as lower than the ratings given by the teachers, but they nevertheless indicated a preference for group learning over working alone. They identified the benefits about group work to be the ability to: hear ideas; get the work done faster, and get help. Students identified the
disadvantages of group work to be social conflict, such as arguing; flaring temper, and and the refusal of some students to listen in the groups (McManus & Gettinger, 1996).

Overall, the effects of cooperative learning in both general and special education are reported to be more positive than negative. For example, there is an abundance of material claiming higher academic performance and positive outcomes in social skills as a result of cooperative learning (Duin, 1984; Gelb & Jacobson, 1988; Johnson & Johnson, 1985, 1986; Madden et al, 1990; Pascarella & Fond, 1984; Pusch et al. 1985; Slavin, 1991a). Pomplun (1997) commented on the nature of participation of students with disabilities.

Investigations into the effects of teacher-student and student-student interaction have concluded that there are benefits in both academic and affective development of students in classrooms using a cooperative learning approach (Amidon & Grammateo, 1967; Johnson & Johnson, 1979; Wood, 1987). There are also reports demonstrating the affective benefits of small-group learning in terms of enhancing self-esteem, providing a locus of control, increasing motivation to learn and improving general classroom behaviour (Slavin, 1984). Measures used to evaluate academic and/or social skills are generally teacher-driven criteria for the particular lesson using cooperative learning structures.

The paucity of neutral or negative findings in the studies compared to positive claims raised concern for me as an educator and researcher. Apart from the questions raised by educators and addressed to Slavin as outlined previously, there are too few criticisms of a cooperative learning approach. Some studies report the findings without satisfactory explanation about procedures especially in the areas of implementation and assessment or the evaluation process.

The limitations of cooperative learning should continue to be tested, to broaden the understanding of its various effects. a) It could be argued that what is documented already is more than sufficient to justify expanded use of cooperative learning as a routine and central feature of instruction (Slavin, 1990). b) I believed at this juncture that more in-depth investigation into procedures and evaluation is necessary to verify that cooperative learning does what it claims in terms of higher academic learning and improved social skills in students.
i) Cooperative Learning with Deaf/Hard-of-Hearing Students

This section considers the literature surrounding the benefits and limitations of mainstreaming as it pertains to deaf/hard-of-hearing students. According to the studies cited, academic achievement was favourable in integrated settings, but there was some indication that problems of a social nature occurred in classrooms where there was a deaf/hard-of-hearing student. The literature review noted that deaf/hard-of-hearing students have difficulty in participatory activities that require attention to many different speakers; that they may have inadequate social skills because of faulty language skills, and that they may have poor self-esteem or feelings of being left out by peers.

There are so few studies involving cooperative learning and deaf/hard-of-hearing students, that I feel it is justified in describing them in detail. The authors of the three major studies - Johnson & Johnson (1985), Miller (1993), and Caissie & Wilson (1994) -- are familiar with cooperative learning procedures, structures and outcomes. Other publications on the use of cooperative learning and deaf/hard-of-hearing students either are not concerned with mainstreamed students or are specific only to the potential of cooperative learning in the education of deaf/hard-of-hearing students. For example, an article by Brown & Long incorporated a cooperative learning approach using knowledge-mapping, and information processing, while the deaf students worked in pairs -- with positive outcomes -- but implementation procedures were not discussed in this study. Another article in the same publication simply describes areas of study that could be enhanced by a cooperative learning approach with deaf/hard of hearing students. The students were not mainstreamed and used sign language as their main mode of communication (Brown & Long, 1992; Luckner & McDonald, 1991).

Johnson & Johnson (1985) investigated mainstreamed deaf students and "the effect of effort in communication." This term was not described in this study as the possibility of communication difficulties compromised by efforts made between deaf and normal-hearing peers. The reader may make that assumption based on information from readings and experience thus far in the study. The students used American Sign Language to communicate, and they were in a separate special-education third grade class which joined a regular class for group activities such as cooperative learning. A Sign language interpreter assisted communication between the deaf and normal-hearing students.
Reports from the Johnson & Johnson study (1985) indicated that in this cooperative learning setting, the deaf students experienced considerable difficulty. The authors (1985) did not describe the specific nature of these communication difficulties in this report. Scores on academic achievement indicated that the deaf/hard-of-hearing students performed at a lower level than their normal-hearing peers. Both groups of deaf and normal-hearing students reported that they experienced greater success in the cooperative approach than in individualistic tasks. The rating measure used for what the authors termed "interpersonal attraction" indicated that placing the deaf and the normal-hearing students in heterogeneous cooperative learning groups promoted greater perspective-taking ability. That is to say, students showed greater sensitivity toward and understanding of one another in the cooperative groupings than in other types of learning activities. We may infer that the success reported was in the area of mutual acceptance among the deaf students and the normal-hearing students.

The Johnson & Johnson study appears to have limitations in terms of information regarding intervention strategies by the teachers and/or the normal-hearing students during the cooperative learning activities. There was also no indication of any previous interaction between the two classes of normal-hearing and deaf students.

Miller (1993) investigated the effect of cooperative learning on conversational interaction. The study was initiated to determine whether cooperative learning was a viable avenue to encourage three mainstreamed deaf/hard-of-hearing students to engage in conversational interaction with their normal-hearing peers and teachers. The deaf/hard-of-hearing students used spoken language to communicate. Miller et al observed these students with cooperative small groups in a regular class.

Miller (1993) compared the effects of a traditional teaching style and a cooperative learning style on the conversational interaction during social studies classes. The class was videotaped over nine days while they participated in three procedures: (1) a traditional teaching style; (2) the introduction of cooperative learning; (3) the re-implementation of the traditional teaching style. The first ten minutes of each tape were transcribed and coded into the following five categories: (a) conversational turns; (b) conversational initiations; (c) requests for information; (d) comments; and (e) mean length of turn.

The results of the study indicated that cooperative learning has a positive influence on communication techniques. Cooperative learning improved the
conversational interactions not only of the deaf/hard-of-hearing students but also of their normal-hearing peers. Although the deaf/hard-of-hearing students showed different levels of participation, they appeared to use more effective communication strategies. Miller suggested that a cooperative learning group may result in more turns, initiations and moves just because of the smaller number of persons involved in the small group but Miller also cautioned that just because a deaf/hard-of-hearing student is in a small group it does not follow that he/she will participate. Several limitations of the Miller study should be mentioned. Namely that:

- only 3 deaf/hard-of-hearing students were involved in the study.
- time period involved in the study was short (only nine days),
- information provided on communication was stated in broad terms rather than specific examples of the categories coded.; third,
- there were no intervention strategies described; fourth,
- the researchers did not indicate the procedures used when first cooperative learning was initiated,
- there was no discussion of the effects of cooperative learning on the deaf/hard of hearing students.

In addition, no description of the communicative abilities of the students prior to the cooperative learning activities is presented. Indeed, they may have been quite effective communicators but lacking in experience in the pragmatics of language (Kretschmer & Kretschmer, 1990).

Caissie & Wilson (1994) investigated the effects of cooperative learning on hearing-impaired students in Halifax, Nova Scotia. Specifically, these authors investigated cooperative learning activities with deaf/hard-of-hearing students and normal-hearing students in the management of communication breakdown. The study examined the communication challenge for deaf/hard-of-hearing students in a cooperative learning group, the occurrence of communication breakdowns during cooperative learning activities and the effectiveness of intervention on the management of breakdowns through usage of repair strategies.

The participants were (a) seven mainstreamed deaf/hard-of-hearing students, who communicated orally, and (b) twenty-one normal-hearing peers aged 9 to 12 years. Each cooperative learning group (the experimental group) consisted of four students, a deaf/hard-of-hearing student and three normal-hearing classmates. This experimental
A group of four deaf/hard-of-hearing students was assigned to four groups who worked together on a weekly basis throughout the school year. The control group of three deaf/hard-of-hearing students did not work as a cooperative learning group exclusively but were familiar with cooperative learning. These three students did not receive intervention. In all, there were seven groups, five of which were teacher-assigned cooperative learning groups. Videotapes of the students were recorded pre- and post-intervention. Each deaf/hard-of-hearing student in both the experimental and the control groups was videotaped for 15-20 minutes in a cooperative learning activity. Group members were required to ask questions about a reading passage and talk to each other spontaneously during this time.

The interventions consisted of the deaf/hard-of-hearing students in the experimental group learning to use specific requests for clarification. Message revision was defined as the speaker clarifying the original message by providing a paraphrase, elaborating or explaining. Message repetition was defined as, the speaker providing an exact or partial repetition of the original message, without adding any new information (Caissie & Wilson, 1995, p. 121).

When message revisions rather than message repetitions were used by the normal-hearing students communication breakdowns were resolved through the deaf/hard-of-hearing students indicating that they did not understand. In contrast, message revision by the deaf/hard-of-hearing students did not help to resolve breakdowns more successfully than message repetition.

Caissie & Wilson divided the communication breakdowns successful versus unsuccessful requests for clarification on the part of the deaf/hard-of-hearing and normal-hearing. These categories were considered repaired or unrepai red communication breakdowns. For example, the authors suggested that the question “What?” is a neutral request for clarification whereas the specific “What was the name of the place?” directs the speaker to what portion of the message was not understood. As an example of a message repetition, the deaf/hard-of-hearing student asked the question “What was that?” in response to the question about which animal lived on glaciers. This response merely prompts that the speaker to repeat the whole statement. The question “That could walk where?” clarifies what a specific response is required from the speaker.

The deaf/hard-of-hearing and normal-hearing students in the experimental group received a group intervention program designed to improve the efficacy of
communication breakdown management, largely based on the intervention program from Elfenbein (1992). Discussions and training involved turn-taking and role-playing while sending and receiving different messages. Possible causes of communication problems were suggested by the deaf/hard-of-hearing and normal-hearing students (e.g. sender speech errors, background noise, poor angle for speech-reading, signals such as a puzzled facial expression or lack of response from the partner). The students were required to practice effective message sending and receiving. Final sessions introduced communication repair strategies for both speakers and listeners. Working in pairs, the students were then requested to devise and role-play a communication interaction in which communication breakdown occurred while other two students observed. After a training period of six weeks in which both groups of deaf/hard-of-hearing and normal-hearing students practised communicating requests with each other and with other school personnel, the material from the videotapes was viewed and analyzed.

For the experimental group, communication breakdowns decreased, while those in the control group remained constant. Most of the students with hearing loss experienced breakdowns when in the role of speaker rather than in the role of listener. In cooperative learning groups they seemed to have less difficulty in sending their message than in receiving messages (a fairly common observation). They learned to request specific clarification specify from the normal-hearing students. The Caissie & Wilson study stresses the need for intervention that considers the problems encountered in communication in small groups where there is a deaf/hard-of-hearing impaired student. The authors bring out the importance of intervention in developing strategies for deaf/hard-of-hearing students in the area of communication clarification.

All three studies involving students with hearing loss just cited indicate favourable effects in using a cooperative learning approach. Cooperative learning as a form of intervention assists handicapped and non-handicapped students to interact with each other in constructive and positive ways (Johnson & Johnson, 1982). It is this emphasis that has signalled the possible appropriateness of cooperative learning for mainstreamed deaf/hard-of-hearing students. Since opportunities may be infrequent in a traditional class, it would seem important to incorporate more practice in turn-taking, requests and other conversational moves for students who need communication skills (Griffith, Johnson & Dastoli, 1985; Musselman & Hambelton, 1990).
5. From Research Studies to the Present Study

As previously mentioned, I found little research in the literature on cooperative learning with deaf/hard-of-hearing students, and not much to indicate the possibility of its useful application in mainstream education. The term cooperative learning carries with it a positive association that is difficult to contest according to the numerous reports on its success in terms of academic achievement and affective response. Cooperative learning is an approach which has become overwhelmingly acceptable by teachers and practitioners in regular education. The question arises as to what degree, as shown in the literature, cooperative learning is actually in use, particularly in the initiation stages. Researchers have claimed that implementation of cooperative learning has been validated (Kagan, 1989; Johnson, Johnson & Holubec, 1991), but -- as already indicated, studies on cooperative learning do not discuss any problems teachers may have encountered in the learning process.

Given my own practical concerns, derived from my teaching experience and from my consideration of the research literature, I questioned the research findings conducted with both normal-hearing and deaf/hard-of-hearing students involved in cooperative learning. My concerns were related to studies which did not report specific observations at the initiation stages or cautions of espousing cooperative learning in the first place. My self-journey expressed in the introductory chapter, including the section on a personal perspective of mainstreamed deaf/hard-of-hearing students raised questions regarding the value of using a cooperative learning approach in a classroom.

- Would a cooperative learning approach involving small groups of normal-hearing students including a deaf/hard-of-hearing student be worthwhile investigating?
- How could cooperative learning really work for those mainstreamed students who may have difficulties in discussion groups?
- With the many references to some of the difficulties expressed by deaf/hard-of-hearing students in the mainstream, could an approach fostering social language skills and academics within cooperative learning contribute to improved feelings of success and well-being for those who may experience frustration in "whole-class" teaching styles?
- Would it be possible for an educator other than the classroom teacher to initiate cooperative learning in mainstream classroom?
Although I did not realize this initially, bringing out these questions meant that I would put a strong emphasis on verifying initiation procedures in cooperative learning, a topic that was not addressed sufficiently in the literature.

Having reviewed the literature on cooperative learning and on mainstreamed deaf/hard-of-hearing students, I will proceed, in the next chapter, to describe the methodology I used to conduct my own study of cooperative learning with deaf/hard-of-hearing students and its effects on deaf/hard-of-hearing students, normal-hearing students and their teachers in elementary and secondary school settings.
Chapter Three: Methodology

Overview

In this chapter the methodology is presented as follows:

1. A description of qualitative research and my own grounding in this choice of methodology
3. A perspective on the Experiential Learning Cycle
4. A description of the influence of experienced knowledge gained in my own teaching
5. A description of the procedures used in the investigation into the initiation of cooperative learning in different school settings at the elementary and secondary levels
6. A commentary on start-up procedures in initiating cooperative learning, that is,
   a) planning with the teacher; b) raising awareness of hearing impairment; c) facilitating group learning: support from colleagues; d) Teaching collaborative skills and task interaction.

This methodology for this study is formulated and grounded in my beliefs and about qualitative research some of which were shaped by my graduate work at O.I.S.E.

1) Qualitative Research

Qualitative research often emphasizes participant-observations and small-group observational techniques. In practice, qualitative research is considered a holistic approach to an inter factional process of understanding and assessing educational phenomena. A qualitative frame of reference purports to have that “it has no method per se, only methods to gather information with which to construct qualitative understanding“ (Sherman, 1988, p. 44). In other words, qualitative research is not the application of pre-specified methods, but it is methodical in itself, and is essentially a reflexive endeavour (Altrichter, 1993 in Schratz Ed, 1993, p.42).

The major tenets of qualitative research include the following:

a) A natural setting is used as the direct source of data, and the researcher is the key instrument.

b) The descriptive nature of qualitative research allows for first-hand learning about the experiences of the participants in the study.

c) The data is analyzed inductively (Bogden & Bogden, 1982, pp. 28-32).
Qualitative research refers to the "meaning" in a particular context (Dabbs, 1982 in Smith, 1987, p.174). There is a tension produced by the fact that the meaning does not lie in the experience; rather, the meaning must be grasped reflectively by the researcher. Borg & Call (1989) state that it is imperative that the perceptions of the researcher in the learning experience be fully inclusive. Glesne & Peshkin (1992) view qualitative research as translating social experiences and constructing narratives.

Engaging in an inductive examination of the information allows for unanticipated outcomes, and heightens awareness of any biases I may have during the investigation (Rennie, 1993, p.30). I place value on tacit knowledge, thus I am less inclined to overlook phenomena that may not fit my expectations. New insights may be gained during the process which may influence the research and change the researcher's point of view (Borg & Call, 1989; Rennie, 1993, p.31). The results achieved depend on the interactions among the individuals involved--the classroom teachers, the deaf/hard-of-hearing students, the regular students, and the researcher (Schratz, 1993, p.5).

As a "reactive" researcher I am involved in documenting my observations and interpreting the data (Altrichter, 1993, p.44). Being aware of my own "mind-set" and preconceptions helps to keep a focus on context (Hutchins, 1993, p.123). Placing myself as observor-interactionist (Schratz, 1993, p.57) I take action in the social environment of a classroom involved in cooperative learning. Borg & Call (1989) maintain that self-trust and a commitment to the enterprise on the part of the researcher as the "key instrument"--because analysis is dependent on the insights that the researcher gains from the data.

It is worth noting that the illustrations in this study can only give a partial portrait of the scenes in the classrooms. LeCompte & Goetz (1982, cited in Borg & Meredith 1989), point out that in classrooms the interaction is often too complex for the participant-observer to document everything that happens. Ultimately this study is based on my judgment and appraisal of what is and is not included in observation notes and in the final analysis of the data acquired through my observations of the activity of deaf/hard-of-hearing and normal-hearing students in small group work.

Hammersley & Atkinson (1983); Spradley (1979); Wells (1983) and Altrichter (1993, in Schratz 1993, p.43) were my guides in terms of immersion into the "how" of the investigation. Qualitative methodology provides an approach for dealing with the following questions pertinent to this preliminary investigation of initiating cooperative
learning with mainstreamed deaf students. Simply paraphrased, the questions are taken from Erikson (1986, p.121, cited in Florio-Ruane, 1987, p.186).

- What is happening in this setting?
- What do the events mean to the participants?
- How does what happens in this setting relate to other school settings?
- What needs to happen to make cooperative learning work?

2) Perspective of the New Three R’S

I believe it was while working at the school in Burnaby, B.C., that I understood for the first time the full meaning of what Hunt (1987) calls the New Three R’s -- Reflexivity, Responsiveness and Reciprocity. Although at that time I had not heard of these qualities referred to as the New Three R’s, I can look back on my work in Burnaby and recognize the significance these qualities had then and years later in my graduate work at OISE. These concepts have been helpful in my thesis journey and in my beliefs about research. I had experienced the benefits of “mutual adaptation“ in a working relationship with the classroom teachers in Burnaby, B.C. (Hunt, 1987, p.132). I had also used the New Three R’s when interviewing individuals in my graduate work at O.I.S.E. and have continued to do so since in my work with other colleagues. The importance of collaboration with potential participants in this work, then, has sprung from the work of Hunt (1987). The New Three R's may be briefly described here:

a) Reflexivity: The ability to reflect on my own experiences as a practitioner and understand my learning implicitly, based on positive outcomes and conclusions

b) Responsiveness: The synchrony of interaction between persons-in relation one to the other. This principle features the unique qualities demonstrated in people interaction and it is the key ingredient for effective dialogue and group discussion.

c) Reciprocity: The acknowledgement of the influences between persons on any transaction. It is based on the interrelatedness of one person to another. Practitioners are dependent on this state of being for their work to be meaningful and productive. Simply stated, this principle recognizes that teachers and students affect each others’ behaviour.

Becoming acquainted with the New Three R’s has helped bring my purpose in conducting this study into focus. The Three R’s helped us to be flexible and engaged throughout the process. In my course work with Dr. David Hunt (1989-1990), I learned that Reflexivity, called the first “R“, is used in his practical work in human affairs. In our weekly seminars my colleagues and I soon adopted a Reflexive response as well as
practised Responsiveness and Reciprocality in our own thesis journeys. Reflexivity as used in this thesis is comparable to the same concept as applied research and in part, leads it in a new direction. The direct experience involved in my study requires me to rely on common-sense knowledge to understand the actions of the students while participating and "reflecting on the products of that participation“ (Hammersley & Atkinson, 1983). These New 3 R's keep reappearing as I analyze my work. (Hunt, 1987). My style of teaching is, I hope, reciprocal—based on giving and receiving. When students respond to me as a teacher I can react in a reflexive manner. The New Three R's are congruent with my beliefs and shape my method of working with my teacher/participants.

3) The Experiential Learning Cycle (Kolb, 1984).

Hunt (1992) used a version or adaptation of the Kolb cycle of experiential learning, and my use of it in this study derives from my seminar work in his classes. Hunt's version included a valuable component for interviewing my teacher-participants on aspects of our work together in initiating cooperative learning. Briefly, there are four parts to this procedure. The cycle begins with direct experience, then continues with a reflection on the experience, an analysis of it, and then an application of the positive experience to a new situation as a foundation for another positive experience (Hunt, 1992, P.10). George Kelly (1955) is quoted frequently in Hunt (1987) as being responsible for developing a theory of personal constructs in which an individual develops his/her own reality. The theory allows for changes and modifications to be made by the individual, in terms of in personal awareness and development within a cycle of experience. Drawing on our own resources fits with Kelly's theory in practice when "personal criteria“ is applied to the situation (Hunt, 1987).

The stages may be characterized as follows:

a) Concrete experience: asking the participants to identify a positive direct experience they have had recently in their teaching experience
b) Reflective observation: encouraging the teachers to talk about (to bring out) the highlights of the experience as they reflect on it
c) Abstract conceptualization: inviting the teachers to tell why the experienced occurred or to interpret the significance of the experience
d) Active experimentation: asking the teachers to indicate the implications of their experience
With the support of colleagues I began my own interview to reflect on the possibilities of investigating small group learning as it affects students with hearing impairment. We used the four phases of Kolb's experiential learning cycle as an integrated process of learning: (1) re-telling a positive experience; (2) looking at its features; (3) making sense of the experience and (4) considering ways in which it can be investigated and applied.

4) The Influence of My Experience and Prior Knowledge

Researchers who claim their own experienced knowledge as a starting point for including themselves in the investigation can avoid what Hunt (1987) refers to as an "outside-in" approach to research. Objectifying, categorizing, and labelling in an investigation can place the researcher at a distance from the participants and eliminate any chance of developing a practical, mutual conceptual framework. expresses the need for "unearthing your own unexpressed beliefs about how you know and what kind of knowledge counts for you" Hunt, in Cole & Hunt, Eds. (1994, p. 93). By submerging myself in the process, leaning on my own "experienced knowledge" and determining the positive situations which serve as patterns in my personal and professional development, I both acknowledged and benefited my past experiences working with deaf/hard-of-hearing children.

Schon (1983,1987), has written about teachers' beliefs and assumptions underlying what they do in a classroom. He refers to the "epistemology of practice", the principle that the practitioner must have the ability to develop local knowledge or reflection-in-teaching. Sharan & Sharan (1987, p. 24) view this reflective practice as the bridge between concrete experience and the formal learning of relevant concepts. My beliefs stem from my basic philosophy about schooling, which is to consider children as natural learners with the ability to develop constructively, and to recognize the need for them to reach out to their peers for support and guidance in mutual benefit. I believe that teachers learn in a parallel way to their students by reaching out to their peers. This is sometimes easier in theory than in practice as there is so little opportunity for teachers to engage in this on a regular basis. Several other researchers and practitioners have applauded the benefits of such collaboration (Clandinin, 1986; Connelly & Clandinin, 1988; Cole, 1988).

I took advantage of the knowledge and expertise of colleagues involved in studies in education and psychology when I attended OISE. I learned courage from teachers and
other practitioners who took on the role of researchers. In this environment where learning becomes a transformation of ideas shared and exchanged amongst colleagues, I rediscovered the value of collaboration in piecing together my ‘experienced knowledge’ (Connelly & Clandinin, 1988; Hunt, 1987; Loudoun, 1989) and the process of developing a theme of inquiry. Considered an “experienced” teacher by my colleagues, I was now in the position of researcher enjoying the opportunity to reflect on and investigate the practice of teaching. This was a new and different position from *actual* teaching. Although I recognize that many teachers are continuously evaluating their practice, it is my experience that we do not give enough time or credence to sharing our views with colleagues.

When I uncover my assumptions as considered by Newman (1987) it seems that I reveal certain contradictions and an imbalance in myself, especially when I am trying something new and am uncertain of the outcome. I am not always prepared to deal with an interpretation. When things do not go as well as I think they should, that element of “surprise,” although unsettling, forces me to see the situation from a different perspective. As Newman states: “critical incidents offer us one powerful way of doing just that“ (Newman, 1987, p.4 ). This important concept helped me to deal with incidents during this investigation. These three essential components of the research (The New 3R’s, The Experiential Learning Cycle and Experienced Knowledge) are relevant to the central epistemology of my teaching practice and beliefs in qualitative research. These three realms guided my work with the teacher-participants in the study.

5) **Procedure**

There were two major parts of the investigation which involved deaf/hard-of-hearing students in elementary and secondary schools. A preliminary field-study, referred to as a pilot study, was carried out prior to the two-part investigation and is described in Appendix H. This pilot study served as a foundation for developing a working hypothesis about deaf/hard-of-hearing students working together collaboratively in a segregated classroom rather than being fully mainstreamed in regular classes.

The purpose of the investigation was to initiate a cooperative learning approach with deaf/hard-of-hearing and normal-hearing students in regular classes Grades 3 and Grade 6 in an elementary school and in regular classes Grades 10 to 12 in a vocational secondary school; and to observe and to collect evidence of the effects of this initiation procedure. In what follows below, I describe the elementary and secondary studies with
the setting and the participants and report on how the data was collected and analyzed. I then describe the three frameworks and the checking procedure used as criteria indicators in evaluating the initiation of cooperative learning. Finally, I refer to the procedures used in the initiation period of cooperative learning.

1. Elementary Study

1. Setting

The investigation was conducted in a grade 3 class and a grade 6 class, in two schools in the Mississauga area within close proximity of each other. Itinerant teachers on the Special Services staff of the School Board were involved in the deaf/hard-of-hearing students’ educational programs. I was responsible for directly working with several deaf/hard-of-hearing students most often on an individual basis to support them in areas of the grade curriculum. I chose two of these students as my participants.

2. Negotiating Access

There was some frustration in obtaining permission from the research department of this Mississauga area School Board. Research committees are usually quite rigorous, and rightly so. There is much research interest, and the committees must ensure that any investigation is educationally sound. Confidentiality is essential and the protocols for permission by the participants have to be assured. Ethical considerations were submitted to the committee along with all other documentation about my entry into the classes to conduct the investigation. If deadlines for applications for permission are not met they are rescheduled sometimes for a date two or three months later. The principal in one school would not allow me to start without this formal permission, so the teacher and I had ample time to discuss my proposal for the investigation initiating cooperative learning. Finally, in the Spring of 1991, we entered into the initiation procedures. A copy of the permission forms from the research committee and from the parents are contained in Appendices. A copy of the research proposal given to the teachers is listed in Appendix E. I attended the classes for six weeks -- twice per week for approximately two hours each time for the cooperative learning activities.

3. Participants

Teachers

The three elementary teachers were, Linda, and Mary, both grade 3 teachers, and Margaret, a grade 6 teacher. They were very pleased to be part of the investigation; to have such willing participants was indeed gratifying. It was the first time any of the
teachers had had a deaf/hard-of-hearing student in their class. None of them had initiated cooperative learning in her class previously, but they were keen to work with me and try it out. Luckily, several of the staff in the school were familiar with a cooperative learning approach and I was able to observe these teachers at work. Collaborating with these other teachers, encouraged me and spurred me on to initiate a cooperative learning approach with the Grade 3 teachers. In order for the reader to obtain a sense of the participants, a brief description of them follows:

Linda: A teacher with eight years experience she preferred to work with primary students. She was very receptive to new ideas and eager to learn about new trends in teaching. Possessing a sense of creativity and artistic work in the classroom, Linda was also structured in her teaching style and spent much time in preparation for her lessons. Math and science were her special interests.

Mary: Mary took over for Linda in the middle of the school year. Although her teaching style was less structured than Linda's, areas of interest were similar. The class engaged in drama story-telling and literature as part of language arts. Mary had been teaching for five years.

Margaret: This grade 6 teacher had a large class with several special needs students, making many demands on her time. She was interested in the social aspects of her students and held lively whole-class discussions on a variety of current topics. Margaret had taught for 15 years and had attempted to use small-group work with her students but had experienced difficulty managing the whole class by herself.

Students

Cheryl - Grade 3

Cheryl was a bright nine-year-old girl who enjoyed school and was highly motivated to achieve. She was talented in art and math although her reading and language skills were below that of her normal-hearing peers. Her hearing loss was of a profound degree and she used an FM coupled with her hearing aids at all times. Her speech was not always intelligible but she was able to communicate with her classroom teacher, her teacher of deaf/hard-of-hearing students and one or two of her normal-hearing peers in most situations. She did not participate very much in group work, and when the teacher presented a lesson, Cheryl was often distracted or did not show attending behaviour nor
evidence that she was understanding the information provided by the teacher or comprehending the responses of her peers.

Anne - Grade 6

Anne, a twelve-year-old girl, was vivacious and friendly and considered an average student by her teachers. She also had a profound hearing loss and used similar amplification to Cheryl. Anne was a good reader and loved writing stories. At that time, she was less capable in mathematical concepts and she was experiencing problems of a social nature with her normal-hearing peers. This behaviour was interfering with work habits and progress in academics. Her teacher, Margaret, stated that Anne often would misunderstand the intent of conversations and was easily frustrated. This caused disturbance in the activities at times. Her teacher reported that she had to speak to Anne frequently about trying to change to more appropriate behaviour. Anne loved to talk and during individual time together she would often retell the plots of several science-fiction books that she had read.

II. Secondary Study

1. Setting

In September of 1991, I was assigned to a vocational secondary school in the Ottawa-Carleton area as a resource teacher for the deaf/hard-of-hearing students attending the school. I had a small room where I worked individually with each student for approximately one hour per day. This basic level school offered a multitude of technical courses as well as academic subjects. The number of students in this high school was relatively lower than in other high schools in the area. The majority of the students had been in special education programs prior to entry into the secondary level.

2. Negotiating Access

I submitted the required documentation to the research committee of the Board of Education in the Ottawa-Carleton area and when I finally received permission to continue the investigation in the second semester of the school term, February 1992, the secondary teachers went on strike. They did not return until the middle of May, 1992. The secondary teachers who had originally agreed to be my partners in the initiation procedures were unable to pursue any further development because of the short term period before the end of the school year.

In September 1992, I approached these teachers again. I discussed the outcomes of small-group learning and gave them a copy of my research proposal and rationale.
I had obtained verbal permission from the families of the deaf students for the study. The advantage of being in the school as the resource teacher for the deaf/hard-of-hearing students most of the day was the access to the teachers and high visibility in the classes with the deaf/hard-of-hearing students. I felt on good terms with all the teachers and felt confident that we could work together.

3. Participants

Teachers and Students:

The teachers were all well experienced in teaching basic-level students with special needs. I was impressed by their willingness to give small-group learning a chance in their classrooms. Using pseudonyms, a list of the teachers and students is given.

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Students</th>
<th>Class</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brenda Map</td>
<td>Marie</td>
<td>C</td>
<td>Child Care</td>
</tr>
<tr>
<td>Ryan Kelly</td>
<td>Marie</td>
<td>D</td>
<td>English</td>
</tr>
<tr>
<td>Helen Chere</td>
<td>Paul</td>
<td>E</td>
<td>English</td>
</tr>
<tr>
<td>Debra Green</td>
<td>Rick</td>
<td>F</td>
<td>English</td>
</tr>
<tr>
<td>Russell Janes</td>
<td>Rick</td>
<td>G</td>
<td>History/Geography</td>
</tr>
<tr>
<td>Penny Mann</td>
<td>Nimoa</td>
<td>H</td>
<td>English as a 2nd language</td>
</tr>
</tbody>
</table>

Teachers

Brenda: This teacher was head of the technical department and responsible for the Child Care Program. This practical course for students involved preschool children from the community. Brenda had over 15 year's teaching experience. We had many discussions on a personal level and professional level.

Ryan: He was new to the school but had six year's teaching experience. Ryan was eager to try a new approach and stated that the students in his English class hardly paid attention when he presented a lesson and/or distributed printed assignments. We had not spent much time talking about our personal lives or teaching experiences but he did indicate that he was very familiar with cooperative learning (he was not as it turned out).

Helen: She had been on the staff for seven years and had begun at the school as a first year teacher. She was very involved with extra-curricular activities and was very popular with the students. Helen's subjects were English and Physical Education. We had not shared personal experiences but, like Ryan, she
indicated that she was very familiar with cooperative learning and that she was willing to try some form of it (she was not familiar with the concepts, as was the case with Ryan).

Debra: Debra was also a newcomer on staff. She had only two year's experience. She was very concerned about the social problems her students had in her English class and she wanted to find more positive ways of attempting to change their behaviour.

Russell: He had been teaching at the vocational school for two years and had 15 year's experience in various grade levels. Trained in Britain, he was well acquainted with collaborative work and had some limited experience with the structures of cooperative learning. We both recognized that our teacher training beliefs and values about our work were quite similar.

Penny: Certified with a degree in English, and a specialist certificate in special education and in teaching English as a second language, Penny had 12 year's teaching experience. We had the opportunity to discuss personal interests as well as share teaching experiences. She believed in a student-centered approach in her classrooms. She was also heavily involved in extra-curricular activities.

Students

Marie: This profoundly deaf student was in Grade 11 and had been in special classes with normal-hearing students with learning problems. Marie used hearing aids at all times and used spoken communication which was intelligible to familiar listeners. Her teachers reported that Marie was a capable student but that she had been observed to have coping difficulties with her family. She did have many supportive friends in school.

Paul: This Grade 12 student, also profoundly deaf, used hearing aids coupled with an FM amplification system for use in most of his academic classes. His speech was within a normal range of intelligibility. Paul was a quiet, serious boy who preferred to work by himself. He did not have any friends at school and even stated that he did not like being in a vocational school. He had been integrated in regular classes in his elementary school whenever possible. He had shown rather overt behavioural problems in the past, but recently there had been a significant positive change in his attitude and behaviour.
Rick: This profoundly deaf student in Grade 10 had also entered the secondary school from special education classes. Rick was bright and motivated to obtain a high standing in all his subjects, particularly in his technical subjects. His teachers considered him to be one of the top students in his grade. Rick was often observed by supervision teachers to be interacting with his peers and gaining some attention from them by not always following the school rules. Interestingly, Rick's speech and spoken language were considered by adult listeners to be of poor quality, he was well accepted by his peers.

Nimoa: At age sixteen, Nimoa had come from Somalia and had never been to school. She had just recently been fitted with a hearing aid and her language was just emerging even in her own mother tongue. She had been placed in a special department of the vocational school for students with severe intellectual limitations. Nimoa's practical skills were considered by her teachers to be very good.

Three of the students, one female and two males, had been in special education classes for students with learning disabilities but not in classes exclusively for students with hearing loss. These learning disabilities or difficulties included learning in mathematics and language-related areas and/or problems in social/emotional development. Despite their individual challenges in learning, these four profoundly deaf students were very personable young adolescents and were always cooperative in their learning assignments and motivated to develop their communication skills.

Elementary and Secondary Studies: Data Collection and Analysis

Qualitative Measures

I collected data from observation notes and audio-taped interviews with the students and teachers, which I then transcribed and used to evaluate the initiation aspects of cooperative learning. The behavioural effects of initiating cooperative learning on the participants were analyzed in the same manner. Verbatim comments and non-verbal behaviours by the students were observed and documented. Field-notes and brief comments about students involved in the activities were documented in note-form as we proceeded.

I also used a video-tape recorder and an audio-tape recorder to record some of the events in the classrooms. To analyze the qualitative nature of the information gathered, I assessed my field-note observations and the written comments made during the various
activities. Most importantly, the comments by the teachers and the reflective sharing between us brought out a more collaborative assessment of the initiation and effects of cooperative learning on the participants. The New 3 R's (Hunt, 1987) and the Experiential Cycle (Hunt, 1992) guided those interactions closely.

**Numerical Measures**

To assess the initiation attempts and evaluate the outcomes of cooperative learning, I used the following frameworks as criteria for determining its success and/or failure. Simple checklists were made to assess the criteria in the frameworks. References to both field notes and teacher/student interviews are coded and documented in the Results chapter. A description of the frameworks is presented and details of the checking procedure used in the evaluation process follow.

**Criteria and Indicators**

**Frameworks:**

I was unable to find any direct or indirect measures in the literature to guide any validation of implementation procedures, although Johnson, Johnson & Holubec, 1990) alluded to the validity of implementation procedures in only one article. I had the challenge of finding a new model to assess the initiation procedures, or of using the five basic principles stated as a foundation in all cooperative learning literature. The next step was to examine behaviours considered in the stages and skills of learning cooperatively in groups. The principles, and the stages and skills are usually taken for granted by teachers when implementing cooperative learning. Yet, they are considered fundamental procedures by the innovators of this learning approach. However, any references to evaluation of such procedures were unavailable at that time in the literature. The principles and stages and skills of a cooperative learning approach are seldom analyzed or even queried by teachers or researchers. No data was found in the literature on evaluation procedures in the initiation stages nor in the stages and skills which presumably have to be in place as a foundation for any successful outcomes. I did find anecdotal reports of methods of assessment and evaluation of students' tasks and projects by educators. Having completed the study, I now realize that as I write, the implementation procedures are similar to the construction of a house. If the foundation materials are not checked for durability in sustaining the next levels, problems can occur in the building structure. I firmly believed that the procedures in the beginning stages of cooperative learning merited a form of evaluation prior to full immersion in its practice.
I considered evidence from three frameworks for successful or unsuccessful initiation of cooperative learning. They are referred to respectively as Table 1 -- (A) Principles of Initiating Cooperative Learning Framework; Table 2 -- (B) Stages and Skills of Initiating Cooperative learning Framework; and Table 3 -- (C) The Behavioural Indicators of the Effects of Initiating Cooperative learning. The first framework evaluated whether or not the five principles were observable in the groups with the deaf students. The second framework evaluated whether or not the stages and skills of cooperative learning were observable in the groups with the deaf students. The third framework indicated the observable effects of cooperative learning on individual deaf students while in their groups.

After each framework, on the following pages:

- I acknowledge the sources for the categories within the three frameworks.
- I explain the purpose of the items in the frameworks.
- I then offer response behaviour suggestions for the application of the sub-items in the frameworks.
### Principles of Initiating Cooperative Learning Framework
(based on Clarke, Wideman & Eadie, 1990).

1) **Small heterogeneous groups**
   - The teacher should choose which students will work together.
   - There should be work face to face interaction.
   - There should be one deaf student in a group with one or three other normal-hearing students.
   - The students should be of differing academic and/or social ability.

2) **Positive interdependence**
   - The group should be able to identify an achievable goal.
   - There should be a clear definition of individual responsibilities for working toward the achievement of the goal.
   - There should be a format to facilitate meaningful sharing of materials and information.

3) **Individuals/group accountability**
   - The teachers as well as the students should ensure that each group member participates for the common good.

4) **Opportunity for purposeful talk**
   - The teachers should teach small group skills and students should practice these skills so they have the capacity and disposition to function within the group.

5) **Processing**
   - Teachers and students should assess how well students are working as a group.
   - Students should show the ability to talk about what happened in their group.
   - Students show the ability to discuss what they could change in group process.
Source

The source of the categories of the principles of cooperative learning were adapted from the document *Together We Learn*, published by the Toronto Board of Education (Clarke, Wideman & Eadie, 1990).

Purpose

The purpose of using the five principles is that they encourage teachers to structure cooperative lessons at appropriate grade levels in specific subject areas and for particular students.

Application

1) Placing students of different abilities, gender and culture together offers time and opportunity for interaction not often practised in whole-class teaching. Face-to-face interaction implies that students need to interact physically as well as verbally.

2) Positive interdependence means that students must learn to feel that they are interacting with group members in a positive way, that is, they “sink or swim together” (Johnson, Johnson, & Holubec (1988). Structure can be established through the shared goals of group members, thus promoting a group identity.

3) Individual and group accountability mean that each group member learns to be responsible for his or her own learning in the task assigned. The group's success is dependent on the individual learning of all group members.

4) Collaborative skills include the social language needed in positive interaction and are considered teachable.

5) The fifth principle incorporates procedures to assess how well the students are working as a group. The important aspect in this principle is that the students have the opportunity to reflect on their learning immediately following the assignment.
<table>
<thead>
<tr>
<th></th>
<th>Formation</th>
<th>Deaf Students' Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>moves quietly into groups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>stays with the group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>develops / adheres to time lines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>follows rules for beginning stages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>uses basic social skills</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Functioning</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>understand roles of group members</td>
<td></td>
</tr>
<tr>
<td></td>
<td>understands the group purpose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>develops brainstorming techniques</td>
<td></td>
</tr>
<tr>
<td></td>
<td>uses problem solving</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Exploring</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>group decides what needs doing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>recognizes prior knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>adds ideas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>criticizes ideas, not people</td>
<td></td>
</tr>
<tr>
<td></td>
<td>communication skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- asks questions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- seeks clarification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- re-phrases</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- makes statements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- listens actively</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Shaping</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>summarizes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>predicts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>makes inferences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>draws conclusions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>justifies responses/materials in context</td>
<td></td>
</tr>
<tr>
<td></td>
<td>recognizes patterns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>synthesizes a number of ideas</td>
<td></td>
</tr>
</tbody>
</table>
Source

The original source of the Stages and Skills of Cooperative Learning is entitled Behavioural Indicators for Cooperative Learning. (Peel English Curriculum, 1991, p. 793). Some of the sub-items were changed or deleted to be more suitable in the category.

Purpose

The purpose of including the framework as a set of criteria for assessing the initiation of cooperative learning was that the sub-items in each category were specific enough to assist the teachers and myself in paying close attention to student behaviour to check that students were indeed practising the skills within the stages.

Application

1) Arranging desks in group clusters for group work helps to set the stage and students can expect to work together routinely. Teachers have to decide on the amount of time students will stay together in groups. For younger students in grades 3 and 5, and in higher levels in secondary schools, experienced educators suggest four to six weeks. For students younger than Grade 3, a shorter time period is recommended.

2) Teachers can follow a series of steps in teaching students interpersonal skills for small-group work. Teachers can highlight the skills to explain why they are important by displaying on posters what the groups should look like and sound like. Students must see the need to use the skill and practise it. Role-play can be used to show students what the various roles are for members in a small group, such as the recorder, the summarizer, the leader, the encourager, and so on.

3) Dividing the responsibilities of each group is a way for the teacher to see whether each student understands the concept of a given task. For example, each student could be given a star of a different colour or a special sticker. Teachers could then ask the students who have the red star to read and explain only one problem or question rather than a whole page of explanation. Integrating language arts, emphasizing the skills necessary for communicating ideas and sharing information, has to be a major part of the training for small-group work.

4) Problem-solving can be an involved activity with full participation from the students. Each sub-item, especially in the Exploring and Shaping Stages of the group work can be structured and monitored by teachers on a daily basis so that they can be practised by the students. The students may raise self-
expectations when teachers and group members encourage competence in academic and language skills. Students can then develop the ability to synthesize the ideas of others and to generalize information if the framework is used to teach the steps in the process and used to assess each stage in cooperative learning.
Table 3

**Behavioural Indicators of Effects of Initiating Cooperative Learning Framework**

1) **Attitude**
- is willing to work with a partner
- is willing to work with a group
- has a sense of confidence
- accepts responsibility
- looks to group for support

2) **Roles**
- understands the role
- collects materials/texts
- keeps group on task
- shares or accepts leadership
- makes notes or records information
- summarizes
- reports back

3) **Cooperation/Interaction**
- helps/encourages others
- shares/contributes ideas
- shares materials
- makes suggestions
- uses repair strategies
- evaluates the views of others

4) **Reflection/Assessment: Self/Group**
- completes self/peer evaluation
- considers areas of success/improvement
- can assess group process/outcomes of group work

*Deaf Students*
Source

The Behavioural Effects of Cooperative Learning Framework is based on an Ontario Ministry of education document (1990), that suggests the appropriate behaviour criteria for students on an individual basis. The complete checklist is placed in the Appendix S. Some of the sub-items were re-phrased or re-positioned in the categories to better match the objectives in evaluating the deaf student's abilities within their particular groups.

Purpose

The purpose in using this framework was to place particular focus on how the deaf students functioned in the groups in terms of their contributions, and their feelings and to be able to discuss any similarities and comparisons with their normal-hearing peers.

Application

1) Attitude is a sensed belief that can be evidenced by posture and actions and speech of the individual.
2) Assigning different roles to the students, encourages them to be flexible in taking on different jobs.
3) In the category of cooperation/interaction, which involves multi-communication skills, the sub-items lend themselves to observations of the participation of the deaf students as they learn to interact with their group peers. In a small-group setting, both deaf and normal-hearing students can be observed using communication strategies and other coping mechanisms during a common assignment.
4) Students have the opportunity to learn about working together and to discover what changes they can make to the functioning of the group as a whole and individually. The category of Reflection/Assessment is considered by many advocates of cooperative learning to be the most important area in the entire group process, in that it gives the students an opportunity to learn more about themselves and others.
Evaluation Checks in the Framework Criteria

The data was collected by using first, (A) Table 1, The Principles of initiating Cooperative Learning Framework for the group (including the deaf student). We simply counted the number of times we identified a student response behaviour corresponding to a sub-item within the categories of the frameworks. Checks were made in spaces with a student’s name beside each sub-item, each language and/or non-verbal behaviour considered as approximating our expectations for a sub-item was recorded as it occurred. The sub-items in the categories within all three frameworks were similarly checked. The example following gives specific sub-items with lines across to place check marks for each sub-item within each category of the frameworks as shown below in Table 1 -- The Principles of Initiating Cooperative Learning, category 2) Positive Interdependence -- with sub-items:

<table>
<thead>
<tr>
<th>Student name</th>
<th>Frequency Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) group able to identify an achievable goal</td>
<td></td>
</tr>
<tr>
<td>c) definition of individual responsibilities</td>
<td></td>
</tr>
<tr>
<td>d) meaningful sharing of materials and information</td>
<td></td>
</tr>
<tr>
<td>e) non-verbal behaviour</td>
<td></td>
</tr>
</tbody>
</table>

Comments:

If the students were not interacting in positive interdependence, we intervened by making sure that everyone could identify the group goal and purpose of the task. We modelled language we considered appropriate to the situation to encourage the students’ practice of the social skills of interaction in completing the academic task.

Examples of verbal and/or non-verbal behaviour were identified as students said:

" What did we say the time-sheets were for? "
" We have to think of questions for the story. Who has a question? "
" I’ve had a turn --now it’s yours."
" I didn’t get it. Can you explain it again? "
Non-verbal behaviour -- heads facing each other -- sharing one worksheet

To ensure reliability in our checking, a tally was made by the teachers and myself until agreement was reached about the checks corresponding to a sub-item within the
category. Both the teachers and I had to have observed similar behaviour to match the criteria in the sub-items of the categories in the frameworks. Finally, if the behaviour had been observed in the students six times or more in the elementary study and three times or more in the secondary study, the category was marked by X or O as successful or unsuccessful. Similarly, in the specific sub-items of the Stages and Skills of Cooperative Learning Framework students were given an X or an O indicating a positive or negative response. The framework used to evaluate the behavioural indicators of the effects of cooperative learning was also marked with X or O according to the sub-items observed by myself and the class teachers.

To reiterate, in the elementary schools, the validity of the criteria was dependent on group members being evaluated according to the sub-items observed by myself and the classroom teachers. The deaf student's group had to respond positively more than half of the cooperative learning sessions (12 sessions) within the six week period, that is to say, more than 6 times. In the secondary school, since the period of attempting to use cooperative learning was shorter (6 sessions), positive results would be recorded if observed on more than three occasions by myself and the classroom teachers. Thus positive responses had to be observed more than 3 times.

The classroom teachers and I were directly involved in monitoring and intervening in all the groups, although I was to be deliberately more involved with the group that included the deaf students. Both of us focused intently on the group which included the deaf student, although we worked as a team to facilitate other groups. We carried clipboards to check each sub-item and find examples from comments of the students, as well, we made notes on groups and individuals in the groups. We each had copies of the frameworks, beginning with the Principles of Cooperative Learning Framework (Table 1). When this procedure was established we then used the Stages and Skills of Cooperative Learning Framework (Table 2) and ended collecting the information gathered from the Behavioural Effects of Cooperative Learning Framework (Table 3). At the end of each day of activities we counted the number of times students' comments or behaviour resembled a sub-item within a given category. In using such frameworks as criteria in validating or not validating the initiation and its effects on the deaf students, it seemed fitting to employ numerical measures in analyzing the qualitative nature of the study.
Framework Sub-items Over-lapping

It is important to realize that the sub-items in the three frameworks do overlap but we acknowledged the repetition and cross-referencing as useful tools in counting positive responses in the evaluation process. We agreed that the checking system not only familiarized us with the categories but generated more precise observations.

Initiating Cooperative learning: Start-up Procedures

6) **Initiating Cooperative Learning: Start-up**

a) **Planning with the Teachers**

Before introducing cooperative learning into classrooms for this study, I explained to the elementary and secondary teachers, exactly how I proposed to investigate initiating cooperative learning in their classes. I shared and discussed an overall plan to implement cooperative learning, and methods for choosing the roles of group members, planning a lesson, and using the structures in the group tasks. Examples of the plan, and methods used with the elementary teachers as well as activities and a sample lesson are provided in Appendices E, F, G, and H. The teachers had access to any data from my field-notes and my interpretation of the events in the cooperative learning activities.

I defined my tasks as researcher as both initiating and participating in the group process as well as being a guide to the deaf students. I elaborated on the philosophy of cooperative learning and suggested some of its practical implications to both the elementary and secondary teachers, such as:

i) the merits of social skill learning leading to fewer discipline problems;

ii) lessening the load of teaching time by intervention procedures;

iii) the students' self-evaluations and assessment could take the place of frequent testing and marking.

According to Johnson & Johnson (1987, pp.831-900), teachers go through a number of stages in getting started with cooperative groups. One of the stages is an awkwardness at the start caused by an apprehension that the lessons may not go well because of the new system. I talked with the teachers about teaching students the cooperative social skills early on in the procedures to attempt to alleviate our own fears as well as those of the students.
b) Raising Awareness of Hearing Impairment: The Effects on Normal-Hearing Peers

Before considering the initiation of cooperative learning I felt it was important to raise awareness about hearing impairment and its effects on communication to help the normal-hearing students understand the challenges faced by their deaf classmates. After introducing the concept of a cooperative learning approach and the reason for its initiation to the whole class, I provided a brief overview of communication and learning in relation to an individual with hearing loss.

c) Facilitating Group Learning: Support from Colleagues

A vital step in this initiation stage was to request the support of colleagues, teachers and practitioners at OISE with whom I could share ideas about my work. I invited other colleagues who had experience in implementing cooperative learning to come into the classes in order to provide a model for the possibilities of successful initiation. In my view, observing teachers at work is invaluable. Novice teachers benefit immensely from the expertise of confident, experienced colleagues. I was indeed a novice in cooperative learning. Rita Wells, a recently retired teacher, was a supportive colleague. She was involved in presenting workshops in cooperation learning and had taught in both regular and special education. Rita armed me with reading material, offered advice and helped to build up my confidence to persuade teachers to participate in the cooperative activities. She also agreed to demonstrate a few lessons in the Grade 3 and Grade 6 classes. Mary, another colleague assisted me in these classes, to video and record some of the cooperative learning activities.

d) Teaching Collaborative Skills and Task Intervention

At the start of the initiation period of cooperative learning I was responsible for presenting the lessons. In addition, I was the primary teacher intervening to facilitate for the deaf students and the other group members. I anticipated that the deaf students might require some assistance in following instructions and participating in the group discussion. Intervention would be necessary if the noise level in the classroom increased enough to cause difficulties in the students hearing clearly. Obviously, even more so for the deaf students. I made it clear that I would be on hand to act as an interventionist and facilitator if and when the situation required restructuring language or clarifying any verbal interchange. This intervention would include directions, reviewing procedures, teaching collaborative skills to ask and respond to questions, and guidance in social interaction in problem-solving.
Chapter Four: Results

The results of the studies in the elementary and secondary schools focused on whether or not the attempt to initiate cooperative learning was successful, and if it was successful, what its overall effects were. First, I considered the question of whether cooperative learning was successfully initiated by applying the two frameworks: A) the Principles of Cooperative Learning Framework: Table 1 (p. 114), and B) the Stages and Skills of Cooperative Learning Framework: Table 2 (p. 117). Secondly, I considered what effects were evidenced from a third framework: C) The Behavioural Effects of Cooperative Learning: Table 3, on the deaf students. (p. 120).

The results of the criteria in the initiation frameworks (A) and (B), are presented and then described through observations and verbatim examples from the students and teachers recorded during the cooperative learning activities. (C) The effects of initiating cooperative learning with the student and teacher-participant are similarly discussed. Selections from notes taken in the classroom and from observations as well as interviews with the participants are included to illustrate pertinent events.

Coding references from field notes or from teacher interviews are: ES (Elementary Study); SS (Secondary Study); ES-INT (Elementary Study Interview); ES-FN (Elementary Study Field-Notes) SS-INT (Secondary Study Interview); and SS-FN. Example: (ES-FN, a) or (ES-FN, 2a or 3a).

1) Was Cooperative Learning Successfully Initiated?

I. Elementary Study: Initiation

The purpose of the study was to determine if cooperative learning could be initiated with mainstreamed deaf/hard-of-hearing students working with normal-hearing students and their teachers. In the elementary schools, the results of applying A) the Principles of Initiating Cooperative Learning Framework indicated that the criteria was established successfully at both the Grade 3 and Grade 6 levels (Table 4). The categories in B) the Stages and Skills of Initiating Cooperative Learning Framework demonstrated that the students were successful in meeting the criteria (Table 5). There were areas which required more practice but the majority of the sub-items were considered as success indicators. Not every sub-skill is illustrated, but several specific sub-items are highlighted as examples of success.
Secondary Study: Initiation

At the secondary school, A) the Principles of Cooperative Learning Framework were considered partly successful in one class and fully successful in only one other class out of the six classes involved, as shown in Table 6. In Table 7, B) the framework for the stages and skills involved in the process of cooperative learning indicated partial success in initiation in two of the six participating classes. As with the elementary schools, only selections of the field notes are highlighted to illustrate the sub-items in each category.
(A) **Principles of Cooperative Learning Framework**

<table>
<thead>
<tr>
<th>Elementary Deaf Students Groups</th>
<th>Cheryl</th>
<th>Anne</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Worked in small heterogeneous groups</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2) Worked in positive interdependence</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3) Accountable as individuals and as a group</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4) Collaborative Skills - Opportunity for purposeful talk</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5) Processing-Reflection/Assessment: Self/Group</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Elementary Study

Illustrations of Principles of Cooperative Learning Framework

1) Heterogeneous Groups

As Table 4 suggests, the groups worked well differentiating students according to gender, academic ability, linguistic competency and social interaction skills, according to the teachers’ assessments. Cheryl and Anne were placed in the same group in their respective classes for the majority of the time period of the study. They did not object to being placed rather than choosing who they wanted to work with. Grades 3 and 6 had several students of diverse ethnic backgrounds.

Cheryl: “Good - Mary my friend. Mary help me if I don't know.” (ES-FN, a)
Anne: “I want to stay in this group.” (ES-FN, b)

2) Positive interdependence

During the group tasks the following comments during the activities were made by Cheryl and Anne:

Cheryl:
“ I'm a good speller. I write down.” (ES-FN, c)
“ Can you help me write?” (says to teacher) (ES-FN, d)
“ Who have the microphone?” (ES-FN, e)
“ I said Eric did good job.” (ES-FN, f)
“ I don't understand what to do.” (ES-FN, g)
“ Can you help me?” (ES-FN, h)
“ I can show you. I know how.” (ES-FN, i)

Anne:
“ Wait, only one person talk!” (ES-FN, j)
“ I can’t spell.” (ES-FN, k)
“ If we all get the same mark we all have to do the work-right?” (ES-FN, l)
“ I could write this part.” (ES-FN, m)
“ I missed that, what?” (ES-FN, n)

Normal-hearing peers
“ Don’t cover your mouth. Anne can’t get it.” (ES-FN, o)
“ All we have to do is have the same answer after we talk about it.” (ES-FN, p)
“ Can we not have a sheet each?” (ES-FN, q)
“ That’s not a bad idea!” (ES-FN, r)

3) Individual/Group Accountability

Both Cheryl and Anne’s group always completed their work and contributed as much as possible to the group tasks.
Cheryl: “I’m finished but I want Alex to know how too.” (ES-FN, s)
Anne: “Debbie (a partner) an I can work it out O.K.?” (ES-FN, t)

4) **Purposeful Talk**

The use of talk during the activities was encouraged and the academic and social skills objectives were emphasized frequently by the teachers using phrases such as, “Tell your partner if it was a good idea.” “Tell each other that you did a good job.” “Ask one another for help.” “Wait until the person has finished talking before you say anything.” “What do you need to get the answers?” “Where can we look to solve the problem?” “Ask Anne what is the next question.” “Wait ‘til she has finished writing what you said before you say more.” “Eric wants to know something.”

Cheryl: “I said good job to everyone.” (ES-FN, v)
Anne: “If we only get one sheet of paper to work on. can I be the writer?” (ES-FN, w)

Normal-hearing students:

- “We need to have just one person reporting to the whole class-right?” (ES-FN, x)
- “Tell us if you have a good idea.” (ES-FN, y)

Although this procedure took a considerable amount of time because we were modelling and sometimes role-playing to practice the structures, we agreed that they were attempting to collaborate, albeit at a beginning level.

5) **Processing**

This principle assessed how well the students responded after the cooperative learning activity. They were given sheets of paper with suggestions on how to talk about the work they had just completed as a group. For example, they drew faces (happy, sad, neutral) or ratings (1 to 5). Although not explicit, the group indicated that they thought they had worked well.

As suggested in Table 5 the students in the groups which included the deaf students demonstrated that certain stages and skills of cooperative learning were in place. There were areas which required more practice but the majority of the sub-items within the 5 categories were considered as success indicators.
Table 5

(B) Stages and Skills in Initiating Cooperative Learning Framework

<table>
<thead>
<tr>
<th>Elementary Deaf Students Groups</th>
<th>Cheryl</th>
<th>Anne</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) <strong>Formation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>moving quietly into groups</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>staying with the group</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>developing/adhering to time lines</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>following rules for beginning stages</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>using basic social skills</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2) <strong>Functioning:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>roles of group members</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>understanding the group purpose</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>developing brainstorming techniques</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>using problem solving</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>3) <strong>Exploring:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>group deciding what needs to be done</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>recognizing prior knowledge</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>adding ideas</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>criticizing ideas, not people</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>Communication Skills:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• asking questions</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• seeking clarification</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• making statements</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• rephrasing/requesting</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4) <strong>Shaping:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• summarizing</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>• predicting</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>• making inferences</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• drawing conclusions</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>• justifying</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>• recognizing patterns; generalizing</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• synthesizing a number of ideas</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>
1. **Elementary Study**

Illustrations of Stages and Skills Cooperative Learning Framework

Cheryl’s Group - Grade 3

1) **Formation**

Rita Wells, my colleague with expertise in cooperative learning practices, began by asking the Grade 3 students if they knew the rules in cooperative learning. She pointed out the importance of the class working quietly by introducing a hand signal to indicate “zero-noise.” Some examples of these rules of how cooperative learning (looks/sounds) were generated by Rita and the students:

- soft voices
- use “warm fuzzies”
- eye contact

- no “put-downs”
- listen to each other
- laugh with, not at

When Rita asked Alex for an example of a rule to work cooperatively he did not respond. Cheryl raised her hand to give him reassurance. “Don’t worry, just try,” she said. She was successful in encouraging her partner to give an answer. I think we did not realize that the cooperative activities we chose for the students at this level would take more time than traditional activities they had experienced before. We had difficulty getting the students to complete the tasks in the given time and heard them say, “No fair we need more time!”

2) **Functioning**

The children role-played and practised skills in active listening with Rita prompting them. They responded naturally after practising in scenarios. Cheryl enjoyed the attention during these sessions. I told Cheryl’s group to sit closer to her so she could be within earshot. We then went on with the activity in math. I asked Cheryl to explain the math task to her group. She told the group which numbers to use in the math problem and showed them a simpler way to do the equation. Then she asked to see how they had done. She then said “Let’s take turns to finish.” The others agreed. I then left the group to go to another group but Cheryl called me back to reassure them that they were on the right track. (ES-FN, y)

3) **Exploring**

Cheryl’s group could not always decide what had to be achieved in the task. They required much teacher prompting as to what the sequence of the lesson had to be. Also.
they would have spent a longer time than we allowed for sharing their prior knowledge and experience. This age group of students never quite acquired the techniques of brainstorming ideas in solving problems. For example, in a science experiment we heard a few comments:

Cheryl: “I don’t know what to do.” (ES-FN, z)
Normal-hearing students: “We need help.” “What’s going on?” (ES-FN, aa)

We gave bonus points to the groups when we heard them make positive comments about others’ ideas. In fact, the grade 3 students overdid their comments in their enthusiasm to gain points. Communication was always key to the group’s ability to interact without too many prompts and interventions by myself or the other teachers. For the most part, the students asked questions of one another and even encouraged Cheryl to ask when she did not understand.

Normal-hearing student: “Wait a minute -- Cheryl wants to know too.” (ES-FN, 2b)

When I was close by, on the other hand, Cheryl often asked me what someone had said. The students were accepting of the interruptions this caused in the situation. It was common for me to re-phrase for some other student’s understanding as well as for Cheryl. Summarizing and predicting were not observed frequently enough to be considered successful, and indeed, we did not emphasize these skills at that stage. In the science activities, predictions were made by some of the students, but not consistently.

4) Shaping

More refinement of the skills in this stage requires high-level thinking from the students at this grade level. In language activities Cheryl’s group showed that most of the students could infer information within the texts but they could not always draw their own conclusions without teacher assistance.

Cheryl: “I have to read the end. I can’t think.” (ESFN, cc)
Normal-hearing students: “Is that supposed to mean what comes at the end?”
“I know about the man but what will happen?” (ES-FN, 2d)
Anne's Group - Grade 6

1) Formation

Rita Wells came in again at my request to guide our initiation attempts and to help us evaluate the Stages and Skills Framework. The most noticeable observation was that these 6th Graders engaged in more talking than the Grade 3 students between activities and getting organized in their groups. We had to make numerous requests for them to move quietly. Adhering to the time designated to complete the tasks was also a problem for these students. We had to re-visit the issue but never really resolved it and the students complained about their lack of time to complete the assignments. The Grade 6 students also preferred changing groups more often than the younger students. Our perception of this preference was that it allowed for the high achievers to benefit by being placed in the role of a teacher at times.

2) Functioning

An example of success in this area was when Rita directed a math activity. She discussed new ways to solve math problems with the Grade 6 class. The task in the math cooperative activity, was to figure out interest earned on savings, and discounts in retail sales. Rita modelled the procedure of going around to each group with encouraging remarks. At one point when some students started to argue about something, Rita stopped the whole class to focus on the group who were having some conflict. They were having doubts about the assigned leader’s role in the group. Rita prompted them until they were able to solve the issue. Anne showed appreciation of this event because I suggested that each student take turns with the microphone so she could understand as much as possible.

Anne: “That helps a lot. it was too loud before.”
I didn’t know what they were arguing about.” (ES-FN, 2e)

As this initial activity continued with all three teachers -- Rita, myself and Margaret -- going from one group to the other, we noted that the noise level was quickly increasing in volume. The students were getting quite excited about their task, not to mention that some of them were vying for the most attention in the group. This “noise’ is generally considered as a good sign that positive interaction is taking place but because it was interfering with Anne’s ability to hear in her group, Rita used the zero noise hand signal several times and they settled down. Over the course of the next few weeks the groups conformed to the hand signal to indicate a decrease in noise. (ES-FN, 2f)
3) **Exploring**

Basic social skills appeared not to be “natural” for most of the students in Anne’s group. They were not used to taking turns talking and not interrupting. They were very much in the habit of “putting another person down” with personal negative comments. Anne told me:

"She’s (another student) always saying bad things about me.”
"They don’t let me talk.”

(ES-FN, 2g)

Margaret and I observed by the fourth or fifth time using a cooperative learning approach that the students were communicating in a useful manner to each member of their groups, meaning that they were more task-oriented in their questions and information-sharing. As long as one person spoke at a time, Anne was able to follow the conversation, with very little intervention on my part. She showed that she could ask for clarification from her peers and that they in turn were understanding her attempts to explain a point.

Anne: "What do you mean...the plasticine is porous?"
"How about if we don’t all do (it) at one time?"

(ESFN, 2h)

From then on, it was a matter of continuous monitoring by improvising, modifying and selecting the themes that lent themselves to a cooperative approach. I kept track of the types of activities that seemed to work well. These included logical thinking exercises, observation puzzles, math problems, current events topics and conflict resolution games.

4) **Shaping**

The older students were more skilful than the younger Grade 3 students, in reasoning with inferences and drawing conclusions but they had some difficulty in summarizing information. For example, Anne usually stated too many details when she tried to summarize the plot of a story. The only sub-items in which Anne did not show experience was in ability to simplify information to her peers and summarize information when she was in the role of leader or recorder in the group. The contrary occurred in fact, her verbal expression was frequently too expansive. Some of the girls tried to modify Anne’s statements:

Normal-hearing student: "Oh we don’t want to get into all that -- we know the story Anne.”

(ES-FN, 2i)
This theoretical frameworks of the principles of cooperative learning and the stages and skills as generated in this study have shown that they were established at an acceptable level in both Cheryl and Anne's groups within the two grade levels. They allowed the teachers and myself to use a structure in helping design lessons appropriate for cooperative learning. We considered that in both grade levels, the students had difficulty somewhat with developing and adhering to time lines. As well, in the stage of 4. Shaping — summarizing information was not well established.
### Table 6

**A) Principles Of Initiating Cooperative Learning Framework**

<table>
<thead>
<tr>
<th>Secondary Deaf Students Groups:</th>
<th>Rick</th>
<th>Rick</th>
<th>Nimoa</th>
<th>Marie</th>
<th>Marie</th>
<th>Paul</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade:</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Subject:</td>
<td>SS</td>
<td>En.</td>
<td>ESL.</td>
<td>Chc.</td>
<td>En.</td>
<td>En.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Small heterogeneous groups</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2) Positive interdependence</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3) Individual/group accountability</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4) Learning through opportunity for purposeful talk and practicing cooperative learning skills</td>
<td>O</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5) Processing-Reflection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment: Self/Group</td>
<td>O</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

* SS- Social Studies
  En.- English
  ESL.- English as a 2nd language
  Chc.- Child Care*
II. Secondary Study

Illustrations of Principles of Initiating Cooperative Learning Framework

Rick, Nimoa, Marie and Paul

Some indicators of success as well as failure to initiate are described for all the deaf students Rick, Nimoa, Marie and Paul in their groups. As can be seen in Table 6 the initiation process was not successful in the classes with Marie, Paul and in Rick’s English class. In Rick’s Social Studies class, initiation was considered successful for three out of the five principles. According to the five basic principles of initiation, Rick’s group showed some success in 1) heterogeneous grouping; 2) positive interdependence; 3) individual/group accountability. The same group failed to show enough positive responses over time to 4) purposeful talk and cooperative learning skills: and 5) processing-reflecting. I have given examples indicating failure to initiate the Principles of Cooperative Learning in Rick’s English class, Marie and Paul in their English classes and one example of Marie in her Child Care class.

In contrast, Nimoa’s group was successful in establishing four out of five of the principles. Only # 2) positive interdependence was not successfully initiated.

Rick’s Group - Grade 10 - Subject: Social Studies - Teacher: Russell

1) Heterogeneous Grouping

Rick’s group was usually made up of male students who showed different ability. Rick got involved right away in the Geography task. He actually showed his peers what to do and eventually other students began to share information too.

2) Positive interdependence

It was interesting that the students in his group looked to Rick for guidance. There appeared to be positive interaction among the group of four as Rick recorded well while another student read better and reported to the larger group. He recorded information accurately most of the time and made sure he had assisted any other of the group members who needed help. Since the group were given only one sheet of paper for the assignment in which to record their responses, they did collaborate on using the maps together.

Normal-hearing students: “Rick can show us where the place is.”
"Don’t forget, we can’t all talk at the same time."
"Tell him what the word means."  (SS-FN, a)

In another situation Rick sat beside the “leader” of the group who wore the FM equipment and when necessary passed it around to the other members of the group when it was their chance to talk. There was no opposition from Rick in using the FM equipment, contrary to the teacher’s expectations. It seemed that he was really trying to listen to the others by showing eye contact and leaning forward to the speaker. However, he still missed information shared by the group. The other boys seemed unaware that he was not getting as much information as they were from the interaction. In contrast, he did try to keep his group “on track” by reminding them of what they had to look for and he was able to contribute to the task.  (ES-FN, b)

In another group, Rick was having difficulty being understood by the students. The other boys could not always follow what Rick was saying, so Rick wrote down his ideas. That seemed to work some of the time. The students participated well in their responses although Rick did not contribute to the discussion.  (SS-FN, c)

At another point, Rick became disengaged and distracted by watching other groups’ reaction to the tasks. I intervened by suggesting that they look up the information together. Finally the assignment was completed although the teacher and I were aware that most of the students were having trouble with the questions on the novel.  (SS-FN, d)

3) **Individual/group accountability**

   Marks were important to the students and they participated in their assessment of their work. Rick’s group were usually the first to complete the assignments. I observed students frequently urging Rick to write down the number of points made, for example, in responses to questions and the group at times even ‘bargained’ with the teacher for bonus points.

4) **Opportunity for purposeful talk**

   Learning cooperative learning skills in both the Social Studies class and the English class was difficult for these students. They were reluctant to practise responses that the teachers and I presented to them. Instead, they habitually made more negative remarks to one another and digressed to their own conversations often leaving out some members of the group. We were unable to develop positive communication skills to any
level of adequacy. Here the limited time of three weeks for learning social language skills was a factor in this area.

5) **Processing -Reflection**

The students in Rick’s group were neutral about the activities and the written assessments. They did not engage in expanding their views about cooperative learning. Their comments were brief and fairly limited to comments such as, “It’s O.K.” “Not bad”

(SS-FN, e)

Nimoa - Grade 10 - Subject: English - Teacher: Penny

1) **Heterogeneous grouping**

This group was more varied than the groups in any other class at the secondary level in terms of their background, number of years in school, lower levels in academics and fluency in English. The group consisted mainly of boys which at first was difficult for Nimoa to accept that she had to participate even when she was the only girl in the group. She gained confidence and interacted more frequently in the small group than when she was in larger classes.

2) **Positive interdependence**

The students worked well together and shared the materials willingly. Because of the language difficulties much repetition was required but group members were patient with one another. The wanted to ask questions and interact constantly.

Nimoa: “I can hear better. I don’t like noise. I like quiet.” (SS-FN, f)

Normal-hearing students: “Who idea you like best?”

“It we all know wait before we write down the answer.”

“Do we all get the same mark?” (SS-FN, g)

3) **Individual/group accountability**

The group particularly engaged themselves in creating their own assessments and evaluations of their work. They stated that they although the group mark was acceptable they preferred an individual mark. (SS-FN, h)

4) **Purposeful talk**

This area was probably the most successful for Nimoa’s group. Role-playing and modelling verbal patterns were easily incorporated into the students’ repertoire of language. They focused well on the assignments and learned to integrate positive responses to one another. The teacher interventions were easily applied to each situation.

(SS-FN, i)
5) Processing-reflecting

For the most part, Nimoa’s group were able to make a few comments about what they had improved in and particularly were pleased when we used some of the same evaluation procedures as the elementary students had used (happy faces or number ratings).

Indications of Failure to Initiate the Principles of Cooperative Learning

Rick - English class - Grade 10 - Teacher - Debra

The following illustrations are examples of the events in Rick’s English class that led to subsequent failure to initiate any of the categories in the Principles of Cooperative Learning Framework. Problems occurred when the recorder in the group started writing before the others had finished sharing ideas. There was much prompting of spelling, sentence structures and grammar both from us teachers and some group members. Of course, this all slowed down the process and possibly decreased interest in the task. The biggest difficulty was students who came in late or who had missed several days of their English class. Getting these students involved was an important issue. What was I supposed to do? Stop everything to explain to these students why I was there, what their job was, what they had missed in the comprehension of the story? We decided to tackle the problem by talking to each one individually then letting other group members “fill them in” to complete the task. Another way that helped alleviate the problem was to give the student who was late or absent, a mark based only on participation in particular assignments.

Another example selected to illustrate some of the difficulties in Rick’s English class was when the students were to work in pairs not chosen by the teacher. Debra, the English teacher and I moved around the room from group to group.

I suggested to Rick’s partner that he use the microphone which would enable Rick to hear him as closely as possible. The boy stated outright that he “wasn’t going to wear that thing!” Rick also showed signs that he was not that comfortable with the idea of the student using the microphone. At that point I walked away and focused on another group. About five minutes later, I returned to the Rick and his partner who were having obvious difficulty understanding the academic task of answering questions about a novel study.

I then used the microphone and guided them to the information. As I walked away again Rick’s partner picked the microphone up and attached the tiny microphone to
his shirt. I gave him a subtle nod, meaning "thanks for the cooperation". Here I felt something positive had been accomplished because it was an important issue. Despite the conclusion of failure to initiate in Rick's English class, there were a few situations, that when dealt with, ended on a surprisingly positive note, but the components of positive interdependence were not observed frequently enough to be considered established. (SS-FN, I)

Marie - Grade 11- English - Teacher: Ryan

One example from several attempts at initiating the principles of cooperative learning in Marie's English class was when the Ryan, the teacher, explained that the students would be working in pairs to learn vocabulary for communication media and technology. The lesson was explained, amid lots of questions from the students. The task was to learn radio vocabulary concepts. During this 50-minute period, it became evident that most of the groups of two were unfamiliar with the material that they were being asked to classify. Marie and her partner appeared to be striving to get the information. They had neither the experience nor knowledge in the subject area. When Ryan and I consulted immediately after the lesson, we agreed that Marie would be unable to do the required listening to the radio programs. It would be necessary to either write out the script for her to preread or verbally prepare her for the tasks ahead. I ended up doing the latter. (SS-FN, m)

Working with this teacher became a problem for me in continuing the initiation process. At first, Ryan was quite willing to share his lesson plans with me. However, after a few weeks of prodding him to collaborate more with me it became a little tedious, perhaps for both of us. I had to continually pursue the issue of setting up times to meet but it became difficult to go on without feeling that my presence in the classroom was not welcome. Eventually, I realized that this first try was running out of momentum. I made the decision to discontinue going into the English class. (SS-FN, n)

From this example I learned that:

a) the teacher had not followed the basic premise of placing students in groups that could support one another;

b) when the students were eventually placed in groups, it was groups of three, rather than in groups of two or four;
c) there was no opportunity for what could be considered “processing” -- how the work was shared or how the group could improve the next time they tried a cooperative activity.

d) Ryan did not really understand what cooperative learning was.

**Marie - Grade 11 : Subject: Child Care - Teacher: Brenda**

Brenda told me that her students were already able to use a form of cooperative learning and that she had done a lot of group work. She did admit that it was difficult to continue because the students were lacking basic information and required too much prompting during times where an interactive approach was being attempted. Upon observation, I noted that each student was responsible for his or her own tasks in the Child Care class. This information resulted in our discontinuing the attempt to initiate any cooperative learning in this class. (SS-FN, o)

**Paul - Grade 12 - Subject: English - Teacher: Helen**

The teacher insisted on keeping the large group for discussion, so the students did not even get the opportunity to divide into smaller groups. Much time was spent getting the students to focus on the task of sharing their experiences. They seemed reluctant to express themselves by giving details of their work. This group of twelve students were seated in a circle and this setting may have been too “exposed” for them at the initial stage.

It could have worked better if we had divided them initially into smaller groups of two or four, but Helen preferred to have the students in a circle facing each other. Although I made some attempts to encourage active listening in the large class formation, it did not have any continued success. Later, I pursued the concept of the importance of placing the students in small groups, but again, I felt the teacher was unwilling to change her teaching style significantly. Even having the students attempt to discuss topics while in a circle did not seem to achieve what Helen had anticipated. The teacher usually asked a few questions while the students offered responses, but for the most part all the students worked alone at their desks. (SS-FN, p)

When I observed the class and in fact, in all the classes except the ESL class, I realized they would have required a few months just for us to prepare and develop their social skills, before we could really have added content. So for the third time, I abandoned the initiation of cooperative learning in Paul’s class. (SS-FN, q)
Interviews with these teachers where the initiation failed are in Appendix I.

I continue now with the results of the five Stages and Skills of Initiating Cooperative Learning Framework. In Rick's Social Studies class half of the skills articulated in the framework were established, and for Nimoa's ESL class, the majority of the skills were established at an acceptable level as shown below. As mentioned previously, only the results of the Stages and Skills of Initiating Cooperative Learning Framework in Rick and Nimoa's group are shown and illustrated.
Table 7

(C) Stages and Skills of Initiating Cooperative Learning Framework

<table>
<thead>
<tr>
<th>Secondary Deaf Students Groups:</th>
<th>Rick</th>
<th>Nimoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade: 10</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>Subject: SS.</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

1) Formation:
- moves quietly into groups: O X
- stays with the group: X X
- develops/adheres to time lines: O X
- follows rules for beginning stages: X X
- uses basic social skills: O X

2) Functioning:
- roles of group members: O X
- understands the group purpose: X X
- develops brainstorming techniques: O O
- uses problem solving: X X

3) Exploring:
- group decides what needs to be done: O X
- recognizes prior knowledge: X X
- adds ideas: X X
- criticizes ideas, not people: O X

Communication Skills:
- asks questions: X X
- seeks clarification: X X
- re-phrases/requests: X X
- makes statements: X X
- listens actively: X X

4) Shaping:
- summarizes: O O
- predicts: O O
- makes inferences: O X
- drawing conclusion: X X
- justifies: X X
- recognizes patterns; generalizes: X X
- synthesizes a number of ideas: O O
II. Secondary Study

Illustrations of Stages and Skills of Cooperative Learning Framework

Rick’s Group - Grade 10 - Subject: Social Studies - Teacher: Russell

1. Formation

The students had to be constantly reminded to move within the groups quietly. They also had difficulty getting the tasks completed in the given timelines. The basic components of the cooperative activity always included an academic task -- namely to locate distance on a map to several destinations in the Ottawa area and a social skill task -- to make certain that every group member had a turn with the device used for measuring distance, and to show patience and not to use any ‘put-down’ language towards one another. These components were often ignored by Rick’s group. We teachers had to intervene frequently to encourage the students to pay attention to what other group members were saying. (SS-FN, r)

2. Functioning

Students occasionally changed their roles within a given assignment, thus creating problems for the group. They showed good skills, however, in the areas of brainstorming ideas and problems solving in the geography tasks. (SS-FN, s)

3. Exploring

In Rick’s group the students were good at bringing each others’ prior knowledge into the conversations thus facilitating the listening process. Nevertheless communications skills were not at all well-developed. Students constantly directed questions at teachers rather than letting other students find the answer within the group. What is more, students would often criticize one another for contributions. (SS-FN, t)

4. Shaping

We spent time teaching how to make inferences from geographic information and we noted improvement in the students’ ability to draw conclusions and justify their work. Synthesizing the information remained challenging for the students, although they did show ability to generalize at times. In general the students did not show evidence of the ability to summarize information or to predict future sequence of events pertaining to the assignment. (SS-FN, u)
Nimoa’s Group - Grade 10 - Subject: English - Teacher: Penny

1. Formation

The group showed little difficulty learning the initial rules of working together. The social aspects of greeting and turn-taking had already been established prior to the cooperative learning initiation.

2. Functioning

In Nimoa’s group the stages and skills framework were positively established with the exception of the development of brainstorming techniques. Nimoa hardly ever contributed her ideas preferring to observe and listen to others.

This sub-item, predicting, under Shaping was also not established well with Nimoa and the other group members. Expecting them to use more abstract concepts was perhaps premature given their level of English. Questions of prediction were often met with puzzlement by the ESL students. (SS-FN, v)

3. Exploring

The communication skills were in evidence with this group because of the emphasis on prior spoken language development. The students were very active in this stage.

Nimoa: “Ask me now - ok?”
“Never know that in Somalia.”
“What are you talking about!”

Normal-Hearing Students: “Give me another word for....”
“How do you say.....?”
“I want to ask a question with ‘Do’”

4. Shaping

Summarizing was just as difficult for Nimoa’s group as it had been for Rick’s group. Most of the students, especially Nimoa had trouble retaining long passages of information and were only able to synthesize their ideas if they were written. in simple sentences. (SS-FN, y)

I now present the results of the second question in this section, using the third framework to assess the behavioural effects of cooperative learning on the deaf elementary students, Cheryl and Anne and the secondary students, Rick and Nimoa. The
effects on the normal-hearing students and the teachers are also presented in interview format with verbatim examples and observations.

2) What Were the Behavioural Effects of Successful Initiation of Cooperative Learning

I. Elementary Study

The behavioural effects of initiation of cooperative learning with Cheryl, in Grade 3 and Anne in Grade 6 are shown by the number of X marks that were considered as an adequate assessment of the results. The four major areas contained specific sub-items applicable to the deaf students' behaviours as shown on the framework in (Table 8). Selected illustrations of the behavioural effects of initiating cooperative learning follow after (Table 8).

As can be seen, Cheryl, in her group performed favourably in most of the sub-items in the four categories. Compared to her normal-hearing peers, she was not always able to access the information passed among her peers with regard to anecdotal remarks concerning the tasks at hand. She did not always show confidence in her ability within group structures. To build confidence, she often had to request clarification as to the purpose of the task. However, she was able to use repair strategies, by asking others to repeat what they had said and using the material at hand to show the content of her requests for clarification. Cheryl showed that although she acknowledged the views of her peers, she did not have the experience to evaluate others' viewpoints without teacher prompting. The experience of assessing areas of success or improvement was challenging for all the group members, not only Cheryl. Anne, on the other hand, performed positively to the sub-items in the categories, except in the area of 3) Cooperation/Interaction -- simplifying the information to her group members and to the whole class. This area mentioned previously indicated that Anne needed to limit her explanations when trying to relate information to others.
### Table 8

**Effects of Initiation of Cooperative Learning on Deaf Students**

<table>
<thead>
<tr>
<th>Elementary Deaf Students</th>
<th>Cheryl</th>
<th>Anne</th>
</tr>
</thead>
</table>

1) **Attitude**
- willingness to work with a partner: X X
- willingness to work with a group: X X
- shows a sense of confidence: X X
- accepts responsibility: X X
- looks to group for support: X X

2) **Roles**
- understands group purpose: X X
- collects materials/texts: X X
- keeps group on task: X X
- shares or accepts leadership: X X
- makes notes or records information: X X

3) **Cooperation/Interaction**
- helps/encourages others: X X
- responds appropriately to others: X X
- shares/contributes ideas: X X
- shares materials: X X
- makes suggestions: X X
- uses repair strategies: X X
- asks questions: X X
- simplifies information: O O
- draws conclusions: O X
- predicts: O X
- listens actively: X X
- evaluates the views of others: O X

4) **Reflection/Assessment: Self/Group**
- completes self/peer evaluation: X X
- considers areas of success/improvement: O X
1. Elementary Study

Illustrations of the Behavioural Effects of Initiation of Cooperative Learning Framework

Cheryl

1) Attitude

Cheryl seemed to prefer working in pairs and asked to have a different partner for the activities. She indicated to me which students were easier for her to understand and asked me if she could have (Hannah) as a partner. (ES-FN, 2j)

Cheryl: “Alex talks too fast. I can’t understand.” (ES-FN, 2k)

Despite these obstacles she accepted her responsibilities and appeared to know what was expected of her in the group of four when we asked her. She was always willing to get into the groups. Students in her group were seen to make adjustments when there were communication problems. At one point, Cheryl could not understand a question being asked of her. Alex, her partner, had to repeat it a couple of times to the point of the other students showing frustration. He said to the students who were waiting to continue the task:

Alex: “Don’t get mad, it’s not Cheryl’s fault.” (ES-FN, 2l)

Other student: “You should write the letter on the paper.”
(to which the other students agreed) (ES-FN, 2m)

2) Roles

Cheryl was in the role of recorder where she had to write the words the others contributed in a spelling activity (e.g. investigate, Africa, funny, laugh, secret, they, again, burst, little). Since she was a good speller, this was an ideal role for her. Cheryl was pleased when her ideas were acknowledged.

Cheryl: “When I am the recorder, I sometimes miss what someone says and when they talk to each other, I don’t get everything.” (ES-FN, 2n)

“I am the best at spelling.” (ES-FN, 2o)

In a language activity group (with “wh-questions”; who or what etc.) The students were carefully taking turns to talk using the FM microphone. Cheryl was often given the role of recording the answers to questions in the lessons or writing the ideas down or
gathering the materials needed for the lesson. This role meant that the others had to clarify or rephrase what they said when necessary, and they had to speak one at a time. The group members changed these roles as they became more familiar with the process.

At another point, they were having an argument about their roles in the group. Again, Cheryl was the writer. One of the normal-hearing students said, “Oh she’s always the writer. Another said, “Yes, but she doesn’t get everything we talk about.” I then asked the group what they could do to solve this problem. Cheryl suggested two people being the writers, so that she could see if she had missed a word. While Cheryl was writing I prompted her to ask, “What’s the next word?” “What’s missing?” She would write down what she heard her peers say. This had a calming effect on the group.

(ES-FN, 2o)

3) Cooperation/Interaction

During a lesson on country of origin, in a group of six, Alex asked Cheryl what country she was from. She did not understand. It took two or three attempts before she answered but only after I prompted him to ask “Where were you born? -- here in Canada? or where?”. The need to rephrase emphasizes the complexity of language learning for Cheryl. Clarifying, rephrasing and modelling becomes the major role in the interaction. The larger the group, the more difficult it was for Cheryl to participate. We would change to a group of four or two next time. (ES-FN, 2p)

After pre-teaching and modelling new phrases I overhead Cheryl use the following questions / statements:

Cheryl:
“You mean write name hospital?”
“Who know answer?”
“What next?”
“What did you say?”
“Tell me again.”
“My turn.”

(ES-FN, 2q)

I saw other students conversing with Cheryl as she was explaining a math problem to the group. Cheryl had excellent math skills. She looked very animated as she was talking. Members of her group told her how smart she was. She said “Thank you - right on!”

(ES-FN, 2r)

Another example of cooperative interaction shown in Cheryl’s group was when she was reading aloud to her group. As the other students contributed other parts of the story sentence, I gave the FM microphone to each speaker. Cheryl laughed at the end of
one of the sentences. She had understood the humour there. When she did not comprehend one or two of the responses from the group, I showed the students how to get closer to the microphone so that the auditory information would be more salient for her. After a few practices, Cheryl seemed comfortable enough to try it out for herself and was able to respond adequately.

In this area of Interaction/Cooperation. Cheryl did not show evidence that she was able to draw conclusions about the tasks, nor predict what would happen next in the activities, nor was she able to evaluate the views of others. Compared to her normally hearing peers she was not able to access the information passed among her peers with regard to anecdotal remarks concerning the tasks at hand.

4) Reflection/assessment

This group responded favourably to the completion of self and group ratings on the performance of their tasks. They were anxious to share their viewpoints with the whole class. Cheryl was often chosen to report on her group.

Cheryl’s Comments about Cooperative Learning

Cheryl: “People in my class did not talk to me before -- now they talk to me all the time.”
“I like working myself better, but I like to talk to my friend – do the work.”
“Always give the FM to my partner- okay?”

Anne’s Group-Grade 6

1) Attitude

My observations of Anne in the class was that she was usually not involved in finding ways to interact with her peers in the group. She did not want to share her ideas or contribute very much. The description of her as reported by her teachers was that she interrupted when others were answering questions in whole-class work and generally had poor social skills. As time passed and we practised cooperative skills, she had improved in her attitude to the point that she accepted any job that she was assigned.

Anne: “I really did not like group work because I was afraid I would not understand everyone, but I changed my mind and it’s fun... remember that experiment?”
Anne seemed to gain respect from the students in her group and in time her social interactions outside the cooperative activities blame more positive. She was less agitated and complained fewer times than she had shown prior to the group work, according to our observations. Her teacher thought that Anne was developing better coping skills in her friendships and was more relaxed when she was interacting with other students.

(ES-FN, 3a)

2) Roles

Anne had been assigned the role of the reader in one activity, while other group members listened carefully to the math problem. One of the students grabbed the paper out of her hand because he wanted to read it for himself. Lisa, her assigned partner, told the student to give it back and to ask Anne to show the page to him. The student did so and they continued the problem-solving.

I noticed another girl was exaggerating her mouth movements and gesturing inappropriately when explaining something to Anne. I was surprised when Anne stopped her and told her, “Just talk normally to me okay?” She was frequently the leader or the recorder in the group, but she told me:

Anne: “When I am the recorder, I sometimes miss what someone says and when they talk to each other, I don’t get everything.”

(ES-FN, 3b)

3) Cooperation/Interaction

Giving examples of re-phrasing and clarification techniques to her peers in her group facilitated the communication in the group process. I had assisted Anne with new language structures and vocabulary while monitoring the verbal interaction in her group. There was an advantage in seeing her individually to pre-teach concepts in language arts, math, science and social studies which I anticipated would prove to be challenging for her. From the examples of the intervention procedures the students in her group also learned new communication strategies. Anne began to contribute many ideas and she did learn to accept others’ ideas without feeling resentment or rejection as she had been observed in the past.

(ES-FN, 3c)

Anne’s Comments about Cooperative Learning:

“ I didn’t like it at first, but now it’s okay.”
“ My friends actually understand what I’m talking about.”
"I have to keep reminding them I can only listen to one person at a time."
"I understand more." Friends are nicer to me." (ES-FN, 3d)

Behavioural Effects of Initiating Cooperative Learning on Normal-Hearing Elementary Students

i) Raised Awareness About Hearing Impairment

As part of the start-up procedures with the students and teachers, awareness of aspects of hearing impairment was raised as a result of my presentation to the normal-hearing students in both the grade 3 class and the Grade 6 class about how having a profound hearing loss affected speech intelligibility and language learning. I discussed the fact that the girls had to take time to watch and listen to what was being said. I modelled simple sentences for the normal-hearing students to use with Cheryl and Anne. I emphasized that they did not need to over-exaggerate or shout to them when they were talking. This practice helped improve communication skills in dialogues with both Cheryl and Anne’s normal-hearing peers. Being the centre of attention for a while had a positive effect on their attitude and they participated well in answering questions of their peers. The normal-hearing students had lots of questions, sometimes with me repeating the question to them. The students enjoyed taking turns listening through the FM system and were keen to use the teacher’s microphone transmitter when working in the group. Mary, a teaching assistant, recorded some of the events in the class on my behalf. In her notes about this introductory “sensitivity” session on deafness and communication she stated:

"The exercise I enjoyed most was when Ms. Biro explained what it was like to be hearing impaired. She did this through various activities (cups on strings, drums, environmental sounds, music, speech, hearing aids, etc.). The children enjoyed this activity immensely."

The lesson made them more aware of the frustration that Cheryl and Anne might encounter. Communication between both girls and their peers improved after that. In fact, Cheryl was seen interacting more and several students who had never spoken to her before the cooperative activities. (ES-FN, 3e)

Anne, in particular, was delighted for this opportunity as she felt she would get a chance to explain to the whole class what some of her experiences were in school. The mere fact that Anne could not hear the P.A. system for announcements came as a surprise to her peers. Some solutions were suggested. Some said they would repeat the
announcements, write them down or Anne could go to the office later and get a print-out of the day’s events. It was suggested that she could even try to use the transmitter part of her FM unit close to the P.A. system. However, this is not the best solution for a student with a profound hearing impairment because it really distorts the sound making it unintelligible. After this brief introduction, I gave out ear plugs to the students so they could experience a mild hearing loss. I did a simulation of what happens to the comprehension of spoken language when there is a lot of noise in the room. Anne was very attentive throughout the session and seemed relaxed, joining in when something was funny. When the students took the ear plugs out in the exercise, they let out a sigh of relief. Their comments revealed that they understood Anne’s difficulties a little better. Some students stated how good Anne was in reading and sports. She was on a local soccer team, and travelled extensively across Canada, playing competitively.

After this exercise, Anne asked if she could be assigned a buddy. She chose a girl who was helpful, patient and was able to take good notes for her. I sensed a comfort level in the interactions of all concerned as a result of these presentations. Continuous endeavours were made by both the teachers and I throughout the course of the cooperative learning periods, to heighten the awareness of their classmates Cheryl and Anne. We hoped that they might learn effective communication and bring harmony in their relationships with one another. My perceptions of the group participation was that the elementary students learned to make encouraging comments to one another in anticipation of and during the cooperative learning tasks. Other group members made special attempts to include the two deaf students. The normal-hearing students in the Grade 3 class had copied the positive comments made by the teachers. These comments included expressing their admiration, respect and genuine fondness for Cheryl. The older Grade 6 students showed that they had a sense of Anne’s communication and social needs. Most of the time in the cooperative tasks the Grade 6 students showed respect for others’ opinions by waiting until the speaker had finished talking before responding and giving eye contact.

ii) Comments from Normal-Hearing Elementary Students

I interviewed individually several of the normal-hearing students to learn what their perceptions were of the cooperative learning activities. Their comments reflect references to both Cheryl and Anne:

"The group work was okay."
"I tried to help other people."
"I think we can do better next time."
"Cheryl does good work."
"It’s hard for Cheryl to understand me."
"I like groups better."

"You get to do more stuff."
"I want to be with a partner."
"Anne was always fighting with us before."
"We have fun here."
"Too many people talking - too much noise."
"I like getting stickers for talking."
"I can talk to Cheryl now."
"The group was fun." (ES-INT, 3f)

Behavioural Effects of Initiating Cooperative Learning on Elementary Teachers

Linda, Mary and Margaret stated that there was a comfort level in viewing themselves as learners in a more holistic classroom where ideas and facts could be discussed more fully than teaching in a traditional classroom. Developing positive attitudes within these contexts was rewarding for them as facilitators. In my interviews with the teachers I have chosen to document excerpts of their comments referring to the deaf students, as we continued using cooperative learning.

Observations by Cheryl’s teachers:

"Increased social interaction with normal-hearing peers."
"Increased spoken language; length of utterance and new vocabulary."
"Increased confidence and self-esteem."

Observations by Anne’s teacher:

"Gained respect from her peers."
"Positive social interaction."
"Frustration decreased."

"Confidence and self-esteem increased."
"Anne loves to talk and the group work gives her a chance to be listened to in a positive way."
"She’s accepted more by her peers."
"Before we started cooperative learning, Anne was always trying to get attention. She was frequently at odds with her friends." (ES-INT, 3g)

Teacher Collaboration:

"Having another teacher in the room helps keep my perspective."
"I’m not sure if I can continue on my own. This is true for all activity-based learning." (ES-INT, 3h)
From a practical view:

"It's easier to work in cooperative small groups and not get 'bogged down' with tests and lecturing continually."
"I'm surprised I'm getting through the unit, although it seems slower at first".
"I have to see which areas I could use cooperative learning with these students."

"I see it as a benefit for me as a teacher, although I seem to be questioning all the time".
"It's a bit too early to tell, but I think it's worth developing." (ES-INT, 3i)

Changing to a students' perspective:

"I get more ideas about what to do because I feel more engaged in my students' learning."
"I can really see what's going on more clearly. It gives me a chance to talk to the student in a group situation."
"The kids seem to like it better than listening to me."
"I like the changing roles given to the students. I view them differently than I did before when I was depending on their responses individually or through written assignments".
"I've gained new insights into how my students think and behave. Their personal opinions seem to come out more".
"My students seem to lack maturity." (ES-INT, 3e)

B. Secondary Study

The behavioural effects of cooperative learning framework used in evaluation with the deaf students, Rick and Nimoa, were only applicable to groups in two classes. As can be observed, most of the sub-items were evaluated as positive in the categories of Attitude, the Roles, Cooperation/Interaction and Reflection/Assessment. Several positive and negative results based on the sub-items were selected to illustrate the findings.

Positive results

Rick - Social Studies - Teacher - Russell

Rick was usually chosen by his teacher, Russell, in the group that needed leadership and one that could depend on Rick for some knowledge base. His attitude was positive, except that he did not look to the group for any support. The reverse was usually the case. He frequently wanted to take notes and he was observed to share his own ideas but he was not always accepting of other student's ideas.
**Negative results**

In Rick's social studies classes, at times he showed a disregard for the students in his group. He was not always actively engaged, choosing in some situations to ignore others’ comments. In other situations it was obvious that he did not in fact hear the students’ comments. He also made assumptions as to the group’s purpose and he required further explanation from either myself or his peers. He hardly ever used repair strategies of any kind to clarify messages or make himself more easily understood. In common with his group he did not find ways to improve or change their group strategies for learning or interacting with one another.

**Positive results**

**Nimoa - English - Teacher - Penny**

Nimoa responded positively to direction regarding helping others and responding appropriately with some sharing of her ideas, and most of all, she shared the materials with her peers consistently. Nimoa did not participate enthusiastically in any leadership role nor was she able to make notes or record information. She did show at times that she could report on the completed tasks to her teachers and the others in her group. The suggestions that Nimoa made were generally not intelligible enough to be a contribution to her group’s full understanding, although she did attempt to relate her own experiences in relation to the task. She did not progress enough in using repair strategies because of her limited communication skills. For the same reason she did not have the language nor the skills to evaluate the views of others in her group. Despite these obvious lacks as observed according to the sub-items in the framework, Nimoa was considered to have had a positive experience with cooperative learning in terms of her attitude and cooperation.

The Behavioural Effects of Cooperative Learning Framework with these two secondary deaf students is presented in Table 9, after which selected illustrations of the effects are described. Comments from the normal-hearing students and their teachers illustrate some of the effects of cooperative learning.
### Table 9

**Behavioural Effects of Initiating Cooperative Learning Framework with the Secondary Deaf Students**

<table>
<thead>
<tr>
<th>Grade:</th>
<th>Rick</th>
<th>Nimoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>10(SS)</td>
<td>11(ESL)</td>
<td></td>
</tr>
</tbody>
</table>

#### 1) Attitude
- is willing to work with a partner: \( X \)\( X \)
- is willing to work with a group: \( X \)\( X \)
- has a sense of confidence: \( X \)\( X \)
- accepts of responsibility: \( X \)\( X \)
- looks to group for support: \( O \)\( X \)

#### 2) Roles
- understands group purpose: \( O \)\( X \)
- collects materials/texts: \( X \)\( X \)
- keeps group on task: \( X \)\( X \)
- shares or accepts leadership: \( X \)\( O \)
- makes notes or records information: \( X \)\( O \)

#### 3) Cooperation/Interaction
- helps / encourages others: \( X \)\( X \)
- responds appropriately to others: \( O \)\( X \)
- shares/contributes ideas: \( X \)\( X \)
- shares materials: \( X \)\( X \)
- makes suggestions: \( X \)\( O \)
- uses repair strategies: \( O \)\( O \)
- evaluates the views of others: \( O \)\( O \)

#### 4) Reflection/Assessment: Self/Group
- completes self/peer evaluation: \( X \)\( X \)
- considers areas of success/improvement: \( O \)\( X \)
II. Secondary Study

Illustrations of Behavioural Effects of Initiating a Cooperative Learning on the Deaf Students

Rick

1. Attitude

In the Geography class, in contrast to my presence in the English class, Rick was accepting of my role in the cooperative learning activities. He seemed quite self-assured and comfortable using his FM amplification equipment. However he did not look to his group for support. Often he was observed to just sit and try to work things out by himself. His peers, on the other hand, would frequently ask each other or even more frequently ask one of the teachers, or myself. As far as the group purpose was concerned it appeared that Rick was more interested in merely following his own role in the group. He often would just concentrate on the work in front of him rather than attempting even eye contact with his peers in the group. (SS-FN, t)

2. Roles

Rick was often left to record the information because he was a good organizer while the other students at times just waited. Rick got involved quickly and did not wait for group input most of the time. On the other hand, Rick did have experience and prior knowledge of mapping so he was the leader most of the time, though not always assigned as the leader. (SS-FN, u)

3. Cooperation/Interaction

I saw one or two students act as a buddy explaining tasks, rephrasing language and making sure Rick was watching them before they began to converse with him. His inadequate communication and/or the intelligibility of his speech made it more difficult for me to facilitate group discussion. He required further skills in promoting positive interaction. He did not ask questions often. Working in pairs was better for Rick because it helped him focus more on the task at hand and he only needed to concentrate on one person at a time. (SS-FN, v)

Group interaction at times resulted in the students in his group teasing Rick about his speech and language. He did laugh along with his peers although it could be perceived that he did not always realize the reason for their laughter. The accommodations made for him in communication resulted in his being accepted more in the group, which was made
obvious by their inclusion behaviour (high five’s, pats on the back, thumbs up, and other verbal intents of camaraderie). However this kind of support was momentary and was not consistent over a longer period of time. (SS-FN, w)

Contributing ideas and obtaining materials enabled Rick to show his capabilities to the other students in his group. Geography was an area he excelled in. He showed confidence and smiled several times at the accomplishment of the group. It was appropriate that he should show his talent in the group work and gain respect from his peers. (SS-FN, x)

4. Reflection/assessment

Rick was usually diligent and eager to fill in self-rating sheets at the end of the group work but was less interested in assessing the group in terms of success or improvement. Other group members were similarly disinterested in what improvements could be made to the group process. (SS-FN, 2a)

Rick’s Comments about Cooperative Learning

“Cooperative study is okay, but I like to work by myself better.”
“Other guys fool around too much.”
“Some of the work in English was too hard for me, but those other guys didn’t know how to do it either.”
“I can do the map work - no problem. My friends always ask me to do it for them.”
“I like to work by myself best.”
“Are you a real teacher (referring to me) and where did you learn this cooperative stuff?”

(SS-FN, 2b)

Nimoa

1) Attitude

Nimoa made gains socially as reported by teachers even outside the group — in other classes. She learned to ask for help from the group. Reluctant at first to take responsibility for her work, she eventually showed signs of maturity often saying that she could do the task herself. (SS-FN, 2c)

Nimoa had not worked well in any group she had been assigned to in her other classes. On joining the group at first, she became quite agitated and very unwilling to participate or even sit close to the boys. It has to be appreciated that in the Somali culture, girls are often discouraged from even associating with boys. Penny and the other students persuaded her to sit at the table and told her that she would be learning English just the same as the others would, and that they would all be working together. By the end of our
cooperative learning activities, Nimoa was showing more confidence in her interactions with the group members. (SS-FN, 2d)

2) Roles

I noted that Nimoa was not always accepting of being the leader. She became very impatient with herself and the other group members. She was good at getting the materials, but any complex language was difficult for Nimoa; however it was also a challenge for her peers who were learning English. She responded to questions rather than spontaneously volunteering information on the tasks at the end of the activity. (SS-FN, 2e)

3) Cooperation/Interaction

The development of the lesson presentations and the modelling and introduction of language concepts progressed very smoothly. Vocabulary was taught in-depth with the students having time to practise. Nimoa participated more after four or five sessions and her spoken language expanded to five to six word sentences. She developed more structure to her spoken language and better listening skills -- according to Penny and I -- and contributed in the group discussions more frequently than prior to the cooperative learning. She participated more in the question/answer period with teachers and peers. Nimoa remembered content more frequently which helped to widen her vocabulary. (SS-FN, 2f)

In exploring group-building tasks the ESL students used games to stimulate language interaction and practice written language, for example, T.V. shows, food, favourite animals, cars, and sports. Some examples of the cooperative-type tasks were: making up a collective story using the “5-wh” questions; verb-drill activities, vocabulary meanings and practise sentence structures; definitions and uses for objects and a thematic approach to topics such as, “The Human Body,” “The Senses,” “The Weather,” and other introductory concepts useful for students learning a second language. These tasks resulted in a positive situation for cooperative learning in this class. I had to keep in mind that although the students had already developed the language concepts in their own native tongue, learning English equivalents would place their communication development a little closer to Nimoa’s language which was very delayed because of her hearing loss and lack of schooling. (SS-FN, 2g)

Once Nimoa had grasped unfamiliar words she would then try to use to explain them to others. We had used role-play scenarios matching the language needed for the
activities as we went along, which resulted in the concepts emerging in her spoken language.  

Nimoa's Comments about Cooperative Learning

Nimoa:  
"I know how to say it."
"Work with them is okay."
"I like both -- same group -- myself."
"I can do work."
"I want to work with partner."

Behavioural Effects of Initiation of Cooperative Learning with the Normal-Hearing Secondary Students

i) Raised Awareness of the Effect of Hearing Impairment

Rick's classes

My presentation on the use of the FM equipment and the impact of hearing impairment on communication and learning was repeated in the secondary classes, similar to the information presented to the elementary students. The normal-hearing students and their teachers in Rick’s classes responded with questions to the information toward understanding the difficulties faced by their deaf peers. There was very little impact on the students in Rick’s English class compared to the students in his Social Studies class where they did make a few attempts to include Rick in their interactions by directly facing him when they were talking. Rick’s peers interacted with more intention and effort than prior to cooperative learning. The normal-hearing students learned to rephrase, use a different word, and/or tell Rick to look at them directly when they had something to say. Having only one speaker at one time was helpful to Rick, and that practice became a little more common among Rick’s peers. However, the initial impact from the information did not continue as it did in the elementary classes. The secondary students soon lost interest in accommodating Rick. The shorter time of three weeks involved with the cooperative lessons could have been a factor that limited the quality and frequency of positive interaction among Rick’s group.

In contrast to the elementary students, the secondary students’ comments indicated that they were rather indifferent toward the cooperative activities. Some students stated that the small group work was a change from the teacher telling them what to do. Other students commented that they preferred having the teacher working with them individually. An advantage for these students was the opportunity to share
examples of real-life situations and experiences in which they related similarities of their lives to characters and events in social studies. The students frequently asked questions of a personal nature of one another and of us teachers.

Nimoa’s class

I emphasized the importance of the benefits gained when normal-hearing students consider the deaf student with new awareness. I discussed how basic communication occurs and had each ESL student say a few sentences in their own language to show similarities and differences in the sounds. I had the group members experience what speech sounded like through Nimoa’s hearing aid. The normal-hearing students also had the experience of listening through her hearing aid in a personal way and they were challenged by the tasks because they had to rely solely on listening with no visual cues. They were quite surprised to see how much Nimoa could identify and respond to without actually looking at the speaker; it seemed as if they had a new respect for her abilities. There was much laughter during these sessions.

I modelled some communication activities for the everyone in the group, not just Nimoa, because these entailed extensions and requests for the students to repeat the English structures. Their verbal interaction showed an increase in both quantity and quality. Nimoa acted as if she were more “at ease” with her male peers. She learned how to ask for clarification and the boys in turn practised re-phrasing so she could understand more fully. The fact that this peer group took on the role of interventionists in communicating with Nimoa was an added bonus to the initiation period. When Nimoa was unclear about what her peers had just said, I suggested how she could ask for clarification. The normal-hearing students used the same strategy. They copied my interventions with Nimoa, such as making sure she was looking at them and paying attention to the information.

In the ESL class the boys acceptance of and attempts to understand Nimoa attempts to communicate in English were commendable. Again I asked the students what their perceptions were of their experience with cooperative learning and some of the students made references to Rick and Nimoa.

ii) Comments from the Normal-Hearing Secondary Students

“I thought Rick could hear okay with his hearing aids.”
“He’s pretty smart but it’s hard to understand him sometimes.”
“Oh yeah, I understand him because I was in his class before.”
“The group work is okay, it’s a change from the teacher talking all the time.”
“Nirmoa is doing good now-right?” “You have to wait for her to answer.”
“I can help her because I remember the words.”
“I have to get closer to her that’s all.”
“Oh yes, I like working in the group because we can talk about what we have to do.”

(SS-INT, 2i)
Behavioural Effects of Initiating Cooperative Learning On Secondary Teachers

Observations by Rick’s teachers

Russell - Group selection

"I thought it was very important that I make up the groups rather than ask the students to choose who they wanted to work with because I’m certain there would have been one group where there would have been very little done."

Facilitator and Guide:

"I think it was more student-centered and less teacher-centered -- that was the key. That was the biggest success. Just being a facilitator made me feel comfortable. I put the instructions up on the blackboard of what stage they were supposed to get to by the end of the lesson. They knew what to do with just a few instructions. I started off each lesson with a ten-minute presentation, moving into a class discussion. then the group work began. I think for me that actual classroom organizations have to be prepared a little more but the tasks were so clear for each group so it wasn’t a vast amount of preparation. Each group had the task written down prepared for them as they came in."

Rick’s Participation:

"I thought Rick got just as much, if not more than some of the other students especially because he had to listen to what the others were saying in the group. He had to pay more attention than the others especially when certain things have to be completed by the end of the class. The fact that he was sitting right opposite people in his group helped the communication."

"A group of two would have been better for Rick to keep him on track. It would have been easier because he needed only to focus on one person speaking to him and listening to him as opposed to three others."

"Rick wanted to be accepted in that sense, socially it was probably a good thing for him to be in this group using the context of geography but one of the things is how well you can get along with your group. He certainly did that."

"When I was observing him in that he often had his head down and he wasn’t paying that much attention and even if the students were talking to him, he would want to keep on task. At times he took a leadership role but I don’t know if that’s an isolated situation or if he was the recorder. He is quite a good writer. Then people in his group would say, “Okay Rick, you can do that”. Yes, he did want to inform them about what he knew already.” (SS-INT, 2j)

Penny - On Collaboration

The cooperative learning activities were great for all the kids. I feel I was very lucky to have your experience with the deaf student. I feel there has to be a mutual partnership between two teachers if they are going to be together for all
the cooperative type lessons and it worked for us so well. We had time to plan and talk about the events of each lesson on a daily basis. To me that was the best part and really made the whole thing work for us all. I don’t think I could have done it myself.  

(SS-INT, 2k)

**Helen - Discontinuing cooperative learning**

“I would like to have tried it but this year’s been hectic. Most of the time I forget the FM system for Paul but I don’t think it’s a problem. (This is difficult to understand after the in-service and support available to this teacher on behalf of Paul who required the use of the FM system in all his classes).

(SS-INT, 21)

**Debra - Discontinuing cooperative learning**

**Rick’s participation**

He tended definitely to take the leader role; he would write out what he thought was right. As far as he was concerned that was all I asked for whether it was or not. They all had different perceptions so that was not always dependable. I think there was a lot of give and take between Rick and his peers. There has to be more of that because he will not ask *them* and they will take whatever *he* says verbatim.

(SS-INT, 2m)

**Problems in Presentation**

You can’t give them (the students) a lot of instructions or they tune out. If I do, I end up repeating and referring to the fact that I had just said (that) in front of the class. They really don’t listen! You can see that glazed look come over them. Then, if they go ahead on their own, they cannot complete the work because they don’t know what to do, so in cooperative learning that’s what makes it difficult. You also need to have specific goals, and roles for each member.”

(SS-INT, 2n)

**Summary and Conclusions of the Results of the Initiation and the Effects of Cooperative Learning on the Deaf Students**

The Principles of Initiating Cooperative Learning were established in order to lay a foundation for continued use in the classroom by the teachers, Linda and Margaret. According to the of the Stages and Skills of Initiating Cooperative Learning Framework, most of the sub-items in each category were positive for both the Grade 3 and Grade 6 groups, with the following exceptions:

During the cooperative experiences in the Grade 3 class, Cheryl’s showed confidence in her language and social interaction. Working with a partner was agreeable to her but she did indicate that *she preferred working by herself if given the choice.* In the
Grade 6 class, Anne appeared to show improved social behaviour and to be more accepted by her peers. She had stated initially that she did not like the group work but gradually her comments became more positive about cooperative learning. A summarized version of the initiation procedures is presented:

**Formation** - consistency in moving quietly into the groups and adhering to time lines brainstorming was not well developed problem solving for the Grade 3 group was not consistently used.

**Exploration** - the Grade 3 group had trouble at times deciding what needed to be done.

**Shaping** - summarizing and predicting were not well established drawing conclusions and synthesizing were not firmly established.

**B. Secondary Study**

Sub-items in the Principles of Cooperative Learning Framework and in the Stages and Skills Frameworks indicated that the majority of the sub-items were established with the exceptions of:

- Positive interdependence - not well established in Rick’s group, nor was learning through purposeful talk.
- Formation - time elements were not always adhered to basic social skills were not established.
- Functioning - roles were not established clearly brainstorming techniques were not always effective. Rick’s group could not often reach consensus in decision-making Rick’s group habitually criticized one another’s ideas.
- Shaping - Summarizing and Predicting were not well developed for either Rick’s or Nimoa’s group making inferences and synthesizing information was difficult for both groups. Nimoa’s group did not show evidence of ability to evaluate the views of others.
- Reflection - Rick’s group were unable to find areas in which they could improve in the cooperative activities.

At the secondary school the cooperative learning activities affected changes in Rick’s attitude in the geography class in that, he seemed to show confidence and signs of greater self-esteem than prior to the cooperative learning activities. It was noticeable that Rick was motivated to be a part of the group socially, but did not show interest in what
others could share with him or teach him. In whole-class teaching he rarely participated in discussions, preferring to work independently.

The advantages of a cooperative learning approach were noticeable in Nimoa’s case as she reached a high comfort level with her group. It was a big step for her being the only girl in a group of boys and yet having confidence to contribute her comments. In terms of the deaf students’ perceptions about small-group work, their comments were fairly neutral but they indicated that the experience was a pleasant one (pp. 200, 201).

In sum, by showing a reduced combination of Tables 4, 5, 6 and 7, I have presented the results a little more clearly that reflect for the most part, positive development (X) of the principles, stages and skills of cooperative learning and its effects in both groups of elementary and secondary students that included Cheryl, Anne, Rick and Nimoa. The areas with negative assessment (O) required further development to consider success.
### Table 10

Deaf Students in Groups for the Initiation of Cooperative Learning in Groups and Individual Evaluation of the Effects of Cooperative Learning

( Elementary & Secondary )

<table>
<thead>
<tr>
<th>Principles</th>
<th>Cheryl's</th>
<th>Anne's</th>
<th>Rick's</th>
<th>Nimoa's</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Heterogeneous groups</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>2) Positive Interdependence</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3) Accountability</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4) Purposeful talk</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>5) Processing</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stages &amp; Skills</th>
<th>Cheryl</th>
<th>Anne</th>
<th>Rick</th>
<th>Nimoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Formation</td>
<td>X</td>
<td>O</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>2) Functioning</td>
<td>X/O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3) Exploring</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>O</td>
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<tr>
<td>4) Shaping</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavioural Effects</th>
<th>Cheryl</th>
<th>Anne</th>
<th>Rick</th>
<th>Nimoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Attitude</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2) Roles</td>
<td>X</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3) Cooperation</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>4) Reflection/Assessment</td>
<td>X/O</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>
Commentary on Assessment

In light of the findings from all three frameworks and the observations made in the classrooms there were certain prevailing factors within the study which explain the extreme contrasts between the elementary and the secondary studies.

In the elementary study, the teachers had already some exposure to cooperative learning in their schools. The approach was considered new and innovative in the Greater Toronto region. The teachers were well-prepared to implement cooperative learning and conferences were well attended. In contrast, the teachers in the secondary school had really little or no exposure to the latest trends, although they stated that that they ‘knew’ how it worked. The elementary teachers arranged for meeting times with me to share and reflect on the daily events of the cooperative activities. Apart from Russell and Penny, the other teachers in the secondary school did not make the same time and effort for reflection with me.

Furthermore, elementary teachers are in the habit of teaching subjects in an integrated curriculum and setting up activity centres in the classroom. Their teacher-training is different from that of secondary teachers, in that, elementary teachers tend to be diversive in all subjects, whereas secondary teachers are usually specialized in one or two subjects. From my observations secondary teachers seem to prefer whole-class teaching. I realized that it is difficult for teachers to change strategies and ways of operating and it was an inhibiting factor with the secondary teachers. I discuss this area in more detail in Chapter 5. It was notable that both Russell and Penny had experienced success with activity-oriented lessons and favoured students’ projects in their classes prior to the cooperative learning experience.

In terms of the students, there were major differences between the two settings. The elementary students were more attentive and positive during the activities. There were no behaviour problems and they learned the social communication well from the modelling that the teachers used. In addition, the students were of average or above intelligence, including Cheryl and Anne, according to the teachers. Most of the students in the groups showed maturity in their attitude.

In contrast, the majority of the secondary students were designated special education students with learning difficulties of an intellectual nature or other compounding factors. Discussions were therefore more challenging for them than for the elementary students who participated more in the reflective aspects of cooperative
learning. Nimoa, it may be recalled was in a separate modified program with other students. Although Rick, Paul and Marie were of average ability, they had other learning disabilities in communication. The interventions were not as easily made with the secondary students as with the elementary students. They did not respond as eagerly as the elementary students, again, age and maturity level were factors. These adolescents were self-conscious and less self-assured, which is probably fairly common behaviour for teenagers whereas the elementary students showed fewer inhibitions in the cooperative tasks.

The vocational school situation cannot be compared to a general level high school where the students may have engaged more positively and understood the group process. The circumstances of my presence in this basic level school was both an advantage and yet a disadvantage. In both school settings, I came to the conclusion that there was some doubt that the initiation procedures could have occurred without a key teacher knowledgeable about the students and the effect of hearing impairment, or a well-trained education assistant working closely in the classroom with the regular teacher.

This investigation on initiating cooperative learning with deaf students concurs with the studies of deaf/hard-of-hearing students by Caissie & Wilson (1995); Gagne et al (1991); and Miller (1993) in finding that cooperative learning may have merit in offering opportunities for academic and social interaction related to learning tasks in mainstream classes. Miller did not indicate any strategies on the part of the researchers or the class teacher that may have influenced the participation by the deaf/hard-of-hearing students. The structure of the cooperative tasks themselves may have accounted for some of the changes in the students’ interaction. In contrast, Caissie and Wilson deliberately involved practitioners to accommodate the deaf/hard-of-hearing students in improving their communication skills.
Chapter Five: Discussion

In this final chapter, there are five areas for discussion.

(1) Results of this investigation
(2) Components necessary for change in initiation of a cooperative learning approach in a classroom with mainstreamed deaf/hard-of-hearing students
(3) Recommendations for initiating cooperative learning with deaf/hard-of-hearing students
(4) Implications of the investigation for researchers and practitioners
(5) Personal changes

Results of Investigation

I. Elementary Study

Benefits

This investigation towards initiating cooperative learning, presented some important information about how deaf students function in a mainstream setting and how they can achieve in academic learning and in social standing within groups of normal-hearing students. At first, the deaf students did show difficulty in both contributing and understanding in the group work, but partly through teacher-intervention and peer support, at least two of the deaf students (elementary) improved in terms of requesting clarifications in conversations learned from their normal-hearing peers and their teachers. The teachers were aware of when one of the deaf students initiated a conversation, asked a question, sought information, responded to ideas and acknowledged someone else’s contribution or attempted to clarify or repair dialogues in the group. Attending to their peers’ explanations, giving opinions and asking questions did not frustrate them as it had previously when misunderstandings would invariably occur. On the contrary, the interactions showed some patience and acceptance on the part of both normal-hearing and deaf students. At times, suggestions made by the deaf students were not acknowledged and there were occasions when some of the normal-hearing students’ did not pay equal attention to one another.
The group work seemed to raise the awareness of the deaf students to the capabilities and knowledge of the normal-hearing students. Being closer and even face to face with their peers helped them understand comments and pay attention to the comments made during problem-solving activities. In comparison, the normal-hearing students had an opportunity to really listen to the ideas of the deaf students. I believe that the difference between a collaborative effort in small-group work and whole-class learning was that the deaf students had a better chance to talk about what they were learning in the small groups. It is interesting that only a few times did we have to stop the activities because of the noise level in the classrooms in the elementary schools. (This point would usually be problematic for many deaf students when trying to follow group conversation). We had even used a graph survey to determine which subjects seemed to promote higher noise levels in Anne’s Grade 6 class. Her French class was graded by each group to have the highest noise level on a daily basis.

I felt that over time the deaf students showed confidence in being able to talk with their normal-hearing peers. I sensed a feeling of well-being and belonging among them despite the communication challenges that they faced. As was seen by Cheryl’s comments, I concluded that she really preferred working independently to working with a group, yet I had certainly observed her in situations which encouraged social interaction with her peers which would not have taken place in whole-class teaching situations. Anne had stated that she had not liked group work at first but she had changed her mind and had enjoyed the experience. For Anne, the cooperative learning experience was considered by the teachers and I, to have alleviated some of the social problems with her peers.

In the elementary classes the initiation of cooperative learning was conducive to fostering participation of deaf students with their normal-hearing peers, and was considered favourable by the teachers. Cooperative learning was perceived as successfully initiated in the two classes, Grade 3 and Grade 6. The Principles of Cooperative Learning Framework was evidenced in the procedures. Based on observations by the teachers and myself, cooperative learning took hold and continued to be used after my involvement. The teachers considered it worthwhile and saw the benefits for their students, especially in the area of social skills. According to the teachers’ comments overall, I concluded that it appeared that the initiation of cooperative
learning where it was established, perhaps had a greater effect on the teachers participating than on the deaf students and their normal-hearing peers (pp.).

II. Secondary Study

The results of the investigation towards initiating cooperative learning procedures in the general secondary school suggest, in part, positive outcomes for two classes but not for all of the deaf students and their teachers. Cooperative learning was perceived to have been at least partially successful in one class and successful in one other class.

It was challenging to work with the deaf and normal-hearing students in the secondary classes to find a way of engaging them in learning when they did not seem to be highly motivated. However, there were small but significant moments that constituted steps towards positive growth. There were some gains socially for Rick with his peers in his Geography class. The merits of the social interaction in Rick's group are to be applauded despite the difficulties in their adopting a positive stance in interaction during the cooperative learning activities. I had learned from the first encounters with the secondary students in attempting to initiate a cooperative learning approach at this level that positive social interaction skills were practically non-existent for most of the students.

1. Challenges

i) The Frameworks

The frameworks used as criteria to evaluate whether initiation had in fact occurred were useful checks in examining the principles and stages and skills of initiating cooperative learning. The literature expounds with the five principles followed by a multitude of information guiding teachers to implement cooperative learning, yet they usually are taken for granted by educators. Foundational statements are generally acknowledged by practitioners who are motivated to put into practice the theories and claims of cooperative learning.

Having said that, firstly, I found the three frameworks useful in numerating the data in order to describe if the cooperative learning had indeed been implemented, not only because alternative evaluations were not available at the time to this researcher, but the basic principles and stages had not been challenged previously in the research studies. Secondly, because the anecdotal evidence was not always a simple matter of recording continually, it was nonetheless, considered valuable as a checking system. For example, there was dialogue among the students that was not always possible to document with
only the teachers and myself observing and participating. Sensing the right time and
opportunity to intervene either to model or help repair or re-phrase conversations was a
factor in the group process. Combining our observations of the verbal and non-verbal
behaviour of the students in the cooperative learning activities and the number of times
the observations matched the criteria in the frameworks helped to represent a sound
analysis of the data.

The challenge of cooperative learning for the researcher and the teachers was an
effort towards the normal-hearing students to be sensitive to the deaf students’
communication efforts. Although the deaf students in this study, Cheryl, Anne, Rick and
Nimoa may have been aware of having less facility with language than their normal-
hearing peers, they appeared to accept the help when needed from their normal-hearing
peers (inconsistently by Rick). They may also have felt less comfortable using language
to express feelings or present arguments to resolve problems in the cooperative activities

The cooperative activities themselves, the social skills training and the language
transmitted in the context occupied time for teaching and intervention strategies for both
the deaf students and the normal-hearing students. I confirm the notion that it is expedient
that enough timer and effort must be given to social skills training prior to and during the
cooperative activities.

I concluded that the secondary classes in which cooperative learning was not
initiated well did not have the stability necessary to form a foundation for it. Basically,
the ingredients for success were not established solidly for the teachers to practice with
the students over a longer time period. I have heard from colleagues that implementing a
cooperative learning approach can require up to fifty exposures of exposures before a
comfort level is acquired.
I believe, at the very least cooperative learning requires that teachers should have:

a) a base knowledge of the theory and practice of cooperative learning;

b) a willingness to try a different approach and;

c) a desire to change the pedagogy shared with other teachers and students.

ii) Influence of Teacher and Subject

The effort to involve the teachers in the secondary study where cooperation did not take hold was not in vain because their comments about their deaf students were considered important and revealed their experience. The effort was in fact the most challenging for this researcher because the entire study depended on collaboration. When the partnership between myself and those teachers was not progressing favourably towards a mutual adaptation, it left me with a sense of imbalance. I believe I regained some equilibrium to continue the study at the time.

The circumstances changed to positive cooperative activities in the history and geography classes (social studies). Was this due to there being a different peer group than in his English classes, or to Ricks’ superior knowledge of the content material, or in fact to his becoming more familiar with the cooperative learning strategies?

I believe it could have been a combination of all three factors. In Rick’s History and Geography classes, with a different teacher, Russell, and different peers, from those in his English classes, I have to infer that there are differences among teachers in their ability to try something new in their classrooms. I believe Penny, Russell and I shared the same view of teaching and learning. Our goals were parallel in terms of experiential learning and the role of language with the both the deaf and normal-hearing students.

In the ESL situation, Penny’s comments on the benefits of cooperative learning indicated her preference for using a support teacher, such as myself to help facilitate the communication with Nimoa and the normal-hearing students. Having the same group of four to six students was suited to a collaborative approach. My role was clear and simple -- to present the lessons, to teach the social language, to model language, and to develop vocabulary concepts.

We recognized that the ESL experience was probably more workable than any of the other attempts to initiate a cooperative learning approach because of the continuity of almost daily contact with this teacher and her students. The “group-building” tasks that Penny and I developed helped to promote the social skills so necessary in cooperative learning. Since this was the last class in which I initiated a cooperative learning approach.
the experiences in the other classes were of benefit to me. For example, "team-building" was an essential component and should occur prior to academic and social group outcomes.

iii) Issues of Resistance from Participants

Factors Related to Problems

Three factors may have influenced the lack of implementation in the classes with teachers Ryan, Debra and Helen, and the students Marie, who dropped out of school, Paul who preferred whole class teaching activities and Rick, who resisted the activities and my involvement in the group in the English classes.

1) Changes from the traditional teaching strategies may have entailed considerable risk for the secondary teachers.

2) It would have been necessary to implement social skills training, which would have been time-consuming, in the three classes. Such procedures may have been too overwhelming for the teachers to include in the cooperative learning tasks. Secondary teachers were focused on the content perhaps more than on the process of the work. Class discipline may have been more difficult to manage than in their traditional teaching presentations. The students in Ryan’s, Debra’s, and Helen’s classes would have required many team-building activities to develop positive social skills.

3) The concepts related to the subjects presented by the teachers in English classes required a lot of teaching time and much repetition was necessary in concept building with the students. I include these additional comments with reference to Marie and Rick in their English classes with teachers Debbie and Ryan.

Marie - Teacher - Ryan

I suggested that the experience of initiating cooperative learning in this situation where it was never given the chance to progress gave me insights into the importance of planning and selection of participants in the study. An opportunity for change had been offered to Ryan, the teacher, as an optional teaching approach. First of all, the presentation and the content of the lessons were challenging for most of the students in the class. One unit on media communication was even more challenging for Marie because she could not use the audio tapes nor could she decipher any of the information on the radio pieces. Ryan related that he would continue teaching his students as a whole class or work with them individually without involving them in small-group work. I accepted the situation as a learning experience.
Although Ryan was a new teacher in the school, he had given me the impression that he had engaged in cooperative learning before. He accepted all the information I gave him, appearing to understand what would be involved. He had not asked many questions about the approach and seemed agreeable to my initiating it with his students in his English class. Perhaps I did not spend enough time discussing cooperative learning in detail with Ryan.

Unfortunately, Marie did not continue in school even though we had many discussions to try to persuade her otherwise. She expressed difficulty with many of her subjects and was frequently absent from school, such that her decision to quit was not surprising to me, but still very disappointing. I was unable to continue involvement with either of her teachers, Ryan or Brenda, the Child Care teacher. Circumstances do change one’s intentions and plan of action, as I learned from these situations.

**Rick - Teacher - Debra**

This teacher had been keen to work with me in the initial stages of the investigation. Although she felt that one or two lessons had gone fairly well I thought she showed an inadequate understanding of the philosophy and content of cooperative learning. I perceived this because of her poor presentation procedures and her failure to select the students for each group, thus not giving specific roles to the group members although we had discussed the necessity of this structure beforehand. Again, Debra did not take enough opportunities to share for share and plan with me. My impression was that Debra probably just needed a little more time and information about cooperative learning. Preparation is of the essence for engaging in the structures which have to be considered in a cooperative learning approach. If the basic foundations are not well thought out, I can predict that small-group learning will be more difficult to initiate and maintain. From Rick’s viewpoint I did not belong in his English class. He considered me as his communication teacher and counsellor, not as an initiator of change in his classroom.

The expectations in the class were quite different from those in our individual tutorials. Furthermore, my presence in the classroom situation may have been uncomfortable for him. In the English classes the material presented was above most of the students’ level of ability. At the secondary level, in particular, the following problems would have to be addressed in initiating cooperative learning classes:
f) Disruptions of cooperative learning activities, e.g. students being absent or late
g) Dilemmas caused by critical discipline problems requiring immediate attention by the teacher, who frequently may have to forego the cooperative activity to deal with more immediate teaching concerns.
h) Social skills training is required for the students to participate adequately; e.g., listening, turn-taking, clarifying, using positive and affirming language within the group
i) The need for academic and social skills have to be made obvious to the students and repeated frequently
j) The need for assessments and evaluations of the academic and social goals should be made clear to the students
k) The need to set up the room with desks or tables together for small group work essential in creating a cooperative atmosphere

2. Components Necessary for Change in Teacher Behaviour in Initiation of a Cooperative Learning Approach

Bottom-Up Strategies

The key aspects of the cooperative learning approach which I initiated in the elementary and secondary studies stemmed from my basic thinking that a change of teaching and learning would spring from the teachers’ assumptions and beliefs about their work. I assumed that when a teacher is motivated for a change of direction that he or she would take on a leadership role and really “begin with themselves” (Hunt, 1987). Some assumptions were made that new innovations would benefit student learning. I believe that when a teacher reaches a stage of understanding the purpose and rationale of the skills of cooperative learning and how to adapt it to students, and apply it to subject matter then it is no longer an innovation, but a natural part of the teacher’s repertoire. Teachers who seek a change from a traditional teacher-centered role may need to re-think their role from that of an interventionist to that of an “interactionist.”

“Teachers who organizes cooperative groups generally behave as “interactionists.” They believe that students learn appropriate and inappropriate behaviour by encountering others and being confronted with feedback on their behaviour. Interactionists trust the structure and the process of cooperative learning by turning problems back to the group to solve” (Reinhartz, 1984, p.48).
The elementary teachers and two of the secondary teachers were outstanding in their enthusiasm to initiate the cooperative approach in their classroom. We made time to discuss and plan our teaching techniques. They made me feel like a contributor and I felt quite free and comfortable in the classes with Anne, Cheryl, Rick and Nimoa and their peers. Visibility seemed very important in gaining access to a class, particularly since I was attempting to begin some changes. Never, at any time, did I feel that I was the class manager.

There were occasions when the teachers did not intervene if I was close to the group Anne, Cheryl, Nimoa or Rick was in, but we did overlap in terms of guiding the other groups. Gradually, the teachers’ interventions in the groups increased with their experience and comfort level. The attitude of the teachers was exemplary in their openness and availability in allowing me to initiate the collaborative approach in their classes. This openness to try something new is really what set the stage for cooperative learning and was fundamental to a sound beginning. It provided a framework for what could be termed a “collaborative culture.” The teachers found time to develop this culture, to plan, to discuss, and to evaluate how the activities were proceeding and what the students were learning. A positive change towards cooperative learning had already taken place within the elementary schools. That factor seemed to make a difference to my acceptance by my teacher participants.

There has to be a spirit of collaboration and a shared belief that what we are striving for may be achieved and is worth the effort involved in the process. The benefits of talking to one another about values and philosophy, which are fundamental to successful practice, cannot be underestimated. To my mind, this is the very heartbeat of collaboration. The ability to place ourselves in the vulnerable position of being learners ourselves, experiencing tensions and responding to them and being open to different experiences helps to shape us as teachers and learners.

There are ways of acquiring information when teachers are ready to make changes. When there is interest and motivation in any given subject, teachers seek out relevant information by way of articles, journals, and any published material they obtain. I found people engaged in sharing and exploring ideas at workshops I attended. These activities nourished an endless vitality in finding out about cooperative learning. Ideas shared may develop and be activated further when there is learning from other people. Hunt describes what can happen when individuals share their positive experiences as a
flow of energy that can be acknowledged between and among individuals. Hunt refers to this energy as “synergy” (1992, pp. 34-35). This synergy typically has a positive effect upon planning and action, and it is what I experienced with the elementary teachers and with two of the secondary teachers.

I believe there has to be a place in a school setting for the establishment of a timetable opportunity for teachers to discuss their professional work.

Hargreaves states the importance of having “a place where teachers can meet and study their work together, discuss and actively develop a sense of what meaning and possibilities the reforms hold for them” (Hargreaves, 1994, p.4). Another researcher in education, Michael Fullan (1994) refers to “reculturing” as the need to change the culture of teaching, so that there is more collaboration between and among teachers.

During the period 1991-93, the teachers involved in this study in the elementary schools were aware of the province-wide trends to redefine their role through the practice of cooperative learning. They were provided with information and direction about cooperative learning as part of their professional development. They viewed themselves as key players in collaborative work with other teachers in developing a curriculum that lent itself to cooperative small-group work. They met with me on their own time in spare periods, and before and after school hours. The teachers, Linda, Mary and Margaret, had a commitment to and a basic knowledge of how cooperative learning could work but needed practice in working with small groups of students. These elementary teachers expressed a spirit of initiative in learning about cooperative learning. This spirit was evident in the time they took to collaborate with me and in the skills they developed independently thereafter. A spirit of collaboration did not occur with four of the secondary teachers, yet it blossomed with Russell and Penny. I found myself returning to the qualities, personalities and characteristics of teachers who seemed to be able to collaborate in developing new learning approaches in their classrooms and those teachers for whom collaboration has not been a preferred choice.

When I first submitted my proposal for the secondary study to the research department of the school board in the Ottawa/Carleton district, cooperative learning was an unknown factor. There were few, if any, teachers incorporating it in their classes. In fact, workshops were not being offered to the teachers until about 1995. This unfamiliarity with an innovative learning approach, besides attempting it with mainstreamed deaf students as well as a teacher-researcher initiating it, obviously had an
effect on cooperative learning being fully understood and accepted by the secondary teachers.

3. **Recommendations for Initiating Cooperative Learning with Deaf/Hard-of-Hearing Students**

There are now numerous resources to help teachers develop and expand their particular cooperative learning interests. The Great Lakes Association for the Study of Cooperation in Education has a newsletter and membership in Ontario. Workshops and conferences are held regularly in many cities across Canada at this time. Although there may be school boards that have not yet incorporated cooperative learning training sessions for teachers and administrators, it is generally recognized that the theory has at least reached most school systems in Canada.

i) **Inclusion Strategies in Place**

It is significant that the deaf students in this study were mainstreamed individually into their general classes. There may be advantages when deaf/hard-of-hearing students are mainstreamed on an individual basis into separate regular classrooms. Opportunities can be created for close acquaintances to occur with their normal-hearing peers. In contrast, being integrated as a larger group into the mainstream they may tend to socialize only amongst themselves. The implications of using cooperative learning become more significant when viewed in the light of related studies reporting on problems in mainstreamed settings encountered if inclusive strategies are not in place for interactive learning. Lee & Antia, quoted Brown & Foster, who concluded that hearing impaired students congregated as a group in a general classroom was not always conducive in promoting social interaction (Lee & Antia, 1992, p. 429; Brown & Foster, 1989). Levy-Shiff & Hoffman, report data from an “intensive integration effort”, stating that “despite sharing classrooms, the hearing impaired and normal-hearing students re-segregate during non-academic activities” (1985, p.429). Inclusion in regular classes fosters recognition of similarities between students and encourages a helping attitude. I refer back to Chapter 1 for proposed guidelines towards successful mainstreaming of deaf/hard-of-hearing students.

ii) **Using Experienced Facilitators as Support to the Classroom Teachers**

Using an experienced facilitator was one of the best parts of the initial cooperative experience when I invited Rita Wells (colleague support) to come into the classrooms for two of the lessons in the elementary study. She showed us how to begin. That set the
stage for us to make a smooth entry into subsequent activities soon afterwards. We had given Rita ideas on lessons and concepts we thought would be appropriate for the students, so she could concentrate on the process of the cooperative work. It was illuminating to see how she persuaded, prompted and encouraged the students to solve the problems concerning leadership in the groups. After her visits we felt more confident and ready to begin ourselves. Rita’s guidance was considered vital in this initiation period. Practising a new innovation and receiving feedback from someone knowledgeable is an essential component in initiation procedures. Her experience in conducting many workshops on cooperative learning for teachers plus her own work with special needs students enabled the teachers and I to learn from her demonstration in the Grades 3 and 6 classrooms. Rita’s focus in the cooperative activity in the elementary study was to help the normal-hearing students learn ways to support Cheryl and, of course, one another when they needed help in their learning tasks in the group situations. We kept reinforcing positive communication skills between the normal-hearing and deaf students that is, suggesting the need for good eye contact and the use of simple sentences in a natural style without exaggeration. We kept reminding the children to be patient with one another. Bonus points were given to students whom the teachers overheard encouraging others or helping others understand.

I regret that I was unfamiliar with any experienced facilitators available at the time of the secondary study in the Ottawa/Carleton area. The outcomes of the initiation stages may have been more successful with the assistance of an experienced facilitator such as Rita Wells.

It is difficult to compare the educational settings in this investigation to the wider context of other mainstream settings for students with hearing loss. From my perspective as a support/interventionist teacher, experience would suggest that any efforts to initiate a cooperative learning approach involving these students must include teachers with a background in addressing the communication needs of students with hearing loss. In circumstances and settings similar to those discussed in this thesis and with similar students, it would be advantageous for the class teacher to engage the support of the teacher of deaf/hard-of-hearing students when initiating or implementing a cooperative learning approach because communication could be enhanced, with intervention strategies not only for the benefit of the deaf/hard-of-hearing student, but for the heightened awareness of the normal-hearing students and their teachers.
Variability of Deaf/Hard-of-Hearing Students

The nature of the contact as well as the personalities and abilities of the deaf/hard-of-hearing students, will of course, influence relationships between them and normal-hearing students. If deaf/hard-of-hearing students are competent in social skills, language and communication, the involvement of a support teacher in the classroom to encourage peer interaction and academic achievement may be minimized. However, this is not always the pattern; in fact, there are many students with moderate hearing loss who may have poor social skills as well as low academic achievement. Conversely, there may also be students with a profound hearing loss who attain superior interactive skills and high academic levels. Within each grade level there is a range of academic achievement for normal-hearing students. It is the norm for some students to require additional support from special education resource staff. Deaf/hard-of-hearing students can fit into existing groups of differentiated abilities within the class grade level. Modifications can be made rather than major changes in the whole curriculum. The key idea is to encourage partnership with the class teacher and the specialized teacher to ensure effective participation by those students who require the skills in cooperative learning.

Time Required for Initiating Cooperative Learning

When I first began in the Grade 3 classroom, it took several sessions before the children grasped the concept of working in groups and helping each other to solve the various tasks they were assigned. Many of the children had been exposed to no other approach besides a teacher-centred one with much step-by-step guidance. By the third week a gradual change was noticeable and the children were “catching on” to the practice of cooperation. They asked each other for help more frequently and more interaction was occurring among the groups. They were gaining confidence about expressing their ideas. By the end of the fourth week, the students were able to work quite efficiently in their groups and the assignments took less time to complete. There is much to be attended to in a cooperative learning experience not only the academic process and outcome but the time it takes for social-skill explanation, practice, feedback and processing. We wanted these skills to occupy a place of importance equal to that of the subject matter.

The time of day also seemed to be a factor with the younger students. Towards the end of the school day, many of them became distracted, so we learned to pace the activities at more productive times, for example earlier in the day or after a recess. Obviously, time was an important factor in the initiation periods in the secondary study.
Developing appropriate social skills would have taken a much longer period of time in most of the classes, particularly at the secondary school. Students needed reminders to keep them on track, more so than in the elementary setting.

v) Task Level

The more difficult the task, the more teacher intervention was necessary to ensure that the whole group could complete the activity. We made some false assumptions at times in preparing the material for some tasks. One example was our lesson on "The Senses." We thought that because most of the children in Cheryl’s class came from ethnic families, they would know the names of some foods and spices they ate at home. Many of them did not know the labels even in their own native language, so we had to spend time teaching vocabulary to the whole class. It is important therefore, to be well aware of the background information students may or may not bring to the learning experience and prepare for reviewing information. We learned at this stage to keep the activities at a simple and appropriate level to ensure success. At the Grade 6 level, the assignments were fitted to the students’ abilities and therefore were easier to manage.

4. Implications of the Investigation

i) For Researchers

Many teachers are stimulated to become researchers through their interest and concern about their students and their programs. Classroom-based inquiry is being encouraged more in graduate level courses in research projects. This is sometimes referred to as action research (Booth & Wells, 1994, p.24). I mean such researchers who “begin with themselves” and their experienced knowledge. David Hunt’s proposals and recommendations on how to be my own researcher have been helpful in contributing to this study (Hunt, 1987, p.117).

There is little or no information in the actual pedagogy applied in the education of mainstreamed deaf/hard-of-hearing students in contrast to the research available on their academic and social status. This thesis on cooperative learning engaging a few deaf students, their normal-hearing peers and their teachers has provided some information on such practices. A close analysis of the linguistic development of deaf/hard-of-hearing students in the mainstream would be a useful area for researchers to pursue. The dialogue among the normal-hearing students being fairly rapid, researchers would have to determine what coding strategy to determine class discourse would be the most effective in gaining information on the language used by the deaf/hard-of-hearing and normal-
hearing students. Verbal participation did appear to increase with the number of cooperative learning activities in this study, but utterances would have to be counted and analyzed more accurately in subsequent investigations. The researchers’ suggestions mentioned below could be considered as useful guidelines for further research in the area of discourse.

McManus & Gettinger observed interactive behaviours of students in small-group work and documented student ratings on academic, social and attitude outcomes (1996). In developing a theoretical rationale to document student interaction, these researchers rated oral rehearsing, resolving conflict and giving peer praise/encouragement as behaviours that theoretically occur in cooperative learning activities. McManus & Gettinger grouped other observable behaviours into five categories, namely (a) teaching/learning, (b) positive social interaction, (c) non-interactive behaviour, (d) negative social interaction, and (e) teacher interaction. These categories could be useful in coding specific language structures (syntax), the lexicon of students and the pragmatic use of language by the hearing impaired and normally-hearing students.

Five major factors emerged as being important in initiation procedures of cooperative learning with the deaf and normal-hearing students:

1) Teaching interventions in small-group work to foster task interaction and collaborative skills is effective with implications for the specialist teacher of deaf/hard-of-hearing students and the regular classroom teacher to be involved in the cooperative learning activities.

2) Raising awareness among the normal hearing students and their teachers about the effects of hearing impairment increases understanding of deaf/hard-of-hearing students.

3) Involving colleagues already experienced as facilitators in cooperative learning is beneficial in fostering cooperative learning and influencing less experienced teachers to learn a new approach in teaching and learning.

4) Teacher collaboration is essential and requires much effort, not only for students in cooperative classrooms. It is vital to keep a sense of willingness to share and a spirit of inquiry (see Curran, 1994, p.32).

5) Consideration of time factors and level of task in the activities to ensure success of cooperative activities.
ii) For Practitioners

I refer here to regular teachers as well as teachers of deaf and hard-of-hearing students who may wish to explore the notion of making changes in their practice. Through exploration comes understanding. This can lead to purposeful interactions among peers attempting to facilitate implementation of any innovative program. Re-examining professional purposes and direction may guide colleagues so they can feel they have some control over the agenda for change (Ruddick, 1993, in Schratz, 1993, p. 9). Cook & Friend commented in an article on co-teaching exceptional children, that no matter how skilled the special educator, students often have difficulty generalizing what they have learned in a separate setting to activities in the general education class (1995, p. 4). These authors refer to evidence that students with special educational needs prefer to receive supports in their classrooms with their peers rather than leave the classroom for individual therapy or tutorials ((Walsh, 1992 in Cook & Friend, 1995, p. 4). This information gives thought that practitioners may give some consideration to the benefits of interventions within the classroom as an option to withdrawing the student for individual work.

Cooperative learning provides opportunities for interacting or overcoming uncertainties associated with deaf/hard-of-hearing students interacting with normal-hearing peers. The nature of the contact as well as the personalities and abilities of the deaf/hard-of-hearing student, will of course, influence relationships between them and normal-hearing students.

I know that the other teachers perceived many of my interventions, particularly with the deaf students, to be helpful particularly in contributing to their understanding of their students’ needs. The elementary teachers, Lydia, Theresa and Margaret, shared with me the beginning stages of trying something new and it was an exciting time in our learning together. Russell, the Geography teacher in the secondary study, emphasized the need for better social skills among the students. He was tentative when speaking of trying something different, feeling that if cooperative learning did not work, his peers might think less of him as a teacher. He brought out the advantages and disadvantages of small group work and gave insightful comments with regard to Rick. He referred to some strategies which may have contributed to Rick’s understanding, e.g., working in pairs as opposed to a group of four. Penny was enthusiastic about the interactive mode of cooperative learning for her ESL students. Penny and I worked in partnership and were
able to discuss the progress of the students. She was extremely supportive of the investigation and she began to incorporate some aspects of cooperative learning into other classes. She reported that her students were no longer passive listeners; participation had increased and this resulted in higher perceived levels of spoken language. For example, in the groups' written work, the use of verb agreement, clauses, direct speech, conjunctions and adverbs in grammar work was observed by Penny and I. She considered that learning social skills was for communication particularly for basic-level students. It was refreshing to hear her acknowledge the support and intervention strategies I had employed with Nimoa as well as the other students in her group.

5. Personal Changes

The major change for me was the total effect of being in the classroom, using the teaching strategies I considered essential for inclusion of and participation by the students and feeling a sense of excitement and fulfilment. Becoming aware of the amount of energy it takes in instructing a large class as opposed to working individually with a deaf student was an element I had not anticipated. When managing the activities of the whole class I was surprised to discover that several times I had forgotten to check to see if the deaf students' were in need of assistance. I found myself in the same shoes as the classroom teacher, having to organize different situations, and make quick decisions responding to students' requests or queries. This experience proved to me how easily the students with a hearing problem may be overlooked, especially if they are not having any problems with the concepts in the subject material. In fact, it occurred to me that one of the advantages of cooperative learning is that it mitigates this situation in a regular classroom.

Attempting to initiate a new learning approach may at first appear to be a relatively simple task, but the initiation of cooperative learning is in fact quite complex as we have seen. The shift from being an observer to being a participant in the cooperative process was accompanied, for me, by a sense of energy in the classrooms. At times I felt I was imposing too much and at others I felt I should be brave and more persuasive. As stated in the introduction, a balance between intervening and interfering has been and continues to be a recurring theme in my work.

Fortunately, there were several positive responses to my intervention in the area of communication with both the deaf students and their normal-hearing peers despite the negative social interaction and non-interactive behaviour in the English classes in the
secondary school study. Being in Rick's class gave me further insight as to how he learned in a group setting. I felt that my teaching was at least just as effective and certainly more immediate than my being in the consultant role or in tutorials with my deaf students. I had the opportunity for new challenges and perspectives in my work which I could recommend to my colleagues. The experience empowered me, increased my confidence and developed my insights as to how deaf students function in regular classes and how change in pedagogy can effect their learning. Laura Ford, a Visiting Scholar in the Department of Applied Psychology, O.I.S.E., describes a school as "encompassing all the different voices and the pictures around it" (Orbit, vol. 25, no. 4, 1994, p.22). These words resonate for me in relation to this study. The important voices I salute in the chorus of the people involved in this exploration of the benefits, and limitations, of cooperative learning were the teachers Linda, Mary, Margaret, Penny, Russell, Brenda, Debra, Helen and Ryan, and the deaf students, Cheryl, Anne, Rick, Nimoa, Marie and Paul.
Appendix A

A clarification of terms is needed to understand the philosophy and method of teaching communication in the education of deaf and hard-of-hearing children.

1. General Terms

a) Oral versus Sign Communication

Teaching spoken communication or using an ‘oral’ approach differed from the education of deaf children, practised at that time in provincial residential schools in Canada.¹ Sign language was used by the students at least in the housing dorms. In the 1960’s, in these provincial schools, many educators incorporated spoken language and/or taught speech to their deaf and hard-of-hearing students. At the present time (1996), American Sign Language (ASL) is the main method of instruction in the provincial schools and is taught officially as a first language for deaf and hard-of-hearing students attending those schools. English is taught as a second language in the development of literacy through the use of printed text and other visual material.

The establishment of a private day school meant that children could attend a local school without leaving their families. The commitment to teach deaf/hard-of-hearing children to communicate through the spoken word at an early age, was indeed innovative and challenging for the students as well as the teachers and parents. Teaching deaf/hard-of-hearing children to speak involved the emphasis of modern hearing aids to amplify any residual hearing, supplemented by speechreading which requires the individual with a hearing loss to use visual cues from the mouths of speakers in understanding their speech and language.

b) Hearing impaired versus Deaf or hard-of-hearing

In the years prior to my work in Montreal, and several years later, hearing loss in individuals was described as either deaf or hard-of-hearing, implying that being deaf had more serious implications for learning to communicate. The private school in Montreal, is still called a school for the deaf.

In the early seventies the term 'hearing impaired' became the accepted description used in education to include all degrees of hearing impairment in individuals with hearing loss. However, following the terminology preferred by the Deaf communities the

¹ASL is a system on hand movements, body posture and facial expressions with or without using voice. It incorporates fingerspelling of words. It is different from English structure and has no written equivalent.
description is changed again to individuals who are “deaf or hard-of-hearing”. In North America and Europe this term is now widely used in the literature. The Deaf community have made it known that they wish to be considered as a diverse cultural group rather than an oppressed group which is impaired or which has a disability. The Deaf community views itself as merely having a language difference; that is, ASL, which they believe is comparable to the native language of any other ethnic community.

I believe the term ‘hearing impaired’ is a broader description than ‘deaf’ or hard-of-hearing’ because it places emphasis on the usability of residual hearing left over after the effects of a hearing loss in individuals. Some other educators believe that the term ‘impaired’ is not a useful term to describe a population who have a hearing loss. I will refer to the most recent description of individuals with hearing loss as “deaf/hard-of-hearing “ in this thesis. Students in general classes will be referred to as “normal-hearing” students. My view in advocating the choice of spoken language for deaf/hard-of-hearing children is shared with other colleagues. That is, of putting into practice, the students’ use of hearing rather than making claims about what he or she does not hear accurately. Flexer (1996) uses a description of deaf and hard-of-hearing individuals that is acceptable to me and is applicable for the purpose of this thesis. The participants in the investigation are considered as students who are deaf, not hard-of-hearing, who use speech to communicate. Flexer (1996) states:

“A deaf person is one who for all intents and purposes communicates primarily and is dependent upon a visual means of communication, be it speechreading a speaker’s mouth movements or via a manual system of communication. A hard-of-hearing person communicates primarily by using auditory cues in communication.”

(Flexer, 1996).

and is not a universal language.

2. Hearing loss

a) Range of hearing loss:

Hearing impairment can range from being so slight it is hardly noticeable to a total loss of auditory input. The major effect of any hearing loss is that sound is filtered in a way that the auditory detection of speech is either partially or totally excluded. More importantly is the fact that hearing impairment can restrict verbal aspects of the acquisition of spoken language (Ling, 1988, p.57). This impairment can also result in some difficulty to discriminate among competing sounds Flexer (1990, p.5), states that “national statistics in the United States show that over 92% of twenty million people with hearing loss are functionally hard-of-hearing.” It is highly probable that statistics in Canada would show that the majority of individuals with hearing loss are also considered hard-of-hearing.


The following chart defines various degrees of hearing loss: HL means Hearing Loss (based on modified pure tone average) -dB means decibels, (a measure of pure tone sound on an audiogram)

<table>
<thead>
<tr>
<th>Degree</th>
<th>HL</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal hearing</td>
<td>-10-15+ dB HL</td>
<td>May miss 25-40% of speech. Difficulty in noise. Will miss consonants</td>
</tr>
<tr>
<td>Mild</td>
<td>26-40 dB HL</td>
<td>Understands speech at short distance only if structure and vocabulary is controlled</td>
</tr>
<tr>
<td>Moderate</td>
<td>41-55 dB HL</td>
<td>Without amplification, conversation must be loud. May miss up to 100% speech information. Difficulty in school, delayed language and problems in speech intelligibility</td>
</tr>
<tr>
<td>Moderate -severe</td>
<td>56-70 dB HL</td>
<td>May hear loud voices about 30 cm away without amplification; can identify environment sounds with amplification. Oral language and speech may not develop spontaneously</td>
</tr>
<tr>
<td>Severe</td>
<td>71-90 dB HL</td>
<td></td>
</tr>
</tbody>
</table>
c) **Types of Hearing Loss:**

Sensorineural hearing loss - refers to a hearing loss which occurs in the inner ear or auditory nerve. The loss is usually permanent.

Conductive hearing loss - refers to a hearing loss which occurs in the middle ear comprised of the ear drum and three small bones. The loss is usually temporary but can also be of a permanent nature.

Mixed hearing loss - refers to a hearing loss which is caused by several diseases or problems occurring in different parts of the ear at the same time; both conductive and sensorineural.

A chart showing the relationship of degree of hearing loss to psychosocial impact and educational needs in school age children is charted in (Appendix).

3. **Technological Developments: Hearing aids and Amplification**

a) **Behind-The-Ear, Body Hearing Aids, and Cochlear implants**

Hearing aids are fitted over the outer ear and worn behind the ear or placed directly in the ear. Larger models can be worn attached to clothing or placed in a person's pocket. A tiny microphone is usually placed at the top of the hearing aid and a volume control at the bottom end. Sound signals are dependent on battery function. A cochlear implant is a device that is implanted surgically to electrically stimulate the surviving nerve fibers in the inner ear and the auditory nerve in order to produce a sensation of sound. It is specifically designed to select and transmit elements of speech signals enhancing the user's ability to communicate with others. Individuals with little or no residual hearing and not receiving any benefits from a conventional hearing aid are candidates for this procedure (Cochlear Corporation, 1994).

Basically, a hearing aid is individual amplification which works much like a small public address system to make all incoming sounds louder and make speech sounds more audible. Ideally, each person with a hearing loss is prescribed a hearing aid based on measures of loudness and pitch charted on an audiogram by an audiologist. The correct hearing aid enables the person with a hearing loss to hear whatever they are capable of
hearing with the technology which gives the appropriate gain (amount of output level or loudness) for a person to hear as much as he or she can.

b) **Frequency-Modulated Amplification Systems (FM)**

By 1964, technology had made some in-roads and amplification equipment was much improved for children and adults with hearing loss enabling them to have more access to the spoken work than ever before. FM (frequency-modulated) amplification systems are used in situations to improve the signal to noise ratio. When a speaker is too far away from the hearing aid user, the sound is greatly diminished. The use of this equipment moves the speaker closer to a student’s hearing aid electronically, thus strengthening and stabilizing the reception of speech and minimizes the effects of background noise. Currently, personal FM systems are used in classrooms in conjunction with behind the ear hearing aids. Deaf and hard-of-hearing students have the advantages of wearing frequency-modulated receivers attached to their own ear-level hearing aids. Teachers have more versatility as they move around the classroom in normal fashion using tiny wireless transmitters attached to a head piece or attached to a position on clothing near the mouth. They do not always have to stand right beside the students in order for them to understand what is going on as they did when the student was only dependent on his or her hearing aid. The FM transmitters provide the teachers' instructions to be as acoustically close as possible to the ears of the student. Auditory learning for so many of these deaf/hard-of-hearing students has resulted in access to learning.

This information described above has been accumulated over the years of my training and experiences working in this area, attending conferences, and studying with colleagues.
Appendix B

Table of social skills (Brem, 1987)

<table>
<thead>
<tr>
<th>Week</th>
<th>Title</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Orientation</td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brainstorming</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engendering enthusiasm</td>
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<td>Self-esteem</td>
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<td>Self-esteem</td>
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<td>Non-verbal communication</td>
<td>Body awareness</td>
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<td>Identify emotional cues</td>
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<td>Describing emotions</td>
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<td>4.</td>
<td>Peer group entry</td>
<td>Social contact</td>
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<td>Greetings</td>
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<td>5.</td>
<td>Affiliation</td>
<td>Turn-taking</td>
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<td>6.</td>
<td>Self-disclosure</td>
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<td>Types of aggression</td>
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<td>Beginning negotiation</td>
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<td>Conflict resolution</td>
<td>Cooperation</td>
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<td>Assertiveness</td>
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<td>9.</td>
<td>Kindness</td>
<td>Sensitivity to distress</td>
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<td>Care and affection</td>
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<td>10.</td>
<td>The Tea party</td>
<td>Issuing invitations</td>
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<td>Conversational skill</td>
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Appendix C

Proposal Towards Initiating Cooperative Learning with Deaf Students in the Mainstream:

- To observe and facilitate the process and content
- To examine the outcome of the learning activities
- To collaborate with the teachers with time to reflect on our teaching and learning
- To record and interpret field-notes and other data including teacher and student interviews via an audio tape
- To provide assessment and evaluation materials and share lesson materials
- To have time for preparation for lessons with class teacher and myself
- To record student lessons and activities
- To consider the roles of the students and the groupings
- To observe teacher interventions / strategies / modifications used with the deaf students
- To be aware of language and communication styles in the student interactions.
- To interpret the events relative to the components of cooperative learning according to Johnson & Johnson, 1988; Slavin, 1988; Rolheisser-
- To use illustration by example format in describing the activities of the deaf students
- To explain to the students how cooperative learning should work
- To look for strategies in student learning in a collaborative mode
- To understand how teachers and students think and feel about cooperative learning.
Appendix D

Points used in planning a lesson:

- deciding which structure to use;
- documenting lesson plan procedure;
- stating the purpose or outcome of the assignment;
- calling attention to time limits
- expressing support
- asking for help from others
- encouraging social skills
Appendix E

Formation of Groups: Roles

It was important for us to choose which students would work together. In cooperative learning it is recommended that groups should be composed with attention to gender, ability level, communication skills and social ability. The teacher categorized the roles and they were explained to the students. If there were four members in the group, a recorder, materials handler, manager and encourager would be appropriate. At higher grade levels these roles may be different and appropriate to student abilities and outcomes. At the elementary level, usually, there was a:

- Checker
- Reader
- Encourager
- Happy Talker
- Observer
- Recorder
- Material Handler
- Manager/Noise Monitor
Appendix F

Structure Guide

As we progressed in more cooperative learning activities and gained confidence, the teachers and I were able to choose the activities and outcomes to match the type of structure involved. This is an important part in preparation for the activities in cooperative learning. Our main choices were:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Description</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Robins</td>
<td>Each student in turn shares something with peers.</td>
<td>Equal participation</td>
</tr>
<tr>
<td>Think-Pair-Share</td>
<td>Think to themselves on topic, then pair with peers to share.</td>
<td>Reasoning involvement, getting acquainted</td>
</tr>
<tr>
<td>Round Table</td>
<td>Each student in turn writes answer to collaborate on responses</td>
<td>Assessing prior knowledge, recall, creating, team building</td>
</tr>
<tr>
<td>Numbered Heads Together</td>
<td>Teacher asks question; students consult; then one student is called to answer.</td>
<td>Review, checking for knowledge, comprehension</td>
</tr>
</tbody>
</table>
Appendix G

Examples of Activities using Cooperative Learning

These areas were used for the cooperative learning groups - The Senses; Times and Measurement; Air and Water; Assorted Language Arts (spelling, rhyming, story-telling); and Art work. The following details are a sample lesson on ‘Time’ which Linda and I took turns in presenting.

Example Lesson Plan

Time Unit

Day 1 - Note on time. What is it? (definitions)

- Make list of time-telling instruments (see table of contents for unit).
- Show pictures of time (past, present)

Day 2 - Invent a way to tell time

- Divide students into 6 groups (one chapter each) e.g. catching time, sand time, making time, sun time pendulum, Chinese water clock.

Day 3 - Read stories

- Explain the scientific method (purpose, materials, method, observation, hypothesis, conclusion)
- Decide who brings what from home, who does what

Day 4 - Set up and try experiment

Day 5 - Try again and write up using scientific method

Day 6 - Continue write up and practise

Day 7 - Present to large group

- Beat the timer activity
- Students move from experiment to experiment

Day 8 - Discuss findings, last note summary, use chart of most practical usable method of measuring

Math-related time-telling worksheet

Reflection and self assessment
Appendix H

Pilot Study

The purpose of the pilot study was to observe and verify if a collaborative learning approach was being used with positive effects in a classroom of deaf/hard-of-hearing students working with a special education teacher in a classroom in the Toronto area. This practical field-study was a requirement of course work in qualitative research under the supervision of Dr. Brent Kilbourn (Curriculum Department, O.I.S.E., Spring, 1990). It was not my intent to initiate any cooperative learning in this exploration. My objective was to document the students’ ability to work together on a theme in language arts and social studies. I briefly describe the observations in this pilot-study.

i) Setting

The study took place in a special education class in a large elementary school in the Toronto area.

ii) Negotiating Access

A colleague spoke to me of a special education teacher, who would be in my observing collaborative work in the classroom with her deaf and hard-of-hearing students. From our first meeting we were both excited at the prospect of working together to reflect and share our learning. The teacher was very interested in an ethnographic study and the nature of my participation which was to observe and document collaborative work in the classroom. I had received permission to visit the class from the school principal and the superintendent of the Special Services Department as well as the program consultant responsible overall for the deaf and hard-of-hearing students in that School Board. The principal as well as Jane agreed to my proposal.

iii) Participants

Teacher

Jane was well experienced with students with special needs. She was a proponent of a “whole-language” approach in developing concepts and building appreciation of literature with her students. Her principal commented to me that she was “an enormous asset to the whole school.” Jane was coordinator of the computer program for the entire school, and was often involved with extra curricular activities.
Students

There were eight students with hearing losses ranging from moderate to profound. They all used hearing aids and frequency modulated (FM) amplification equipment in the classroom and in any integrated classes they were mainstreamed into during the day. They were in their own homogeneous group for most of the day. The class had three girls and five boys aged nine to eleven years old. They all used spoken language in their interactions. They also had documented learning difficulties. None of these students were in their local school, therefore they had to be bussed from their homes to school.

(iv) Data collected

I observed and recorded any collaborative attempts by the students in their activities. My only criterion was to verify if these students interacted in a positive useful way towards their work in partnership with peers. Any interventions on my part involved conversing with the students about what they were doing. I came to the class twice a week for six weeks and stayed most of the day. I conducted interviews concerning her work and experiences during Janet's lunch hour, in her 'spare periods' or after school hours. I used an audio taped recorder and a camera to take slides of classroom activities. I have selected excerpts from the learning situations over the period of time I was there.

Observation notes:

Students usually worked in pairs or in fours. At times they worked together in the larger group of eight students. The classroom was set up to accommodate language activities, with a selection of materials on different sized tables. During the time I was there, the students were studying wolves, through reading, writing and drama. They were frequently conferencing with each other in the process of writing their stories. The objective of their work was to edit and revise by writing a counter version of the much maligned wolf. The students had much practice in spoken and written language. Jane guided them in 'brainstorm' activities, drawing ideas from them, expanding their sentence structures, re-phrasing questions, or probing for use of new vocabulary. The students followed this learning pattern each time I was there. Then they went off in pairs or small groups to gather more information from the literature in the room or went off to begin the writing process. Jane would ask the students to explain to me what stage they were at in their project. These types of interactions were used frequently throughout the day. Although I did not attempt to correct any of the students' work, I did have to clarify some of their spoken language by modelling the correct structure which they in turn
repeated. Jane did a lot of prompting to encourage the students to change their writing drafts. She worked beside them to model verbal expressions such as, expanding, modifying and clarifying language which the students then incorporated into their writing. She directed their collaborative experiences by structuring the activities conducive to interaction. Since the students' language structures were sometimes faulty or inadequate, Jane focused on the language development rather than misarticulations in their speech.

Towards the end of the six-week period I did a few lessons on collaboration in a problem solving activity with the group. I developed probe questions and emphasized situational language for example, "If you were to come face to face with a wolf what would you do? How do wolves find food and shelter?" The groups had to find a common solution to various aspects in the lives of a wolf pack. I used a cooperative learning structure called 'Jig-Saw'. This structure involves the students working in pairs to discuss the problem first, then one member goes to another group to give them the information and in turn gets the answer to another question from that group, returning to the first group to share the information. I completed this first pilot study several months prior to my entry into the elementary schools.

Discussion

Suggested in the pilot study, was evidence that collaborative learning occurred amongst deaf/hard-of-hearing students working as a group in a separate classroom as opposed to a general classroom.

The Pilot Study on collaboration allowed me to gather a body of knowledge about learners with hearing loss in a mainstream school. The successful outcomes of collaborative work in Jane’s classroom were partly due to her allowing time for communication development to occur. Her expectations were high concerning the communicative needs and social needs of her students. Favourably, the students did talk more than their teacher. In this setting, with these students in one group together, their pace of learning was affected. The collaborative work progressed at a slower rate than would be found in a class of normal-hearing students because of the deliberate type of interaction necessary when students with a hearing loss communicate together; that is, being close to each other and paying attention face to face. It may be recalled that similar skills had to be developed at the beginning of formation of the Ottawa/Carleton teen
Also, misunderstandings occurred during their many verbal interactions which slowed the process but resulted in more accuracy in communication.

Student collaboration

My intention was not to check the validity of this homogeneous group of deaf/hard-of-hearing students actually practising cooperative learning according to the criteria I had set up in the elementary and secondary studies. I was interested only in checking to see if they could work in a collaborative manner with one another. Yet when I examined the criteria of the principles of cooperative learning, the outcomes expected and the skills involved in a cooperative learning approach this small group of deaf/hard-of-hearing students were behaving in a parallel way to the criteria considered in cooperative learning.

The deaf/hard-of-hearing students in the segregated special class worked well with one another. I did not observe the students in any other mainstreamed class except when they were with their specialist teacher, Jane. Positive comments to each other were heard by both Jane and myself as the students worked in groups of four. I noted that they took turns, offered advice to each other and helped to revise each others' work. Jane and I discussed the comments of the students during the collaborative time periods as well as in the process of the language activities in the larger group with all the students together. The reassurance the students received by Jane gave the students confidence as they responded during the learning tasks. The students in turn encouraged one another frequently. I recorded some examples of the harmony felt by these students working together. These comments reflect the quality of the teacher as well as her method of teaching:

“Well, the teacher in the regular big class just puts work up on the board and tells you to do it whether you know how or not.”

“The other teachers don’t really explain things to us.”

“You talk to us different.”(sic).

Following this comment Jane asked. “In what way?” “You explain things better when we do work. And in the small class we can get on with our projects.” PS. INT. (a)
Language Development

Jane and I collected samples of the students' language, during the period of my observations in the classroom. In written work more adjectives were used along with longer sentence structures. In the drama work when Jane would "freeze" the action to bring out the feelings of the students in the roles of belonging to a wolf pack. Then students would copy the new vocabulary they heard from other students. More complex clauses were heard in their spoken language; for example, using the connectives such as, 'however', 'since', 'until', 'whenever'. The students rephrased sentence structures with their peers several times when they perceived some misunderstanding. This process did affect the manner of interaction in that communication moved at a slower pace than it would with a group of normal-hearing students. However, as a result of the students working together in small groups of two, three and four in positive interdependence, I believe some linguistic progress was observed by Jane and I. When I presented an activity involving two small groups I observed that they had more opportunity to talk with one another about the task. I was able to intervene when necessary to expand on their language concepts. I was gratified that Jane made the comment "Watching you work with my students has given me even more insight into their learning styles."

Social interaction

The students seemed to show a common bond within the group setting by their patience and encouragement towards each other. Jane had taught them many social skills of interaction. They had learned to value their interactions by staying close to each other so that they could hear more effectively. I observed this behaviour when they waited for each other in thinking through a problem and reflecting on an activity. The role of the teacher was essential and effective in helping to develop the students' communication and social skills. They had learned to support each other yet relied on Jane to bridge the gaps in their learning. Jane's role however, did not become dominant at every stage of the collaborative work.
Time Required for Collaborative Learning

I learned from Jane that it takes time to develop a positive climate in a class anticipating small group work together. She had begun this collaborative active learning with the students a year prior to the pilot study. Jane stated that it took half a year before she and the students were working as a team. She had been teaching these same students for three years so she was quite familiar with their learning styles, needs and interests. I made the judgment that the students being together for most of the school day allowed them time for projects whereas in the general class they had to conform to the scheduled subject time according to curriculum requirements. I estimated that students in a special class who practise collaborative skills may be well-prepared to enter general classes already engaged in developing the same skills.

Comments about Jane's Practice

I considered Jane as a model teacher in the practice of collaborative work. She was enthusiastic and open about my interest in observing her students. I hoped to find such a teacher to work with in the elementary and secondary studies. Jane's approach to her work was 'holistic' in the sense that she was developing curriculum from themes which came from the interests of her students and unlike her colleagues working with deaf/hard-of-hearing students, she did little or no correction or repair work with their articulation. She told me that she was uncomfortable in the role of speech correctionist, and instead favoured the “use of talk” as a means of fostering productive spoken interaction as a learning point. Wells (1988) defines this as promoting spoken language concepts in a classroom. This approach enables children to develop spoken language through constant practice. Most teachers of deaf and hard-of-hearing children would consider intervention tantamount to the development of communication (Wood, 1986). However, in Wood's research (1986) it is suggested that the dominant role taken by some teachers can be an inhibiting factor in the process of developing language in young children.

I asked Jane to think of a personal image of herself as a teacher. She described herself as an explorer. She continued by saying she was a traveller, experiencing all the sights in the same way as a geographer would view the 'lay of the land'. She said, "If you're willing to risk and explore then there's always something exciting to find. Maybe you'll find one little thing to treasure."
Jane and I developed a shared view of children’s learning. In particular, we believed in fostering activities which would encourage communication skills and higher level thinking for deaf/hard-of-hearing students. We had many discussions about our work together. I felt it was important to relate an excerpt of one of our interviews in order to bring out her perceptions, beliefs and values about her work. In developing any collaborative work with young students, my impression is long-lasting in favour of a positive teacher such as Jane. I asked her to recall some positive event or experience in her teaching life:

Jane: At Teachers’ College I met Freda, a drama teacher who worked with inner-city children. She was magical! She read to us and taught us to look at children in a totally different way. She was the prime person in my thinking the way I do now.

Jean: What were some of the outstanding features - the main parts of that experience that really stuck out for you?

Jane: She could transform a whole school by showing us the precious joys and beautiful things the kids could do. These students were in an inner city school, came from disadvantaged homes with few aspirations. I could see we needed to bring them higher expectations and build their self-esteem.

Jean: In trying to make sense of that whole experience - why do you think it happened? How do you understand it?

Jane: It made me really listen to children’s’ voices; listening to the messages that were being sent.

Jean: Sounds like some kind of transformation in yourself!

Jane: That’s right. Later I came to see it was all related to self-concept. When I went back to university and worked with Murray S there was the image of Freda again! I get the same feeling when I work with my students. We do some brainstorming and they come up with these wonderful ideas!

Jean: I’m trying to bridge the last part of bringing out your own resources and your own knowledge. How do you see that kind of information re-occurring?

Jane: Learning has meaning and it has to be fun too, then it transfers to other areas. These children will find any topic of interest if they have some control; letting them find the curriculum for me really. I just do the formalizing and
facilitating. If they're allowed to make decisions on the projects then they become their own. It would be so easy to give them the words, but that’s not it. They can work it out, try new ideas, change things and revise.

PS.INT.

The peer interaction observed in this class of deaf and hard-of-hearing students resulted in an increase in their use of language structures during collaborative work. The development of communication appeared to benefit their skills of listening, commenting and showing goodwill towards one another. These students spent much of the school day together, in a segregated class, but integrating subjects and engaging in projects which emphasized communication and literacy skills. Based on the ability of the students to communicate, I concluded that that they had developed adequate social language to enable them to be integrated into a general classroom engaged in collaborative or cooperative learning.

The teacher's role in building and supporting such a program was essential in allowing the opportunity for the students to work effectively together. The interview of the teacher's experiences gave us both insight into her experienced knowledge.
Appendix I

Notes on the unsuccessful initiation of cooperative learning at the secondary school level with three deaf students and four teachers.

Functioning and Exploration.

The whole class required a basic course on communication skills and basic social skills. The same students were also having difficulty with the novel study at the time. Rick was cooperative as long as he was in a group of two, but more than that he became distracted and the other three members of his group were not always willing to ask for clarification from his explanations and contributions to the discussion.

Debra

Jean: Let's go back to talking about Rick. Can you see that there could be a role for a support person like me in a group situation. Was there something else I could have done to make it work?

Debra: I think it was just the dynamics of the group. So many times I meant to call you, then I'd walk into the class and one student would be in an argument. Then I'd have to sort it out and I'd end up not doing any group work.

Jean: Did you have any feeling that perhaps I was butting in or...pressing you too much?

Debra: No, not at all. I've done team teaching before and never was bothered with people coming into my class... When we tried it when you were coming into the room, I think the students did not like the idea of someone else taking over. They do not like change. They were continually looking to me for assurance. When you came in as support, it seemed easier to do cooperative learning.

SS..INT.
Communication

Jean: Tell me about your experiences with Rick.

Debra: Yes, it was difficult at first. Sometimes he has to repeat things and if I still don’t get it I ask him to write it down. Once that happened, even a word, I could get the sense of it. But there were times I could not make sense of what he was talking about.

Jean: What about his peers? Do you think they understood him?

Debra: Some of them have gone to school with him for many years.

Jean: Perhaps Rick thinks he may not be understood well by others and the kids don’t want to embarrass him. I saw how often it seemed like he was ignoring them. Even with the use of the microphone he still was not picking up that they were making comments about the work. He also did not watch for cues from the speakers like many other deaf students do automatically. He has not gotten into that habit. He is a very independent type of learner.

Debra: Often I’ll be teaching at the front of the class and I have to call and call. Then somebody snaps his fingers close to him to attract his attention and when I ask him if he knows what he’s doing, he says “yes”, but then he cannot tell me, so . . .

Comments on Initiation Period

Debra: It may end up with only one or two students that had been continuing from the beginning when we started the cooperative learning groups. You’re just re-teaching. . .

Jean: That makes the group work more difficult.
Debra: Yes, an example is say, Bill is there one day taking the notes (as recorder) and the next day if and when he comes back, whether he catches up . . . You try to go back over it . . . the other kids get bored.

**My Role as Initiator**

Jean: Let's go back to thinking about the hearing impaired student (Rick) in the group. Can you see that there could be a role for a support person in such a group? Obviously most of the students were having trouble with the content. Also, the social skills required training because they simply were not there. It's very hard to get time to sit down, like we are now, to reflect, to look at the curriculum to see which parts could fit a cooperative learning process. I wasn't always sure how far I could push. Was there something else I could have done to make it work.

Debra: I think it was just the dynamics of the group. So many times, I meant to call you, then I'd walk into the class and one student would be in an argument. I'd have to sort it out and end up not doing any group work. I don't think a contract between us would really have helped. I wrote in my day book “call Jean” but . . .

Jean: Was there any feelings that perhaps I was butting in or . . .pressing you too much?

Debra: No, not at all. I've done team teaching before and never was bothered with people coming into my room, but I could just walk into the class some days and know this wasn't going to be a good time to do group work... At that point there was some tension in the class that was not conducive to group work of any kind or cooperative learning.

Jean: Tell me about that a little bit more. When I came in what. What were some of the dynamics that you observed?
Debra: Initially, as I said, I had no problem with you coming in, and I felt really good about it. You were explaining, and some of the kids were looking at me and talking. I felt the tension going because I wanted this to work. I thought I’ll have a little talk with them when it was over. They feel my tension and they don’t know why and here’s some other teacher standing up in front of the class. They were more interested in finding out what I was angry about. “Why doesn’t she just give us the paper and let us go.”
For these kids it really has to be supervised. When we tried it when you were coming into the room, I think the students did not like the idea of someone else taking over. They do not like change. They were continually looking to me for assurance. When you came in as support, it seemed easier.

**Understanding the Problem**

Debra: Yes, in “regular schools” if you explain to students, this is the unit, this is what you’re going to be doing, and how long they had to do it. They’d come in, rearrange their desks and go ahead. In this school, you come in. You ask the students why they’re sitting in rows. We’re going to finish what we did yesterday. They say, “Oh Miss, you can come over here”. Then I tell them to move the desks...

Jean: Yes, even the setting in the room, the way the desks are set up, has a bearing on what happens. Cooperative learning is actually more structured than people think. When things don’t work, we think we’re never going to try this again. You have to consider what type of students we’re working with.

Debra: Jean: I wonder what would be a better way to present a unit who is working with who plus what they have to do that takes about ten minutes do you think it would be better to start something like this at the beginning of the year or even in Grade nine, before they enter secondary school? Then it would be established that for some part of the day, they would expect to be involved in small group learning. I think the lack of social skill training has a bearing on
how cooperative learning is going to be successful or not. Maybe we have to start earlier...

Jean: They don’t like a lot of instructions. They like to get at it right away. That’s important for teachers in this school here to know. That the best way is to let the students begin the activity and explain as you go along or you talk about it afterwards. Do you think cooperative learning would work given the right ingredients?

Debra: Yes, I do . . .

New learning

Jean: Now, the last question, would you consider small cooperative group work for next year?

Debra: Oh, definitely.

Jean: Did you think that Rick working in pairs worked better than groups of four?

Debra: Yes, these kids are lacking in confidence, so it’s a lot easier than having two others telling them their idea is stupid.

Jean: What would you do differently with your group work?

Debra: In an elementary setting they do that so I think I’d have to go back to something like that. You’d have to say, “So and so . . . you’re going to do this” . . . “You give your answer and everyone has the same answer.” Keep it very simplistic.

Jean: Do you think you can do that with these students?

Debra: Yes, it would have to take sitting down and knowing exactly what it was you wanted them to do.
Jean: Well, it sounds like you’re thinking where and how cooperative learning might fit in a future time.

Although Brenda, Marie’s Child Care Teacher did not continue with cooperative learning the class did show much collaboration and her comments about Marie were important to include.

Brenda: Participation is the key. It develops a sense of worth and builds up the self-esteem of my students. I had taught in other schools but I found I was frequently offering help to the kids with special needs. I like their attitude towards the extra help I was able to give them. I decided these students were the ones I enjoyed teaching the most . . .

They (the students) have their own tasks but they have to cooperate with others. They have their roles, one gets the materials, one records, another tells the story to the preschoolers, etc . . .

In this class Marie (hearing impaired student) does really well. The other girls help her if she misses something. I always use plenty of visuals, so it’s easy for all of them to follow.

I have to be very clear with Marie. She has to know what is expected of her. Then she feels good about what she’s doing . . . I can usually understand her speech and she does not seem to have trouble understanding me.
Appendix J

J. Biro
Special Services

Dear J. Biro:

Re: Proposal to Conduct Research

Cooperative Learning with Mainstreamed Hearing Impaired Children*

The Research Committee of the Board met on __________, to consider your
request to conduct the above noted research at School and School.

As a result of the deliberations, I am pleased to inform you that the Committee has recommended approval of your project, subject to the following conditions:

• The consent letter which you will distribute to parents will be the revised letter which you sent me dated ________.
• You will inform us directly of any changes you may implement.
• You will inform us of your completion date.
• You will provide us with a copy of your completed report.
• You will complete your research at these schools by June 1981.

On behalf of the Research Committee, may I wish you success in this endeavour.

Sincerely,

Chairperson/Research Committee
Superintendent of Curriculum

MB:ww
March 12, 1992

Jean Biro

Dear Ms. Biro,

I am pleased to inform you that the Research Committee of the Board of Education has given approval to your application to request the cooperation of schools in your study entitled "A Preliminary Investigation Towards Initiating Cooperative Learning with Mainstreamed Hearing Impaired Students."

The Committee did express concern as to the method of data analysis and how it would answer the questions proposed, but agreed to the carrying out of the activities you described. No changes to the proposal are required.

I will send the information to the principal of your school next week and you should be able to ask him for permission on about March 25.

Best wishes in your research.

Yours sincerely,

[Name]
Research Associate
Corporate Research Division
Corporate Services

P.S. May I remind you that the Research Committee is interested in reading final reports as well as proposals, and I trust that you will forward us a copy as soon as one is available.
Appendix L

PARENTAL CONSENT FORM

Name of Researcher: Jean Biro
Title: Teacher of Hearing Impaired Students
Telephone:

Dear Parents:

A project concerned with Cooperative Learning (small group learning) is being conducted by the teacher/researcher named above who is a doctoral candidate in the department of Applied Psychology; "Focus in Teaching" at the Institute for Studies in Education (OISE) Toronto, Ontario.

The purpose of the research is: To investigate the process, content and outcome of collaborative small groups of students working and learning together. The major focus of the study is to investigate how students with hearing loss function in a cooperative learning approach in regular classrooms. Teachers will be involved in collaboration with the researcher.

Participation by your child in this study will entail observations of group process during the subject periods designated by the class teacher and the researcher. The interviews will include the students' reactions and impressions of what they may have learned in the group work and their evaluation of this type of learning in contrast to individual or competitive types of learning in the classroom. The subject areas include: English, History, Geography, Family Studies or related area and Math. The time designated will be one school term; (September to December).
All information will be kept strictly confidential. This information will not appear in any school records, will be seen only by the researcher involved in this study, and will be used solely for research purposes.

If you have any questions, please call the researcher at the numbers given at the top of this letter.

I would be grateful for your cooperation. Whether or not you wish to participate, please complete the attached form and return it to the school within the next week. If you indicate that you are interested in participating in this study, I will contact you soon.

Yours truly,

(Jean Biro)

I hereby—— give permission
—— do not give permission

for my child_________________________ to participate in the study

"INVESTIGATING COOPERATIVE LEARNING WITH MAINSTREAMED HEARING IMPAIRED STUDENTS" described above.

_________________________________________________________

signature of parent or guardian

_________________________________________________________

date
Appendix N

A project concerned with collaborative learning is being conducted by a teacher/researcher in the field of special education. I am a doctoral candidate under the supervision of the Ontario Institute for Studies in Education as well as being a teacher with the

The Research Committee of the university has granted permission to request your cooperation in this study.

The purpose of the research is to find out if small groups of students working and learning together, i.e. Cooperative Learning, is a valid approach in the classroom for hearing impaired students.

There will be one hearing impaired student in a group of 4 or 6 other students in his/her class.

Participation by your child in this study will entail group interaction being observed as well as interviews with the researcher with regard to their experiences in group learning. The study will begin in Sept. 1992 and be completed by June 1993. I will be working with your child's teachers once or twice a week to initiate a cooperative learning approach in academic classroom. The researcher will require access to information in the students' report files for audiological information and verbal reports from teachers.

All information will be kept strictly confidential. This information will not appear in any school records, will be seen only by the researcher involved in this study, and will be used solely for research purposes. In order to maintain the confidentiality of students identified as exceptional, I cannot release the names of students without parental consent. Given this condition, we would appreciate your signing the form below indicating approval or disapproval of your child's participation in this study. Please return the form to the school.

If you have any questions, please call the researcher: Jean Biro at (home) and (work). Thank you for your cooperation.

Yours truly,
Jean Biro

I hereby ___ give permission

___ do not give permission

for my child ___ to participate in the study "A Preliminary Investigation Towards Initiating Cooperative Learning with Mainstreamed Hearing Impaired Students".

Signature of Parent/Guardian ________________________________

Date _______________
Appendix N

RESEARCH PROPOSAL TO TEACHERS

Dec. 1990

Dear

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

The purpose of this letter is to formally invite you to participate with me in a research project which will be submitted as partial fulfillment of the requirements of the degree of Doctor of Education at the Ontario Institute for Studies in Education and the University of Toronto. The project will be conducted within the department of Applied Psychology and supervised by Dr. David E. Hunt. The working title of the research project is "A Preliminary Investigation Towards Initiating Cooperative Learning with Mainstreamed Hearing Impaired Students."

1. PURPOSE OF THE STUDY

The broad purpose of the study is to investigate the process, content and outcome in the practice of cooperative learning which is small groups of students working and learning together. The focus is on how cooperative learning functions when there is a hearing impaired student in the group.

In my thesis proposal, I have identified my interest in an interview process which explores your experiences, beliefs and practices with your students. What do you need to know to do what you do? Are there particular personalities drawn to teaching students in a collaborative approach? Which skills, knowledges and attributes are important in the work that you do?
Observing Student Interaction

How do students who have hearing impairments learn to work cooperatively with their hearing peers? Can cooperative learning be beneficial for those students who have the disadvantage of a hearing loss, which can affect communication? Which skills and interactive behaviour are necessary in making collaborative learning successful for hearing impaired students?

I would like to become a participating observer in your class when everyone is engaged in cooperative groups. My focus will be on the group which includes a hearing impaired student.

2. CHOICE OF PARTICIPANTS

I have chosen to invite you to participate in this research because you meet the criteria selection I set out in terms of my association with you. Namely, that you are a skilled and experienced teacher, you have the personal qualities of openness and interest in the subject area of the study and you are both willing and cooperative in sharing your thoughts and experiences with me.

3. METHODOLOGY

I would like to do a series of interviews to gather information and evidence about Cooperative Learning. These interviews would be recorded on an audio tape recorder. The initial interview would serve in helping me understand what your personal beliefs and goals are in terms of a collaborative approach to learning in your class.

Following this initial interview, I would become a participating observer in the time periods selected by you when cooperative learning is in-use in your classroom.
Some sessions will be videotaped as well as audio taped. Group disc will be transcribed and analyzed according to process, content and outcome.

A second interview will be conducted to share information about the classroom experience. Complete copies of any notes made as well as transcriptions of the taped session will be made available to you as they are produced. On the basis of these records, I will prepare a series of interpretive accounts. You can make any changes of these interpretations, make suggestions for changes, omit anything you consider inappropriate in the interpretations or field notes.

The objective in this manner is the development of collaborative material which will be satisfactory to both parties, myself and you. This procedure is in no way to evaluate or judge in any form your teaching practices or personal beliefs about teaching. The final version of the findings on the use of cooperative learning will include an account of any changes we have made together.

4. ETHICAL ISSUES

Care will be taken to ensure anonymity and confidentiality of any part of the research and protect any of the participants from the possibility of evaluation. All names and details which could be identifying features having to do with any class, school, teacher or student will be changed in all field notes and transcripts of tape recordings.

All material will remain confidential except for members of my thesis committee, otherwise the information gathered will not be shared with anyone without your explicit permission and discussion.

All interpretations of the data will be discussed by us together prior to any discussions with any third party. Any publication of the thesis or part of the research will not proceed without your explicit permission.
You have complete protection from any evaluation by all identifying
details or references. Names will be changed and no one will have access to
any of the material, field notes, transcriptions of taped discussions etc.
without your permission. School Board personnel will not have access to the
final report without your consent.

At any time you have the right to withdraw from any part of the work
and this will be acknowledged and respected by myself. Your participation in
the study is voluntary and as such is appreciated.

5. BENEFITS TO THE PARTICIPANTS

In being responsive and reflexive in our discussions I will also be
reciprocal in sharing my background and experience as a teacher and
consultant in any aspect of your work that you may wish to explore with an
interested colleague. During the times I will be in your class I will be of
assistance at any time and in any way you see fit during the period of the
research.

6. WRITTEN CONSENT

If you are willing to participate in the research project: *A Preliminary
Investigation Toward Initiating Cooperative Learning with Mainstreamed
Hearing Impaired Students*, please complete the following declaration:

I am willing to participate in the research named as above.

Signed: ________________________  Teacher

Researcher: ____________________  Jean Birn
GROUP EVALUATION

Name ____________________________

Group 4 ____________________________

Problem sinking bowl ____________________________

Date May 4, 1991 ____________________________

1. How did you work? (Smiley face)
   - Well
   - So-So
   - Not So Well

2. Did you wait your turn? (Smiley face)
   - Yes
   - Sometimes
   - No

3. Did you help someone? (Smiley face)
   - Yes
   - A Little
   - No

4. Did you help the-group? (Smiley face)
   - Yes
   - A Little
   - No

5. Did you like the activity? (Smiley face)
   - Yes
   - So-So
   - No

6. Did you have enough time? (Smiley face)
   - Yes
   - No
Appendix P

**How did we do?**

Do we share with each other?

[Diagram of two figures, one sad and one happy, with arrows indicating interaction.]

*Our Initials*

**We could try...**

to do better the next time

*Adapted from:*
- [Source Reference]
In each section of the star, write something you learned in this work. Think of...

- something interesting
- something surprising
- something different
- something difficult
- something new
- something I can do
- something I know
- something I feel

What I learned

Date: __________ Topic: ______ Name: __________
Appendix R

Reflections on the Group Process

1. How did your group reach consensus?

2. What difficulties did your group have?

3. What criteria did you use to develop your rationale?

4. What were the physical and language indicators which showed your group was working well?

5. What do you think would be different if you had been asked to do the activity individually rather than in groups?
Appendix S

CO-OPERATIVE SMALL GROUP LEARNING

Criteria and suggested indicators:

**Attitude:**
- Does the student show:
  a) willingness to work with a partner?
  b) willingness to work with a group?
  c) a sense of sincerity?
  d) commitment to the learning?
  e) a sense of confidence?
  f) self-discipline?
  g) acceptance of responsibility?

**Roles:**
- Does the student:
  a) understand the purpose of the group?
  b) propose a suitable approach?
  c) keep the group on track?
  d) share or accept leadership?
  e) make notes or record information?
  f) summarise?
  g) report back?

**Co-operation / Interaction:**
- Does the student:
  a) accept others in the group?
  b) help others in the group?
  c) encourage others in the group?

**Contributing ideas and materials:**
- Does the student:
  a) make suggestions?
  b) share ideas and materials?
  c) complete assigned or selected tasks?
  d) stay on topic?

**Responding to others:**
- Does the student:
  a) listen actively?
  b) evaluate the views of others?
  c) respond appropriately?

**Directions:** Select the appropriate criteria from above to use on the checklist on the next page.

from *Basic OAJP*, Ontario Ministry of Education, 1990

*Note:* I call these criteria and indicators—Behavioural Effects of Cooperative Learning.
Appendix T

**FORMING**
- Moving into groups quietly
- Staying with the group
- Being considerate of other groups
- Accepting everyone as part of the group
- Encouraging everyone to join in
- Using basic social skills

**FUNCTIONING**
- Expressing support and seeking ideas
- Helping others to understand
- Practising active listening
- Getting the group/self back on task
- Using brainstorming techniques
- Using problem-solving

**EXPLORING**
- Deciding what needs to be done
- Recognizing prior knowledge
- Adding ideas to expand knowledge
- Asking questions; predicting
- Summarizing, simplifying
- Seeking clarification from others
- Criticizing ideas, not people
- Looking to the group

**SHAPING**
- Developing and adhering to timelines
- Making inferences
- Drawing conclusions
- Justifying
- Agreeing to disagree, where appropriate
- Recognizing patterns; generalizing
- Synthesizing a number of ideas

**EXPRESSING**
- Suggesting a variety of formats
- Selecting the most effective format
- Determining evaluation criteria
- Practising the presentation
- Supporting group members

**REFLECTING**
- Celebrating success
- Considering areas of success/improvement
- Completing self- and peer-evaluations

**PERSONALIZING**
- Considering transferal of skills
- Knowing personal strengths
- Pursuing independent interests
- Developing self-direction
References


Bowden, M. (1988). Programs in action: Think tank discussion program - A small group alternative to class discussion to promote interaction among eight students, including one profoundly hearing impaired. *The Volta Review, 90* (6), 295-299.


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