Using What is to Hand, to Eye, to Ear and to Mind:

A Theory of the Deaf Writer’s Meaning Making

by

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for the degree of Doctor of Education
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Using cultural historical activity theory as an analytic framework, this thesis is a descriptive study that, through an examination of the composing processes of four deaf student writers, attempts to capture some sense of what these learners do as they write, specifically in terms of what they do, what they know, and how they come to know and do these things as they write. The research was school-based, and data collected consisted of verbal and written reports from interviews and surveys done with the student participants, written language samples, and retrospective accounts of the composing process which were elicited through a prompted recall interview technique. The argument is made that deaf students manage the problem of composing English text via a particular set of mediating tools, with a particular emphasis in the discussion being placed on the respective roles that contact sign and American Sign Language play in mediating the composing process and how these two cultural artifacts are valued differently by the various stakeholders in the education of deaf students.
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Introduction

Coming to research with a teacher's eye affords one a unique perspective from which to view the complexity inherent in any investigation of the teaching and learning process. The intimate, first-hand knowledge gained by living the experience of the classroom makes one keenly aware of the apparent paradox in being "accountable for" teaching each student while at the same time "accounting for" the functioning of the classroom as a whole. Perhaps that is why attempting to unravel some of this intricacy through the avenue of research can seem so daunting an enterprise for many teachers. In facing this challenge as a researcher with solid teacher roots, I struggled to find a framework which would allow me to make research order of the organized chaos that is teaching/learning activity, and to position this research in such a way that its value to the teaching community would not be limited to a reporting of research-based knowledge of students' understanding, but would encourage the process of teachers engaging with this knowledge and considering implications for their own practice (Rhine, 1998, p.27).

For many years I had struggled to develop the writing abilities of my deaf students, often with limited success. In large measure it was this experience which determined that my research question was to be an investigation of the composing processes of the deaf student writer, and it would logically follow that the individual deaf writer would be the obvious unit of analysis for this research. But as a teacher I had difficulty with the notion that the children I was teaching were "units" to be analysed, and further, that such an analysis would afford me the appropriate perspective from which to consider classroom practice, as this pedagogical arena rarely allows for the luxury of working with one "unit" at a time. Yet I knew that on a very fundamental level,
it is indeed the individual writer who does the writing, and I wanted to gain insights into this very personal process. But at the same time I did not believe that limiting the investigation to a research "snapshot" of an individual writer in action would serve to adequately capture the complexity and intricacy of the connections that I believed existed in the dynamics of any classroom activity.

The perspective from which I ultimately came to view my own teaching and research was forged in great measure by readings and discussions of the work of cultural historical activity theorists such as Vygotsky, Leontiev, Wertsch, Cole, Wells and others. In this body of thought I had found a framework which would allow me to focus not simply on individual action, but on individuals "in action", considering the means by and through which their actions are effected. To adopt such an approach to the issue of learning to write would be consistent with the work of many others (Scribner & Cole, 1981; Clay & Cazden, 1990; Chang-Wells & Wells, 1993; John-Steiner, Panofsky & Smith, 1994; Zebroski, 1994) who have taken a sociocultural view to questions of language and literacy development.

For the purposes of conducting such a sociocultural inquiry, Cole (1996) advocates a meso-genetic approach which encourages taking into account the multiple layers and cross-relationships (microgenetic, ontogenetic and cultural-historical) that impact on any investigation of individuals "in action", and he further argues that such an analytical framework is well suited to helping us consider issues of diversity in the classroom and to guiding educational practice in settings in which the children come from various cultures, ethnicities and social backgrounds (see Cole, 1998). In like spirit Wertsch (1998) sees the task of sociocultural analysis as one in which fragmentation and isolation are eschewed for an analysis which considers multiple dimensions and
the complex interrelationships among these dimensions in order to come to understand how mental functioning is related to cultural, institutional and historical context.

Having discovered a framework that addressed my concerns, it became my "perspective on the perspectives" (Gusfield, 1989), my conceptual tool. As such, it provided a structure to scaffold my thinking, allowing me to consider the nature of the composing processes of the individual deaf writer while not losing sight of the larger sociocultural context in which this writing occurs.

"Each actant is only defined through its network of relations, and not ever prior to or outside all networks; and so to know an actant is to know it in-the-whole and from-the-whole, and so as monad or microcosm, and this implies of course, in complementary fashion, that we cannot know the individual if we do not understand the society" (Lemke, 1998). But in aspiring to this goal, it must be acknowledged that it is virtually impossible for any instance of research, however well intended, to take into account the full network of relations, let alone society, that comprises the meaning making activity of any single actant. Thus it becomes necessary to make research choices, and in so doing, no analysis or unit of analysis should be seen as "the right or wrong move", but rather each needs to be considered in light of the researcher's goals, and the practical limitations (time, money, and resources) imposed by the researcher's current situation (Matusov, 1998).

Bearing these limitations in mind, the investigation described in this thesis aspires to the broad goal of sociocultural research, which is to understand the relationship between human mental functioning, on one hand, and the cultural, historical and institutional setting, on the other (Wertsch, 1995), while also attending to the more specific goal of developing knowledge as it
relates to the composing processes of the deaf student writer, trying to capture some sense of its complexity, specifically in terms of what the students do, what they know and how they come to know and do these things as they write (Lightbown, 1985). “The unit of analyses then refers neither to the properties of the agent as such, nor to the properties of the environment as such, but rather to the elements that represent a transaction between the two”. (Stetsenko & Arievitch, 1997, p.160), and such an analysis is best accomplished through adopting mediated action as the unit of analysis, thus focussing the inquiry on the individual acting with mediational means (Wertsch, 1998).

In writing about the paths to literacy taken by young hearing learners, Kress (1997) argues that “unless we understand the principles of making meaning in all the ways in which children do, we won’t understand the ways in which they attempt to make sense of print” (p.xix). This thesis attempts to look freshly at deaf writer’s engagement with print by treating it as one of a multiplicity of ways that these children make meaning, while relying on a set of cultural resources and mediational means that can be seen, depending on one’s point of view, to either expedite or hamper this meaning making process. To this end, these meaning making practices are interpreted in light of the cultural scene (Burke, 1969) against which they are enacted, endeavouring to examine the multiple actions and motives of the players involved, considering them in the light of the broader socio-historical framework in which they exist.

It is important to acknowledge that, as teacher and researcher, I am also a player in this scene, and therefore it is only fitting that my own motives in this enterprise be laid bare. At the most obvious level I undertook this work to fulfill the thesis requirements of the university programme in which I am enrolled. But my connection to this research question runs much deeper
than this. It is born of all that I have learned from the many years that I have had the opportunity to observe and work with young deaf writers. It has its roots in the hours of conversation and co-operative work with colleagues, parents and fellow researchers who shared my passion and concern for the education of deaf children. And it is admittedly written from an emic perspective, with a voice that is animated by my own role as teacher in the classrooms where this inquiry was carried out, and as professional in the school in which these classrooms were located. For this I make no apology, but simply state that this is the position from which this research was conducted, considered and subsequently reported.

And lest this tidy introduction lead the reader to believe that there was some notion of literary prolepsis at work, I would offer this caution. This inquiry was not played out or realized in the linear fashion in which its subsequent reporting may suggest. The strongest evidence of this would lie in the fact that the introduction was among the last of the sections to be written. In a perverse way it was only in the aftermath of completing the work that it became possible to introduce the material in a fashion that made sense. Such is the limitation of the written text and it serves to remind us that, "like any other cultural tool, language, through its system of tenses and aspects, offers a unique set of affordances and constraints" (Wertsch, 1998, p.55). As such this text should be seen as the "limited" material artifact of my own learning process - the product of my mind "in action" with the minds of the students and teachers who worked with me, the authors whose texts "spoke" to me, and the colleagues who challenged and provoked my thinking.
Chapter One

The Writer, The Writing and the Written Text: Conceptualizing the Activity

All writers, whether novices or seasoned authors, face the challenge of making meaning on a blank page. They struggle to make meaning for themselves and to communicate this meaning to the potential readers of the texts they are creating. Although in this way the act of writing can be perceived as a solitary endeavour, the activity of writing, as one aspect of literacy development is embedded in a sociocultural framework and must be considered not only from the perspective of individual mental functioning, but from the broader view of the social context in which it exists.

Adopting a sociocultural approach to an investigation of the writing process requires a "fundamental reworking of the categories we invoke for theoretical and empirical research because it insists that sociocultural situatedness be part of the theoretical and empirical agenda from the ground up" (Wertsch, 1989, p.140). Such an approach, from a Vygotskyian perspective, must also be guided by the following precepts: that psychological processes can only be understood in terms of their origins and the mechanisms by which they change; that the development of all higher psychological processes have their origins in interaction among individuals; and that it is through communication using symbols and signs that individuals eventually become capable of regulating their own behaviour. The first of these two contentions is well captured in this oft quoted passage from Vygotsky:

Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an
intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition .... It goes without saying that internalization transforms the process itself and changes its structure and functions. Social relations or relations among people genetically underlie all higher functions and their relationships. (1981, p. 163)

The third can be extrapolated from his claim for “semiotic mediation” - that all human activity, on both the interpsychological and intrapsychological levels, is mediated through the use of signs or tools, both material and mental. “By being included in the process of behaviour, [these tools] alter the entire flow and structure of mental functions. They do this by determining the structure of a new instrumental act, just as a technical tool alters the process of natural adaptation by determining the form of labour operations” (Vygotsky, 1981, p. 137). And Vygotsky goes on to suggest the following as “examples of psychological tools and their complex systems: language; various systems for counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps, and mechanical drawings; all sorts of conventional signs; and so on”. And as well as serving as tools in action, these mediational means should also be viewed as the products of the culture in which they exist, being appropriated by individual members of the culture, as they function on both inter and intrapsychological planes.

**Activity Theory as Analytic Framework**

Scaffolded by Vygotsky’s thinking, Leontiev (1981) proposed an analytical framework known as activity theory, which considers human functioning and explains human behaviour via a tri-level analytic framework of activity [system], action and operation. “Activity is the nonadditive, molar unit of life for the material, corporeal subject. In a narrower sense (i.e. on the psychological plane)
it is the unit of life that is mediated by mental reflection. The real function of this unit is to orient the subject in the world of objects. In other words, activity is not a reaction or an aggregate of reactions, but a system with its own structure, its own internal transformations, and its own development” (Leontiev, 1981, p.46). An activity is a tool mediated interaction, conducted through the actions and operations of individuals, and it is identifiable chiefly by isolating its motive or the focus which is its “raison d’être”.

“Activity theory lets us study praxis in relation to the material conditions shared by a group of human beings, and it situates praxis historically. It places human cognition not in the head but in the human activity that an individual is part of” (Bodker, 1997, p.150). More specifically activity theory analyses the way some individual or group of individuals uses tools, both material and conceptual, to pursue their object or motive.

Human activity is realized through the actions or chains of actions which translate activity into reality. Actions are consciously directed at goals which are often subordinate to other goals. This nested hierarchy of action/goal may continue until a goal is reached that is not subordinate to any other goal - this uppermost goal being the motive of the activity. These actions are carried out via operations which are the particular means that participants employ to achieve the goal of the action upon which they are focussed. The defining characteristic of these operations is that they are the unconscious and automatic responses to a given situation - at least until the prevailing context changes. And over time and given a particular set of conditions, some actions may themselves be routinized and become operations.

To illustrate, consider that in schools the primary activity is that of education, and that this activity can be identified through a range of motives, one of which is developing literate
individuals (see Wells, 1994b, for a related example). To this end a unit of action in the classroom would be learning to write. And to engage in this process assumes that the learner can carry out a variety of operations such as correctly holding a pencil, recognizing the letters of the alphabet, matching sound to symbol and so forth. If these are not yet mastered or operationalized, then they remain at or return to the level of action, becoming the goal that is focussed upon. Part of a teacher’s role is identifying whether a task should be construed as action or operation for a particular learner in a particular situation, as this will define the nature of the teaching and learning to follow.

But an activity system is never static and it is characterized by constant transformations. “An activity can lose the motive that inspired it, whereupon it is converted into an action that may have quite a different relation to the world. Conversely, an action can acquire its own energizing force and become activity in its own right. Finally an action can be transformed into a means of attaining a goal - into an operation capable of accomplishing various actions” (Leontiev, 1981, p.65). For instance in the previous example, learning to write is defined as action. But as the goal of this action is achieved and participants in the activity have learned to write, writing can become the operation or means to realizing a variety of new action goals.

**Writing and the Writer in L1 and L2**

To better understand how activity theory can function as a unit of analysis for human cognition, it is expedient to refer to the schematic of the basic mediational triangle (see Figure 1) which serves to illustrate the complexity of humans interacting with the world (Luria, 1928; Cole & Engestrom, 1993). The left-hand base of the triangle represents the Subject, the right-hand base the Object, and the connections between the two, along this axis, are seen as unmediated or natural.
Interactions between subject and object which involve auxiliary means move through the apex of the triangle which represents mediating artifacts or tools. This simple diagram offers a representation of how individuals have a dual yet simultaneous connection to the world - one direct and one mediated.

![Basic mediational triangle diagram]

**Figure 1.** Basic mediational triangle.

Studies of writing which focus on a consideration of mediational means often propose a variety of scaffolds or structures which are seen to support the writer in the process of text creation (see studies by Bereiter & Scardamalia, 1982; Englert & Raphael, 1989; Cumming, 1989; Englert & Mariage, 1992; Englert, 1992). By definition, a focus on the mediational means cannot help but become a consideration of the mediational process itself - the individual using mediational means to achieve a goal.

To consider the processes of writing in L1, Bereiter and Scardamalia (1987, p. 303) propose a "dual-problem space model of reflective processes in written composition" (see
Figure 2). In this model they posit that if writing is to contribute to thought, it does so because of a dialectic set up between the two problem spaces, one defined by the rhetorical problems of presenting a text, the other defined by the writer's topic knowledge and understanding. The novice writer is able to move information from the content to the rhetorical space in rather a think-say pattern of composing, but only the more expert writer is able to make the return trip and reflect on the text that has already been written.

**Figure 2.** A dual-problem space model of reflective processes in written composition.

The problem of the content space deals with meaning, belief and opinion, and thus "has wide use in daily life and is by no means limited to composition planning". However the rhetorical space is bound up specifically with problems of text production and "is concerned with the mental representations of actual or intended text" and with the plans for how to
achieve various goals in the composition (Bereiter & Scardamalia, 1987, p.302). Collins and Genter (1980) argue that "it is important to separate idea production from text production, as the processes involved in producing text (the rhetorical space), whether they operate on the word level, the sentence level, the paragraph level, or the text level, must produce a linear sequence that satisfies certain grammatical rules. In contrast, the result of the process of idea production (the content space) is a set of ideas with many internal connections, only a few of which fit the linear model desirable for text" (p.53).

Considering the dual problem space model in concert with the mediational triangle of activity theory offers a productive vantagepoint from which to think about the writing problem of "converting an item of content into a rhetorical subgoal". If the 'problem space' is reconstrued as a dialectic between subject (the ideas in the head of the writer) and object (the text to be created), then moving an item from the content space to the rhetorical space could be seen as a 'conversion' that is realized through a set of mediational means or tools. For L1 writers, one of the key mediating tools involved in this action would be relative fluency in the spoken form of the target language. This operationalized knowledge of the syntax, grammar, and lexicon of the language to be written, lessens the cognitive load for the L1 writer, allowing for a more concentrated focus on meaning and function, since the basic building blocks of linguistic form can be presumed.

When the template of the dual space model is applied to a consideration of L2 writing processes, it is equally valuable as a framework for thinking about the specific tensions inherent in the task, for L2 writers who must operate under the added production constraints of being non-native users of the language they are writing, as they make decisions about "how to
say what they mean”. And to use the language of the model, how does the L2 writer convert an item of content into a rhetorical subgoal? Or in Vygotskyian terms, how does this writer master the representation of meanings generated in inner speech in the external mode of written text (Mayer and Wells, 1996, p. 102). Or in terms of the mediational triangle, what is the set of mediational means through which an L2 writer carries out the action of writing?

It is reasonable to assume that whatever thoughts a writer generates before writing (in the content space, in inner speech, at the subject level) can be expressed in myriad ways not tied to any particular language or mode. However when these ideas, for the purpose of written expression, must be reformulated in the rhetorical space, linguistic proficiency in the language to be written would seem to play a key role. While for L1 writers attention to problems of mechanics can interfere with the consideration of intentionality at the point of utterance (Bereiter and Scardamalia, 1987, p.109), this interference for L2 writers can lie in problems, not just of mechanics, but of being unable to spontaneously generate the “linguistic stream” of the second language.

Particularly for beginning and less proficient L2 writers this presents an obstacle to generating text. The writer’s cognitive attention must grapple with the demands of communicating content under the production constraints of operating in a second language in which the fundamental aspects of lexicon, syntax and grammar do not yet operate with relative automaticity. The set of mediational means required for the task have not yet developed to the point of being operationalized. This intuitive and fluent automaticity, a consequence of the operationalized use of mediational means, is not formally taught but develops as the learner acquires competence through frequent opportunities to use the target language in situations in
which it plays a meaningful role. A reasonable conclusion that follows from this argument is that there is some minimum threshold level of L2 proficiency required before a writer can "free up" enough cognitive attention to take on the higher order tasks of composing text.

**An Expanded Model of Activity Theory**

But the 'triangle metaphor' is limited (Cole & Engestrom, 1993) as it does not capture the elements of the broader sociocultural context in which mediated action takes place. This same criticism could be levelled at Bereiter and Scardamalia's dual problem space model. Neither model says much about the activity system of which the action of writing is a part. To address this concern, it is expedient to refer to Engestrom's (1990, 1991b) expanded mediational triangle which presents a conceptual map of an activity system, locating the "action triangle" within the frame of a larger "activity triangle".

![Figure 3. Model of the expanded mediational triangle.](image)

The subject is no longer seen in isolation but must be considered in relation to the
community which shares the same general object. The rules refer to the explicit norms and conventions that constrain actions within the activity system and which will impact on the ways in which an individual subject acts with mediational means. The division of labour refers to how object-oriented actions are shared among members of the community and this guides and determines the nature of any individual subject’s participation. To truly capture some sense of what is at work in the “action triangle” of writing, it is necessary to locate the action within the context of the writing activity system represented by Engestrom’s expanded triangle.

Most individuals learning to write participate in activity systems which are comprised of a community of learners who are attempting to master the activity of writing. These communities are usually located in educational settings which have fairly well delineated divisions of labour (teachers and students) with sets of rules for how one goes about learning to write, and with norms which define the relationships among the participants. But individual writers also aspire to participate in the communities of practice in the larger society which use written texts as means to achieve their goals. In these activity systems, whether they be commercial enterprises such as managing a shop or personal endeavours such as letter writing or keeping a journal, the community of practice, the rules and norms for behaviour and the division of labour differ considerably from the educational community of practice in which the primary motive is to master writing as tool.

But these communities of practice are not mutually exclusive as there is an interaction between them, particularly as it pertains to the educational community pulling authentic instances of practice from the larger social community in which it exists. And all individual writers, by virtue of the diverse nature of their backgrounds and life experiences, simultaneously hold
membership in a variety of communities of practice. One could even go so far as to say that the existence of the educational community of practice, and its attendant activities, are predicated on the fact that writing plays a key function as a mediating artifact in many communities of practice of the larger society. If this were not the case, the former would lose one of the chief motives for its continued existence.

**Activity Theory and a Consideration of the Writing Process**

But framing issues with respect to a consideration of writing and written text in terms of activity theory is not unproblematic, despite the fact that this has grown in significance as an approach from which to consider composition studies. “The issue is whether the act of writing should be construed as activity or as action” while also accounting for the operational aspects of writing which include the routinized use of knowledge, language and rhetorical structures (Bracewell & Witte, 1997). Russell (1995) brought these concerns to bear on an examination of first year college composition courses and language teaching, questioning both the nature of the object and the semiotic tools that comprise this activity system and concluding that there is a need to rethink the design and goals of these courses as they were not effectively meeting the needs of the learners.

In educational settings language curricula and language programmes are built upon the premise that a fundamental goal is to equip all students with the full range of literacy skills they will need to think, learn, and communicate in all areas of life. This goal would be reflected in curriculum documents written for both hearing and deaf learners, and would most certainly presume that developing a high level of proficiency in the areas of reading and writing is fundamental to this goal. In creating classroom settings which serve to support this goal, teachers
are encouraged to make language meaningful by using it to communicate for ‘real’ purposes, in ‘real’ situations. “If we understand schools as places where pupils are introduced to participation in sociocultural practices, this introduction is better when the ‘virtual practice’ as set in a school retains the essential characteristics of the actual practice” (Wardekker, 1998, p.147).

But most teachers live with the knowledge that in the ongoing activity of the language classroom there are most often two goals functioning in tandem. The students (to greater and lesser degrees) are using language to do ‘real’ things (write letters, keep journals, make lists etc.) with a ‘real’ purpose (to communicate with a friend, to respond to a reading, to take an inventory). But the over-arching motive (on the part of the teacher at any rate) is to “develop literacy skills” so that the ability to use language in particular ways is practised and refined, so that it can eventually come to function as an effective tool in situations beyond the classroom, in those communities of practice beyond the school setting.

While students may be engaged in using writing as operation to accomplish a variety of ‘real’ tasks, I would suggest that in educational settings, and especially in classes with deaf learners, the primary motive is learning how to write, and this should be seen as the goal of the action. And by gaining some level of mastery, while engaged in this activity, it is assumed that writing will eventually come to function effectively as operation in meeting a host of future goals.

**The Challenge of Becoming Literate**

To have written language operate as an effective tool, on the level of action to achieve a particular goal, assumes at least some level of mastery of this tool. Achievement of this mastery, and developing this expertise, necessitates that certain aspects of the writing process become automatic or routinized as in Bourdieu’s notion of habitus. “The conditionings associated with a
particular class of conditions of existence produce habitus, systems of durable, transposable dispositions, structured structures predisposed to function as structuring structures, that is as principles which generate and organize practices and representations that can be objectively adapted to their outcomes” (1990, p.53). These “habits” or operationalized aspects of the writing process range from entry level concerns such as letter formation and spelling, through to higher order concerns such as the appropriate use of idiomatic language and the use of genre structures.

For many L2 writers, it is at this operational level that significant problems arise with text production, even when there is a solid foundation in text based literacy in the L1. Studies have shown that there is positive correlation or a “linguistic interdependence” between the ability to write in the first language and the subsequent ability to write in the second, as many of the planning processes are comparable and function effectively across languages (Arndt, 1987; Jones & Tetroe, 1987; Canale et al., 1987; Cumming, 1989; Hirose & Sasaki, 1994). This being said, even in situations in which both languages have a written form, there is some disagreement about the extent to which the level of L2 proficiency constrains writing behaviour irrespective of other planning and composing processes (Silva, 1993; Kubota, 1998). In other words, while proficiency in writing in L1 can assist the writer at the level of composing in L2 (the planning, organization and structure of the text), it does not provide much support for the actual ability to write, if writing is thought of as the ability to produce a semantically and syntactically correct stream of L2 text.

Thus at the level of action, L2 writers may be fully aware that they can use writing as tool to achieve a goal, and they are already able to do this (in many cases with great proficiency) when operating in the context of their L1. But limitations at the operational level interfere with the
ability to use writing in the L2 as a mediating tool "in action" to achieve a goal. So for the L2
writer, learning to write becomes the goal of the action - just as it had been when they were first
learning to read and to write their L1. As Cumming (1989) points out, much of the confusion in
L2 writing research can be attributed to the fact that it has not adequately distinguished writing
expertise from second language proficiency.

Another way to think about Cumming's concern would be to say that much L2 writing
research does not satisfactorily differentiate between considerations of writing functioning as tool,
to achieve an action goal in which specific expertise in writing would play a key role, and that of
developing writing expertise as the goal of the action in which linguistic proficiency in the target
language would play the primary role. Clearly the separation between the two is not absolute, and
the development from linguistic proficiency in L2 to writing expertise in L2 is not linear. But there
is a level of the former which must be operationalized before the latter can become the focus of
the action.

Freedman, Pringle and Yalden (1983) argue that "the constraints of writing, without
full proficiency in a second language, may impose psychological limitations on people's
abilities to conceptualize their intended meanings and its organization in discourse" (p. 10).
Yau (1991), in a study of Chinese students learning English as a second language, found that
students' conceptual performance was seriously impeded because they had not achieved an
adequate level of linguistic ability in the target language they were writing. And in a study of
Icelandic EFL students, Berman (1994) found that learners' transfer of writing skills from their
L1 to English was very much dependent on their English grammatical proficiency. The author
attributed this to the fact that these learners are unable to participate fully in L2 contexts in
order to attain the requisite grammatical proficiency in the second language for L1 - L2 transfer to occur.

A parallel but even more challenging situation is that of deaf writers who do not, by virtue of their hearing loss, have full and adequate access to English. Studies of deaf writers by Moores and Sweet (1990) and Boisclair and Sirois (1996), indicating that literacy skills are closely related to the level of knowledge of English vocabulary and grammar, would seem to support this speculation, and in a parallel vein, Bebko (1998) predicts a limitation in English reading skills when a deaf student has difficulty with the automatization of English skills or the acquisition of higher level English language skills (p.13). At present however, these L2 issues, with respect to the composing processes of the deaf writer, remain largely speculative and represent an area which begs further research and study. But it would be reasonable to assume that if the level of second language proficiency plays a role in the writing processes of other L2 writers, it would also impact on the writing processes of deaf students.

All beginning writers, according to Vygotsky (1978), must realize a shift from first order symbolism (symbols like words or ASL signs which directly denote objects or actions) to second order symbolism (symbols which are themselves signs for spoken words). "This means that written language consists of a system of signs that designate the sounds and words of spoken language, which in turn are signs for real entities and relations. Gradually this intermediate link, spoken language, disappears and written language is converted into a system of signs that directly symbolize the entities and relations between them" (p.106). In this way, in Vygotskyian terms, the process of learning to write involves mastering the representation of meanings generated in inner speech to the external mode of written speech and, in his view.
this takes place through a transitional use of spoken language. And even though the contexts for the L1 and the L2 learner vary, spoken language offers the most viable bridge to developing literacy.

Mayer and Wells (1996, p.103) developed a model which presented bridging strategies available to L2 learners of English, which would hold true for those who are literate in their L1 even in situations in which the first and second language have very different orthographies, and which would be consistent with the model of linguistic interdependence proposed by Cummins (1989, 1991). In this model the move from inner speech in L1 to writing in English can be accomplished via two bridges - through learning the spoken mode of the target language, and through the similarities, whatever they may be, between the written modes of the L1 and English, including the ways in which the written mode represents the spoken mode in each of the two languages.

In creating texts, deaf writers must reconstruct the meanings of inner speech in the external form of the L2 written script - just as other L1 and L2 writers do. But the difference is that deaf learners do not have access, by virtue of their deafness and the nature of a signed L1, to the same bridges to literacy that are available to hearing L1 or L2 learners. Most profoundly deaf individuals, even with the use of amplification, do not have the auditory potential to master the spoken form of English to the degree of fluency which would be necessary if it were to function as a scaffold in the process of learning to write. And while ASL functions perfectly well as an L1, in the sense that it is a most viable language for communication and the development of inner speech, it does not as yet have a widely accepted written form. Deaf students cannot acquire literacy skills in their first language to transfer to
the written form of a second, spoken language. In this way, the routes to literacy which are available to hearing L1 and L2 learners are not available for deaf learners as a result of the "double discontinuity" of mode and language (Mayer & Wells, p.103).

In view of this double discontinuity, it becomes paramount to search for other bridges that might support the development of English literacy for the deaf learner. Possibilities which have been mooted include the use of English based signs (Akamatsu & Stewart, 1998), invented sign systems (Leutke-Stahlman, 1990), glossing (Neuroth-Gimbrone, 1992; Singleton et al., 1998), and fingerspelling (Padden, 1998). The implication is that, given access to appropriate "bridges" and learning conditions, deaf children are capable of developing the ability to read and write with a degree of fluency comparable to their hearing peers.

**Writing as Mediated Action**

To talk of bridges to literacy is compatible with a conceptualization of learning to write as a process of employing and manipulating a set of mediational means or cultural tools to engage in activity directed at a "problem space" (Engestrom, 1996, p.67). Locating a notion of "bridges" in the framework of the mediational triangle, is really another way of saying that writing and learning to write (the object of the action) is effected by subjects (L1 or L2 and hearing and deaf writers) via a particular set of mediational tools or means, and thus represents an instance of tool-mediated action.

Chief among the mediating artifacts involved in this action is linguistic proficiency in the target language to be written, with this proficiency being derived primarily from continued and increasing facility in the spoken mode. When Kress (1996) poses the question, "Are the
grammatical resources of the grammar of speech apt and suitable for the expression of the conceptual and textual meaning which a writer wishes to construct?" (p.234), he responds in the affirmative, arguing that they are the most apt, the best available resources in the process of the making of the new grammatical sign of the sentence. This spoken language proficiency plays a vital role as tool for all writers, regardless of age or background, as it serves as the monitor for generating text which conforms to the linguistic patterns of standard English. In rereading what they have written, writers will often make revisions to text based on whether it “sounds right”. Novice or low proficiency L2 language learners lack this monitor and it could be argued that some of their revising difficulties arise from the fact that they don’t have the intuitive spoken language knowledge of what “sounds right”.

Clearly writers call upon mediational tools other than spoken language as they go about the business of creating a text, and the nature of the tools at any writer’s disposal will change over time and from situation to situation. That being said, there are some fundamental aspects to text production that must be routinized before the writing itself can become the object of attention. In addition to some level of everyday knowledge of the language to be written, writers must readily be able to “get the marks down” on the page via some material means, have some understanding of the system for representing the face to face language in print, and possess basic knowledge of the written genres which serve as vehicles for communication. A level of automaticity is required in these fundamental aspects of writing before attention can be freed up for the more complex aspects of text production such as composing, and revising and editing for clarity of meaning.

Beginning L1 writers have the advantage of native fluency in the spoken form of the
language to mediate the construction of a stream of text that satisfies the basic linguistic requirements of written text, but are constrained to some extent by the fact that the physical act of encoding is unfamiliar, and their knowledge of written genres and print forms is still limited. Conversely, L2 writers who are already literate in L1, have mastered the physical aspects of the encoding process and have developed strong notions of text structures and genre forms, but they do not have everyday knowledge of the language to be written as they are only novice users of its spoken form. For native L1 speakers learning to write, linguistic regulation is internalized and can remain so in this critical aspect of the text creation process to which L2 writers must pay cognitive attention. Thus while both beginning L1 and L2 writers need to devote much of their cognitive attention to the more basic aspects of the writing process, the focus of attention for these two groups differs as it is different aspects of this process which have not yet become operationalized.

While some aspects of writing must become operationalized if any level of fluency is to be developed, it would be hard to imagine that writing itself would ever become routinized in the same fashion that walking and other such operations are. Certain dimensions of the writing process will always require some level of conscious attention, even though a level of automaticity in other aspects is necessary if writing is to realistically function as a mediating tool in human activity. Developing this level of facility in the use of writing as tool is contingent on first being able to employ other sets of mediational tools to mediate or bridge the process of learning to write.

But to consider “bridges” or mediational means becomes problematic as an approach if it does not simultaneously take into account the relationships that exist between mediational
means, subject and object, and balancing notions of all three in the analysis. Any substantive
discussion of bridging and mediation requires thinking of activity as a complex, constantly
emerging interplay between the affordances of available tools, both material and conceptual.
the intelligent utilization and adaptation of these tools in participation, the object(s) on which
they are brought to bear, and the goal(s) to which participants are diversely orienting (Wells,
1995). And as an individual writer goes about creating a written text in L1 or L2, it is also
necessary to take into account the larger social context, which shapes and structures the nature
of the cognitive activity by providing the sources for certain kinds of linguistic input, and by
demanding certain sorts of linguistic output.

In attempting to account for this larger social structure, it is expedient to refer again to
Engestrom’s expanded triangle (see Figure 3), since the nature of the mediational means and
how they are employed will be affected by the nature and structure of the community, its
rules, and the division of labour therein, and isolated actions must always be understood in light
of the ongoing cultural activities in which they are located. A consideration of these three aspects
illuminates the underlying conditions and the forces of production, which gives rise to the cultural
tools employed in the activity in which the mediated action occurs.

In thinking about writing and learning to write, the relations between writer and
community are mediated on the one hand by the full complement of the community’s mediating
artifacts, and on the other by the rules and norms that specify and define the expected correct
procedures and product (Cole & Engestrom, 1993, p. 7). This set of rules or norms would in all
likelihood include the mediational tools considered most appropriate for the task of writing, and
would to some extent define how the control of their use is distributed among and sanctioned by
the community members who are regularly involved in the system of actions which constitute the activity of writing (Wells, 1996a, p.76). In thinking about the single writer engaged in the process of text production, one cannot overlook cultural effects (community, rules and division of labour) as each writer experiences the world differently. "These cultural effects are not deterministic but are part of a dialectic in which individual characteristics interact with cultural characteristics to influence writing" (Bracewell & Witte, 1997, p.1).

To develop a theoretical picture of writers, writing, and the written text, it is most productive to investigate the logical and explanatory chain from overall activity to moment-to-moment action, while at the same time looking at how people actually deploy resources for making meaning, and how they engage selectively in meaningful actions as part of larger agendas and activities (see Lenke, 1999, who makes this argument for science education). Adopting the activity system as the unit of analysis (which by definition connects the psychological, the cultural and the institutional perspectives) focusses attention on the interactions between the individual, the systems of artifacts and other individuals in constantly evolving institutional settings. It demands an account that recognizes how mediation and mediational means are tied to both sociocultural setting and mental functioning. And in turn, this account can serve as the mediating theoretical construct that allows for relating sociocultural setting to mental functioning in a principled way (Wertsch, 1989, p. 156).

And to take the argument further, cultural historical activity theory (CHAT) has the conceptual and methodological potential to be a pathbreaker in studies that help individuals gain control over their own artifacts and thus over their futures (Engestrom, 1991, p.12) as "the artifact is to cultural evolution what the gene is to biological evolution" (Wartofsky, 1979, p.205).
"These cultural semiotic systems serve the role of cultural genes, providing each individual with the experience of the past generations" (Stetsenko & Arievitch, 1997, p.161), allowing learners to appropriate mediating tools and means from the accumulated knowledge of the culture in regulating their own behaviour. This notion of cultural mediation, when applied to the activity of writing, allows for a consideration of how the cognitive tools used by individual writers are suffused with the achievements of prior generations. It affords the possibility for thinking about how what writers are doing “in the moment” is shaped in large measure by what has been done and transmitted from prior generations. The experience of writing and learning to write does not occur in a vacuum, and any investigation in this area must consider the ways in which writers draw on sources outside themselves to mediate the text creation process (Dewey, 1938).

This description of a research framework, with a focus on the activity setting and the tools in use, serves to capture the essence of the sort of multi-layered inquiries which Cole (1996), Wertsch (1998) and others encourage in investigating aspects of human activity. And presenting such a textured inquiry is the goal to which I aspire in my own considerations of writing, the written text and the deaf writer which will be presented in this thesis. To this end, in the following chapter, I will consider the unique and particular situation and challenges facing the deaf student writer, relating these to the broader issues of activity theory which have been presented in the discussion to this point.
Chapter Two

The Language Learning Situation of the Deaf Student Writer

"In an educationally and developmentally focussed approach to the issues of writing and the learning of writing, a social and cultural theory of representation is an essential context. It provides the possibility of an understanding of the actions of children in their engagement with the conventionally saturated system of representation of writing, and, at the same time, a possibility of understanding the crucial characteristics of the challenges which they face in doing so" (Kress, 1996, p.225). The argument I will make here is that the challenges faced by the deaf student writer are not only equal to, but greater than those faced by most hearing children, and a better understanding of these challenges is a necessary prerequisite for rethinking the frameworks for literacy curricula and pedagogical approaches in the literacy education of deaf children.

Marschark and Harris (1996) suggest that among deaf children the single most difficult academic hurdle to be overcome is learning to read (p.279), and they convincingly argue that in some domains the difficulties faced by deaf children are of the same type as those experienced by hearing children, while in other domains the challenges are unique to the deaf reader. I would agree with Marschark and Harris, and claim that in learning to write there are also domains in which the difficulties faced by deaf writers match those faced by hearing children, and that there are other aspects in which the challenges are specific to deaf learners.

But I would further suggest that if reading is a challenge, writing presents an even greater one since, in writing, an external representation of meaning is required which demands
an awareness and a knowledge of the language to be written that is not as necessary when making the internal representation of meaning which defines the act of reading. As Moores (1987) suggests, "the problems deaf children face in mastering written English skills are more formidable than those they face in learning to read" (p. 281) since, in reading, deaf people can resort to compensatory strategies to understand messages when grammar and vocabulary skills are limited, but this is not only more difficult to do in the case of writing, and little is understood about what form a "compensatory approach" to writing might take.

In some ways the challenges of learning to write are similar for deaf and hearing writers. By definition written language lacks the auditory features and visual-gestural aspects of face to face discourse, and in the composing process all writers struggle to capture both the propositional content and the illocutionary force of the spoken or signed word in the written text (Olson, 1977, 1993). In written discourse, communication occurs in the absence of a physically present interlocutor, demanding a sense of audience, a precision of expression and an expansion and elaboration of thought not necessary in face to face communication (Halliday, 1989). These are some of the reasons why learning to write is not a simple, straightforward matter for any child, and as Kress (1982) remarks, "Considering how painlessly children learn to talk, the difficulties they face in learning to write are quite pronounced. Indeed, some children never learn to write at all, and many fall far short of full proficiency in the task" (p.ix).

In considering what makes writing and learning to write especially difficult for deaf children, it is the language learning situation of the deaf writer that must be taken into account. Deaf children typically do not come to the activity of learning to write with the same
set of experiences that we can assume of hearing children. A hearing child, although not yet a writer, is already a fluent user of the oral form of the language which they will be encoding in print. In contrast, deaf children are not fluent users and receivers of the language that is to be written, and thus it is not overstating the case to say that these children are attempting to write a language which they don't know. To understand how it is that these children come to the enterprise of learning to write with this decided disadvantage, it is necessary to consider in more detail the nature of the life experiences which shape the language learning situation of the deaf writer.

The Life World of the Deaf Student Writer

The Umwelt of any being is the world as it is experienced by that being, which is determined in part by biological endowments and in part by experiences. Thus the Umwelt is far more than an environment, but rather it is the reframing and structuring of that environment according to the particular characteristics, needs and experiences of any individual being. Thus individual and Umwelt are inseparable and it would make no sense to consider the person apart from the world in which he or she exists, and to gain some sense of any cognitive process, it behoves us to gain some understanding of this personal world and the multitude of other worlds to which this world is linked (Cunningham & Clark, 1998, p.28).

By definition, the deaf child has a hearing loss, and clearly this physical characteristic will impact on the nature of the deaf child’s engagement with the environment into which he or she is born. In addition, the great majority of deaf children are born to hearing parents who most often have no expectation that the child who is born to them will be deaf. Therefore the environment in which these children find themselves is usually structured on the assumption
that the individuals who will be participating in it can hear. But the deaf child must make sense of this "hearing" environment as a person who does not have the biological capacity to hear in the same way as most others do, and this creates what could be called a Deaf Umwelt. It is through a consideration of this Deaf Umwelt that we can begin to account for the singular situation of the deaf student writer.

"Any physical handicap - be it blindness or deafness - not only alters the child's relationship with the world, but above all affects interactions with people. Any organic defect is realized as a social abnormality in behaviour. It is understandable, of course, that blindness and deafness in and of themselves are biological factors and by no means social factors. However, the educator must deal not so much with these factors themselves, as much as with their social consequences" (Vygotsky, 1983a, p.102). This is because the Umwelt, as Vygotsky argued in a related fashion (1983b), is not only determined by biology and physical characteristics but by cultural and social features as well. The process of appropriation of cultural tools begins at birth in the interactions between children and their home environments, and changes as a constituent part of a child's overall bio-social-cultural development, and this ontogenetic process is conditioned by the particular culture and historical era in which a child lives (Cole & Engestrom, 1993). It is not the child's deafness alone that creates the Deaf Umwelt but rather it is a result of the fact that the development of a system of reciprocal interaction between deaf child and environment is constrained, given the particular nature of the child, the context (both micro and macro), and the mediational means available.

The hearing world makes face to face linguistic meaning through a range of arbitrary signs which, while they include visual-gestural aspects, are primarily auditory-oral in nature.
This system for making meaning is not fully accessible to the deaf child and thus the opportunity for contingently responsive interactions with others is limited. This impacts significantly on the child’s cognitive and linguistic development as it is primarily through dialogue and discourse that the Umwelt is constructed. And the nature of this Umwelt will, in turn, shape the course and nature of the teaching and learning experiences yet to come.

But once a child’s deafness has been identified, the nature of the surrounding environment begins to change. With the introduction of alternate or augmented avenues of communication - sign language, amplification systems and cued speech among others, the child is afforded the opportunity to interact with their world through a new set of signs/artifacts for the purposes of individual and social meaning making. In this way the nature of the deaf child’s Umwelt changes in that the child can now mediate action and interactions, and construct meaning in new ways. In this way the semio-Umwelt (Lemke, 1999) of the deaf child is defined not only negatively by the hearing loss, but also positively by the semiotic signs and artifacts which are available to the deaf child by virtue of the nature of the activities and networks in which the child participates. It is the nature of this Deaf Umwelt and semio-Umwelt that defines and shapes the ways in which deaf children come to the activity of writing.

When hearing children come to the challenge of acquiring written language, they are required to voluntarily and consciously expend effort to do what had previously been done unconsciously and effortlessly when learning to speak. In making this effort they rely heavily on their experience of “living a hearing Umwelt” to accomplish this task, as it is this Umwelt which offers up the sources of the mediational resources upon which they will draw to support
them in learning to write. It can be convincingly argued that the key and most critical mediational resource of this Hearing Umwelt is spoken language (Vygotsky, 1978; Wells, 1986) and it is this resource that hearing children call upon when they come to represent meaning in the new mode of written text.

Beginning writers, as Vygotsky (1978) argued, first come to understand written language through spoken language - a path that is eventually curtailed but one that serves a key role as an intermediate link (p.118). Hearing children begin to attack the problem of learning to write by using a strategy of verbalizing their thoughts piecemeal, and then attempting to literally write down what they say. Graves (1983) provides vignettes of students like Dana, who as a six year old engaged in the writing process, used speech often and for a broad range of functions such as “sounding out letters, saying words before they were written and after writing them, rereading, and making procedural statements and comments to other children” (p.163).

Because hearing children have already acquired the grammatical and textual rules of spoken language, they rely and draw on these as they first learn to write. As Kroll (1981) argues, this dominant relationship between speaking and writing changes as one develops as a writer, and it is this developmental factor which has particular relevance for the teaching of writing. He proposes a model with four principal relationships: separate, consolidated, differentiated and integrated, and he claims that it is in the second, consolidation phase that “a child’s written utterances rely heavily on his or her spoken language repertoire. In this way writing and speaking are relatively integrated, and writing is very nearly talk written down” (p.39). Kress (1994) also points out that, “children’s early writing shows many of the features
of the grammar of speech, or features that would derive from the child’s knowledge of speaking” (p.36).

Writers Making Use of What is “To Hand”

Having ready access to the tool of spoken language, which is most expedient for mediating the activity of learning to write, is part and parcel of being a hearing learner. Heidegger (1962) deemed such tools as Zuhandenheit (ready-to-hand), arguing that these are resources which are readily available to sustain activities, and that in day to day use they do not normally demand conscious awareness. This would be compatible with Leontiev’s notion of operations, as he saw these as specific, routinized, available means to carry out actions (see Kochman, Kuutti & Hickman, 1998 for a detailed discussion of this point). This notion forms the foundation for Kress’ central claim (1996; 1997) that, in undertaking any meaning making activity, individuals put to use whatever is to hand.

Kress argues that children come to the activity of writing as experienced makers of meaning through a wide variety of semiotic means, and that viewing how children make use of what is already available is the most productive vantage point from which to consider semiotic activity. As children call upon the tools that are already to hand, they are essentially transforming previously produced signs into new ones.

The learning of writing proceeds in that fashion: employing the strategy of using the most apt available form of expression for a particular meaning - in making motivated signs - children use such representational means as they have available for making that meaning. This allows us to see children’s signs as arising from their interest in using what they have as available representational means, and as therefore fully meaningful
in every sense; and to understand children's actions as being productive/transformative of their own representational resources (p. 233).

The resources that the hearing child brings to this task are those of the language of speech, and even though hearing children may not come with equal resources in spoken language, with some children having much more experience than others with the speech genres which serve as a platform for producing written text, it would be extremely unusual to find a hearing child who does not have spoken language "to hand" as they face the challenge of learning to write. But deaf children do not come to writing with the resources of spoken language, and as such these representational tools can be deemed Unzuhandenheit or unready-to-hand (Dreyfuss, 1991). This would lead one to predict that for deaf children there would be a breakdown in the process of learning to write, as the primary tool used by hearing writers is not to hand for deaf learners.

Deaf children come to writing having a different set of representational means available to them, as the semio-Umwelt for the signing deaf child is much more closely tied to the visual and gestural than to the auditory and oral. The linguistic resource of sign language is often the primary means of linguistic representation for the deaf child coming to writing, and it is this resource that the deaf child calls upon when faced with the problem of re-presenting meaning in print. The difficulty is that this semiotic resource is less efficient as a tool in learning to write, since natural sign languages have their own vocabularies, morphologies and syntaxes, which do not match those of spoken or written language.

When deaf children come to write, it is not the auditory-oral system of signs designating the sounds, words and sequential order of spoken language which they are
attempting to commit to paper, but rather it is the visual/gestural system of manual signs which they are trying to capture in print. Whereas the hearing learner is first able to generate a sentence in speech, segment this sentence into words and then represent these words in print using the matching conventional print symbols of the language, the deaf learner follows a different path. If he/she generates an utterance in sign, this utterance must first be converted into English, before it can be segmented into words as “phonological” units and then represented in print using whatever combination of visual and auditory strategies that the learner has available. And to add to the difficulty, the deaf writer has no first language written model to use as a reference point when creating a text in L2, since despite efforts to create an orthography for ASL (Stokoe, 1960; Sperling, 1978), there is not yet a widely accepted conventional written form.

However, the signed messages which are readily produced by deaf learners do not convert easily and directly into English. At the phonological level there is no sound-symbol relationship to draw upon to assist the child in attempting to map signs to print. This creates an encoding challenge as writers must represent signed words in conventional spelling without the full benefit of the phoneme-grapheme correspondences which assist the hearing learner.

At the morphological level, in both ASL and English, the meaning units consist of free and bound morphemes. For hearing children, both of these are directly represented in the phonological-graphical mappings between speech and written text. But for deaf children attempting to encode ASL morphemes in English print, it is often only at the lexical level (free morpheme) that there is a one-to-one match between sign and print. For the bound morphemes, which in ASL are often not marked through distinct and separate signs but
through modulations in the manner or presentation of the base sign, there is not a clear map on
to English text.

At the syntactic level the differences are even more profound. A fundamental aspect of
spoken language is that one thing has to be said after another if the utterance is to make any
sense, since in English the semantic relationships between the participants in a sentence are
represented through word order or through the addition of prepositions to noun phrases. This
organizational logic is realized in fundamentally the same manner in spoken and written
English and this correspondence supports the beginning writer in his or her early efforts, often
with the result that their early texts look very much like speech written down. In ASL,
semantic relationships are only partially captured through the order in which signs are
presented, and even though ASL is essentially an SVO language and is in this way sequential,
it is able, to a much greater extent than English, to present meanings simultaneously. This is
achieved through shifting the spatial locations in which signs are made, through directionality
and through the use of deictic gestures. Consequently the order of sign presentation in ASL
and word order in written English are not parallel, thus making it more difficult for deaf
children to encode their face to face language in print.

The advantage that hearing children have when they come to the challenge of writing is
that they have "to hand" the tool of spoken language. This tool is "not to hand" for deaf
children and the sign language tool they do have "to hand" is not as effective as spoken
language for mediating the activity. Knowledge of spoken English affords the hearing child
commonsensical knowledge of the language to be written that anchors and makes possible the
subsequent development of the ability to communicate through writing. In contrast, the deaf
child does not possess this commonsensical knowledge of English and this clearly presents a challenge to learning to write that hearing children do not face. In this way these two groups of learners differ - their semio-Umwelts simply do not offer up the same sets of meaning making resources for undertaking the challenge of a new activity.

**The Particular Challenges Facing the Deaf Writer**

Learning to write, as was said at the outset, presents a set of challenges for all learners (see Mayer & Wells, 1996, for a detailed discussion of this point). and no learner develops the ability to write in the same unconscious and effortless manner in which they learned to speak or sign. As evidence of this, consider the efforts and attention that our educational institutions devote to addressing this goal. In this sense, “learning to write is learning to write”. and the activity presents a similar set of problems to all potential writers; thus the challenge of learning to write is essentially the same for deaf and hearing writers. But while the challenge of the activity may be seen as similar for all, the development of literacy can be limited by the cognitive resources of the individual mind.

For hearing learners beginning to write, the automatic and unconscious use of speech is brought into consciousness, and children come to understand that a spoken utterance is a unit of language that can be systematically reproduced in writing. For deaf learners, bringing the automatic and unconscious use of sign into consciousness does not offer up a linguistic utterance that corresponds to written text. Thus even though both sets of learners are becoming aware that their linguistic signs can become “objects” of reflection, this reflection does not yield the same set of cognitive, mediational advantages for these two sets of learners - at least as far as they pertain to meeting the challenge of learning to write. In this way, learning to
write can be seen to present challenges that are specific and unique to the deaf learner.

It would be reasonable to argue that the cognitive resources with which any learner comes to writing will shape the path of future literacy development. For instance, even though hearing children generally come to writing with fluency in spoken language, there will still be qualitative differences amongst these writers as they engage with text, success being related to factors such as "familiarity with a broad range of narrative text types, both oral and written, rich internalized representations of the distinctive features of these text types, interest and confidence in experimenting with diverse text productions, and sociolinguistic insights into the kinds of texts that are valued in particular school concerns" (Hemphill & Snow, 1996, p.195).

There would be no reason to expect that these aforementioned factors would not also play a role in the deaf writer’s engagement with text. But irrespective of these influences, deaf writers face the more fundamental challenge of lacking knowledge of the language to be written as they are not able to rely on knowledge of language in its primary spoken form to support them in the development of literacy. As Paul and Quigley (1987) point out, most deaf students cannot express their thoughts in English in either speech or sign and thus have not developed an internal representation of English, and therefore it is highly unlikely that they will be able to express themselves adequately in writing.

By definition, writing produces a text, and one avenue for considering the nature of the literacy path taken would be to consider the nature of the written product. An examination of the research which has investigated the written productions of deaf learners reveals that deaf writers do struggle with producing texts that conform to the rules of standard English (for reviews see Kretschmer & Kretschmer, 1978, 1985; Quigley & Paul, 1984; Moores, 1987;
Paul & Quigley, 1990; Bench, 1992; Marschark, 1993; Paul, 1994, 1998a). The most obvious characteristics of deaf children’s writing, particularly as contrasted with the writing of hearing children, include: relatively meager vocabularies; a poor grasp of English syntax, with word order often deviating from standard English; shorter, less structurally variable and often incomplete sentences; an over reliance on SVO word order; the addition of unnecessary words, omission of needed words and substitution of wrong words for correct ones; problems with verb inflections and function words such as determiners; and the idiosyncratic use of English known as “deafisms”. The following passages are illustrative of these features:

*Guess what I spoke with my boyfriend Julius last night. He is very exciting to move here New York maybe around first week of February. Now is time close wow. It making me little nervous and exciting too. My family tease me when Julius arrive here, you can’t go out other dates. I don’t know what to do ha ha. Of course I am continue to date with deaf guys. But I don’t know when Julius get here. That big difference situation.*

(Text written by a college aged deaf student - Livingstone, 1997, p.122)

*My Encounter with the Headless*

*On day I walk to my girlfriend’s house for party. I was so dizzy because I went to party. Whe finish my girlfriend’s house for party. I walk hall and saw the witch. So the witch are follow me. I so scary. And I give bomb and witch eat it. So 3 sec. the witch start bomb your head.

*Now it was your head.*

(Text written by a deaf student at the junior level in elementary school - Haydon, 1996, p.176)
In sum, the studies of the written language of deaf students, focussing on an examination of product, indicate that "relative deficits in vocabulary, syntax and relational discourse processing result in deaf childrens' written production appearing concrete, repetitive and structurally simplistic relative to both the written production of hearing peers and their own signed productions" (Marschark, 1993, p.226). In recently reported research, Yoshinaga-Itano, Snyder and Mayberry (1996) explored the relationship between semantics and syntax in the written texts of deaf student writers aged ten through fourteen years, and concluded that "while deaf or hard-of-hearing students produced quantities of overall units of meaning similar to their normally hearing peers, they were severely delayed in developing syntax skills that help them communicate ideas" (p.31). To these researchers, it appeared that deaf writers were unable to use syntax appropriately as a vehicle for communicating semantics. But despite these difficulties, deaf writers, such as the students who will be considered in this study, do find ways of producing written texts in some version of English, although often after a much longer learning trajectory and as a result of a much more concentrated effort on the part of both the teachers and the learners.

Investigating the Writing Process

A related body of research has considered the process of text creation by young deaf writers with a focus on writing as a communicative enterprise which employs planning, composing and revising (Graves, 1983), and which stresses a balance between the conveying of meaning and the correctness of form. These studies have generally investigated how modifying the instructional model and revising the pedagogical emphasis can affect changes in students' written work (Truax, 1985; Livingston, 1989; Harrison, Simpson & Stuart, 1991; Neuroth-
Gimbrone & Logiodice, 1992; Ewoldt, 1993). The premise was that rethinking the nature of the pedagogy in the deaf classroom would help to ameliorate the difficulties that were in evidence in the written products of deaf learners. These pedagogical modifications had their roots in the principles of whole language teaching and in the notion that if written language was seen as personally relevant and meaningful, knowledge of vocabulary, syntax and stylistic conventions would follow as a result of engaging with text (see Edelsky, Altwerger & Flores, 1991).

There is evidence that exposing deaf writers to programmes which put a higher value and emphasis on writing for communication and conveying meaning did make positive differences in the ways in which deaf children viewed writing and in the nature of the content of their written texts. “They tried to impart information, even if they were not always able to write with grammatical and syntactical correctness and they seemed to enjoy writing” (Heiling, 1995, p.412). But although in these respects gains were made, deaf children were generally still not matching the fluency and flexibility typical of hearing writers, and there were still important qualitative differences between the two groups. In a recent, longitudinal study which used a writing rubric as a teaching strategy to improve the quality of the writing done by deaf students in the fifth and seventh grades, Schirmer, Bailey and Fitzgerald (1999) found that use of the rubric significantly improved performance in four areas - topic, content, story development, and organization. However there was no improvement in the areas of text structure, voice/audience, word choice, sentence structures, and mechanics. These findings are consistent with Heiling’s observations that aspects of form seem resistant to improvement even when students write for meaning and with purpose.
An area of investigation that has received far less attention is a consideration, not of writing as process as conceptualized in whole language programmes, but of the processes in which the individual composer engages while writing. The generative process of text production is concerned with making linguistic decisions in order to create texts that will make semantic and pragmatic sense. It is important to note that adopting “a text-production perspective is a dynamic one, while that of text analysis, is synoptic. A dynamic perspective on meaning is one which enters into the flow of events and asks what is the meaning of an utterance as it occurs and what meaning attaches to how and when it is occurring. Synoptic perspectives, on the other hand, step back outside the flow of events and examine meanings retrospectively” (Lemke, 1991, p. 25). Taking an alternate perspective introduces into the “theory of linguistic meaning-making a notion of a dynamic system: one which would describe the options available for a next clause at some particular moment of text production” (ibid, p.26).

Since the act of writing produces an external manifestation of thought in the tangible product of a written text, it is this product which is most easily accessible for examination and analysis and so it readily becomes the basis upon which conclusions are drawn and opinions are formed. This synoptic perspective has been most typical in the field of deaf education research, and the written products of deaf learners have probably been studied more than any other aspect of their language and literacy development (Webster, 1986). Writing, as opposed to reading or signing, can be seen as easier to study in that the marks on the page “stay still” and can thus become an object for examination and consideration. Typically most investigations of the written language development of deaf children are descriptive accounts.
both quantitative and qualitative, of the written texts that deaf children produce.

Although considerations of texts can be revealing and useful in better understanding the nature of the deaf writer, investigating the process of how these products have “come to be” would be equally revealing, and it could be argued that this would be especially so in situations (as is the case for the deaf writer), where the texts produced are generally viewed as linguistically unacceptable. Therefore it would seem important that investigations of the written language development of deaf children should focus not only on product, but also on the concomitant composing processes which underlie the creation of this product.

In one of the few studies in the field which has considered this issue, Kelly (1988) investigated the grammatical decision making of deaf college student writers. In attempting to shed some light on the cognitive juggling (Flower & Hayes, 1980) that defines the writing process, he questioned whether deaf learners are disadvantaged because they pay an inordinate amount of attention to English correctness in their decision making about text, or whether their errors were derived from nonstandard language intuitions with minimal concern for correctness. By measuring the pause times of these deaf writers while they were engaged in the writing process, he concluded that their use of nonstandard forms did not result from conscious, erroneous decision making, but rather that these writers were less attentive and spent less time focusing on grammatical concerns during composing than has been found for hearing writers. This was found to be the case even in the revising phase of the writing process when less cognitive attention needs to be taken up with content generation. Kelly accounts for his findings by speculating that deaf writers may simply be unable to identify grammatical errors, and therefore they are unaware of what revisions might be necessary. He dubbed this “relative
automaticity without mastery”.

But insights into the composing processes of deaf writers remain limited particularly as they pertain to the younger deaf writer, and gaining a better understanding of what it is that these learners do as they are engaged in the writing process offers a most productive and fruitful avenue for further study, since such understanding could help illuminate how deaf children deal with the challenges of text production. In coming back to the issue of the unique language learning situation of the deaf writer: What are the compensatory strategies deaf writers employ given that they do not have full knowledge of the language they are writing? What are the composing processes that students engage in as they attempt to shape meaning at the point of utterance (Krashen, 1977; Britton, 1978)? What are the cognitive resources or tools “to hand” that deaf writers call upon as they come to the challenge of the blank page?

**Employing Retrospective Accounts as a Data Collection Technique**

“In any investigation of a complex internal process, we must externalize that process to allow experimentation; we must connect it to some form of external activity. This permits an objective functional analysis based on observable external aspects of the internal process” (Vygotsky, 1987, p.258). Since writing is essentially a mental activity and thus unobservable, the writer must be engaged in talk about the text that would externalize the internal mental process to shed light on the strategies that a writer is using as he or she is engaged in the process of text creation (Wells & Chang-Wells, 1992, p.31) and in this enterprise, a material text can serve as a reference point for this discussion and reflection (Wells, 1996b).

Concurrent or retrospective oral accounts of thought processes have long been a mainstay of psychological investigations of problem solving activities such as writing, and
within this tradition, protocol analysis is seen as a systematic means for analysing these verbal accounts. From an information processing (IP) perspective (see Smagorinsky 1998), these protocols would be construed as "revealing in remarkable detail what information [people] are attending to while performing their tasks, and by revealing this information, providing an orderly picture of the exact way in which the tasks are being performed, the strategies employed, the inferences drawn from the information, and the accessing of memory by recognition" (Ericsson & Simon, 1993, p.220). However the use of composing protocols as an investigative technique has been criticized (Johnson, 1992) in that cognitive operations may not be represented adequately, and thus may be discounted as a source of veridical data. "The complexity of the writing process, the tendency toward performance, the social interactions of interviewing, loss of accuracy because of the delay between process and report, inferences made by the writer rather than the researcher, the possibility of describing processes by methods other than remembering" (Tomlinson, 1984, p.442), are all factors which encourage the interpretation rather than the reporting of writing experiences.

But the case in support of protocol analysis has been made comprehensively and effectively by Ericsson and Simon (1993), and they contend that this data collection technique can "guarantee a close correspondence between the verbal protocol and the actual processes used to perform the task" (p.xv). They go on to further argue (Ericsson & Simon, 1998) that verbalizations of thought should be seen as qualitatively different depending on the nature of the prompt that elicits the verbalization. If participants are asked to "think aloud", their sequences of thought have not been found to be altered as a result of the verbalization process. But if participants are asked to describe or explain their thought processes their performance is
frequently altered and often the quality of the written text improves. They admit that even though verbal reports may not always reflect thinking with complete accuracy, both concurrent and retrospective verbalizations do present authentic educational opportunities to make students' reasoning more transparent, coherent and reflective (p.183).

Scardamalia and Bereiter (1983), veterans of this form of investigation, contend that this sort of shared inquiry, between participant and researcher, leads continually to new insights and is instrumental in increasing understanding of the composing process. To undertake research on the nature of the composing process, Bereiter and Scardamalia (1987) outline six levels of inquiry: reflective inquiry, empirical variable testing, text analysis, process description, theory embedded experimentation, and simulation (p.34). The fourth, process description, is described as "a search for pattern and lawfulness in the writer's thoughts while composing which can bring the investigator into more immediate touch with the composing process" (p.41). Data collection techniques used at this level of inquiry include think aloud protocols, clinical experimental interviews, retrospective accounts and videotape recordings. As Bereiter and Scardamalia caution, these techniques do not offer a direct insight into mental processes and should not be taken as presenting a picture of the composing process that is quantifiable as true or false, rather they provide data which, when considered along with other data and factors, can aid in "constructing a picture of the inferred process" (p.43). Thus as students consider their own activity, these protocols reveal what they do as writers, how they do it and why they believe they have done something in a particular way, and in this way they can shed light on the nature of an individual's writing process.

Since Janet Emig's (1971) seminal work in this area, process-oriented studies have
become the focus of much research into the nature of writing (Flower and Hayes, 1980; 1981; for a review see Humes, 1983). In the area of second language research, think aloud protocols, verbal reports and introspective and retrospective accounts have all been used to investigate the composing process (Zamel, 1983; 1987; Raimes, 1985; Lauer & Asher, 1988; Cumming, 1989; Hudelson, 1989; Flower, Stein, Ackerman, Kantz, McCormick & Peck, 1990). But within the realm of research in the field of deaf education, this line of inquiry has not been pursued and to date I am unaware of any studies which utilize any form of verbal reporting as a technique to investigate the composing processes of deaf writers. Yet there is no reason to expect that deaf students would have any less to offer than other writers who have participated in this form of investigation. This would seem to be a worthwhile avenue to pursue in addressing the questions that prompted the writing of this thesis.

In making the case for the use of verbal reporting as a data collection tool, Smagorinsky (1998) argues for adopting a cultural-historical activity theory (CHAT) perspective rather than an IP perspective, basing his argument on the work of Vygotsky (1987), Wertsch (1981) and Cole (1996). From this vantage point, verbal reports are construed as social tools of data collection and analysis in that, as cognitive tools themselves, they mediate the act of writing and thinking. They are not seen as providing the necessary evidence to paint a cognitive picture, but rather as the means to gain insight into how cognition develops. As such, the problem solving data collected from individual writers in particular contexts can be viewed as "situated practice" and is not necessarily generalizable to other situations.

This perspective is consistent with my own as it foregrounds "understanding the means through which cognition develops, in terms of both cultural history and the individuals which
are situated in specific, although usually overlapping, social, cultural, and historical contexts” (Smagorinsky, p. 163). In this way it shines the research light on a consideration of the cognitive, cultural tools which particular writers are employing as mediational means while engaged in the writing process. And it is in a fuller understanding of the nature of these tools and how they are being taken up, that a more complete picture of the composing processes of the deaf writer may be developed. Taking this dynamic view of text production necessitates including information about the context of the situation and the culture, in that composing a text necessitates a mediation between the demand to create a conventionally acceptable semiotic product for some purpose and the array of semiotic tools available for accomplishing the task. Through verbal reports a dynamic relationship is created between writer and interviewer, which makes it possible to gain insights into how writers go about mediating the activity of writing. This can be particularly revealing when working with writers whose texts appear flawed or unconventional (as is the case with deaf learners), since it often becomes apparent that rational decisions lie behind seemingly illogical choices.

In addition, this allows one to think about the writing process in terms of the language learning situation of the deaf writer, which is shaped in large measure by the semiotic resources of the deaf learner's semio-Umwelt. It allows for a rethinking of the challenges faced by the deaf writer as not residing solely “in the head” but as flowing from the constraints of the social reality in which the writing occurs. And since it is within this sociocultural context that the sources for potential meaning making exist, it allows for a consideration of the meaning making tools which are to hand (Zuhandenheit), as well as those which are not (Unzuhandenheit), as the deaf learner goes about the business of writing and learning to write.
It allows for the development of a point of view in which students are seen to come to the classroom with their own theories and quite adequate representations of their everyday lifeworlds (the Deaf Umwelt). Thus the students are seen as coming to writing, not with an empty state of mind, but with clear and far-reaching expectations of how they might engage with the activity, and these expectations, while often inadequate for the challenge of the activity, are not "wrong" when considered against the background of the lifeworld in which the learner functions (see Wertsch & Penuel, 1996; Nemirovsky, 1999 for related arguments).

"The current challenge for those of us who study writing and its development is to integrate social, material, and cultural factors that bear on the writing, with cognitive factors that underlie planning, writing, and revising text. In particular, we need to understand how these factors exert their influence on individual acts of writing" (Bracewell & Witte, 1997, p.1). "Such considerations lead to the unavoidable conclusion that in order to give an account of culturally mediated thinking, it is necessary to include in one's analysis not only the specification of the artifact through which the behaviour is mediated, but the circumstances in which the thinking occurs" (Cole, 1999). The inquiry reported in this thesis will attempt to take up these challenges and address these concerns in giving an account of how young deaf writers come to and negotiate the process of text production.
Writing and learning to write are complex, cognitive activities. Any investigation and consideration of these activities would require not a single interpretive method, but would necessitate a thick description of not only the act of writing, but the phenomena that surround it. Painting a picture that attempts to take into account myriad aspects of not only agent but activity setting, has the potential to provide a mirror for all participants (learners, teachers and researchers) to consider their actions in relation to the context in which they occur. In this way the potential exists to develop and rethink theory, and ideally to have this rethinking enter into a reconsideration of practice.

A thick narrative description, in contrast to a leaner set of quantitative measures or test scores, often leaves us with a tangle of data that can be difficult to synthesize, but it does offer a richness of possibilities that other forms of investigation cannot equal. Any narrative captures the unfolding of events in time, is shaped by the benefits of hindsight, and is informed by an understanding, achieved in retrospect, of the larger social and historical contexts in which people acted when they themselves necessarily lacked this awareness (Packer, 1991). “In the grammar of narratives we can identify and describe states and events that appear in the lifeworld; how we interlink and sequentially organize, into complex unities, members’ interactions in social spaces and historical times; how we explain the actions of individuals and the events that befall them, the acts of collectivities and the fates they meet with, from the perspective of managing situations. In adopting the narrative form, we are choosing a
perspective that 'grammatically' forces us to base our descriptions on an everyday concept of a
lifeworld as a cognitive reference system” (Habermas, 1989, p. 136). In this way a thick
description allows for the inevitable variations in cultural context, in situations from moment
to moment, and in individual resources, stances and perceptions, to be taken into account. For
these reasons, a thick description seems to be the most apt investigative vehicle with which to
consider the composing processes of the deaf student writer when the stated goal is to consider
not only the act of writing but how it is shaped by the activity setting in which it occurs.

It must be noted that a thick description is not meant to present an account that is
generalizable or quantifiable as right or wrong, but rather one that is interpretive and reflective
and which serves to shed some light on complex issues and concerns. “Where generalization is
the goal, nontreatment groups and large numbers of subjects are required to meet positivist
assumptions of designs that incorporate inferential statistical analyses” (Miller et al., 1998,
p. 391), while in interpretivist studies, generalization is not a goal, as these constraints would
be so costly and irrelevant, and their implementation would require so many resources, that
the completion and quality of such projects would be put at risk. This being said, what are the
criteria for a thick description that has merit: one that, while not generalizable, can be seen as
illuminating and interpretive rather than as simply anecdotal?

Methodological Considerations

Bazerman (1988), in discussing the shaping of written knowledge, argues for an account in
which the recognition and description of phenomena becomes more reliable and meaningful
given the greater number and variety of occasions that arise for noting or invoking them, and
then going further by looking for these same phenomena in a range of other like, related
situations. He further suggests that this does not lead to absolute claims about the way things are but leads to "robustly reliable claims" about how we can "treat things as being" in increasing ranges of activities.

To develop such a robust description of the composing processes of the deaf student writers with whom I was working necessitated taking an holistic approach to the inquiry. Such an investigative stance is consistent with Cole's (1998) call for a research agenda, and a consideration of educational practice, which adopts the activity system as the unit of analysis, to think about diverse learners and classrooms constituted of children from many population groups (p.294). To this end, the telling of the inquiry presented here will seek: to provide as detailed a picture as possible of the immediate classroom and school setting in which the data were collected, to paint a portrait of the life stories of the individual deaf writers who participated in the inquiry, to describe the process of text creation, and to consider the written products of this endeavour. In this way I hope to come to understand "what is", since as Gallas (1998) notes, "I cannot orchestrate what ought to be when I do not understand what is" (p.140).

I come to the challenge of describing "what is" with the decided advantage of being a participant in the activity setting to be described. While acknowledging that this stance will influence not only my "way of knowing" but also "the nature of my telling", I would contend that my unique, insider perspective and intimate understanding of the setting contribute in a positive way to providing a full, thick description, and to an interpretation of the data which should have a resonance for other practitioners in the field.

Being a teacher-resource consultant in the school in which the inquiry was conducted
allowed me to gather data in real life classroom situations over time. This allowed for myriad and multiple opportunities for investigating the process of text production and for collecting writing samples. I was able to work, not only with the teachers, but with the children as co-investigators. In this way, teachers and students became genuine partners in the inquiry, and whenever I had the opportunity to chat with a student or a teacher, I gained new insights as a result of our shared inquiry (see Scardamalia & Bereiter, 1983). This positioning as participant in the community allowed me access, not to the formal snapshot of a research setting that is made available to outsiders, but to the day-to-day ebb and flow of the life of the school. As part of the social fabric of this community for almost twenty years, I had first hand, uncensored knowledge of how things were, how they changed, and how the perspectives of the members of this community were often in conflict - my own included. I could consider my investigation against the background of a context which I “knew”. As a staff member, I had unfettered access to aspects of the setting (memos, policies, meetings and discussions) that would not normally be a part of the data set made available to “outside” investigators. And the teachers who worked with me were colleagues, as well as coparticipants in the research, and this allowed us to adopt a more relaxed, informal attitude to the data collection, being flexible as to the timing and length of the occasions on which data was collected.

I also shared a history with the student participants, all of whom I had known for their entire school careers - which had often begun as early as three or four years of age. These young people and their families were well known to me and this made it easier for me to develop a fuller sense of their Umwelt, both in and out of the school setting. The tangible information that I was able to glean from files and reports (audiograms, etiology, reading
scores, report cards) was always supplemented by my own experiences with the individual students, and interpreted through the lens of actually “knowing” the learners about whom I was reading.

But while this knowledge provided a rich background for my inquiry, I also required multiple sources for data collection to develop the thick description necessary to address my stated goals, as they related more specifically to the process and the product of the activity of writing. In order to consider the backgrounds, attitudes and dispositions with which the learners “came to” the challenge of writing, informal interviews and inventories were done which served to supplement the information that was pulled from written reports and files (see Appendix A for examples).

To appraise the nature of the written products, and to establish a sense of each student’s facility as a writer, cumulative portfolios of written language samples were kept. These samples were collected from a wide variety of writing experiences and tasks and would be judged by the teachers and the students themselves as fair representations of each writer’s composing ability. These texts were available for quantitative and qualitative analyses, which allowed for making judgements about the relative proficiency of individual writers (see Appendix B).

And to specifically investigate the process of text production, two forms of verbal reporting were employed - prompted recall interviews and retrospective accounts. The more common approach in studying the processes of L1 and L2 writers is the use of “composing aloud” or “think aloud” protocols, in which transcripts of writing sessions are made in which students are video or audio tape recorded as they provide verbal reports of every thought that
comes to mind as they are engaged in producing text (Flower & Hayes, 1981a). This is seen as providing insights into what these learners are doing and thinking as they are engaged in the process of text creation since the reporting and the writing are happening concurrently. For the obvious reason that deaf children cannot write and sign at the same time, it is not possible to employ this particular elicitation technique, as described. Instead, a version of this strategy, the prompted recall interview, was employed (see Pianko, 1979; Matsumashi, 1979; Jones, 1980; Hawkins, 1985).

Students would be videotaped while they wrote, without any demand that they verbalize their thoughts “aloud”. Immediately following the writing session, the student in concert with the teacher, would re-view and reflect on what was captured on the videotape “probing for information concerning what went on in their heads at crucial points during the writing process” (Freedman, Pringle & Yalden, 1983, p.5). The adult would provide prompts for the students' thinking by stopping the tape at critical moments, such as when they paused for a considerable length of time, made a revision or shifted their gaze, and by then asking the students to describe what they were doing and what they were thinking at that moment. This signed exchange between student and teacher was also videotaped for further study and analysis. This prompted recall interview, conducted immediately after the writing task and accompanied by videotaped cues to memory, is seen as the technique most likely to elicit the most accurate retrospective description (Tomlinson, 1984).

The transcriptions of these prompted recall interviews were considered in conjunction with the texts that were the products of these writing episodes. And the comments made in relation to the creation of the text were juxtaposed with the lines of written text to which the
comments referred (see Appendix C). The examples presented in the Appendix are illustrative of those collected throughout the inquiry but were specifically selected because they provide particularly clear examples of the range of composing strategies that these four writers used within the scope of one interview episode. For the purposes of accuracy, these transcriptions were reviewed by both the teacher/researcher and the school interpreter, and sometimes by the students themselves. This juxtaposition of what was written, with the attendant comments as to how it had come to be written in that way, served to highlight the strategies the students were using in their writing process, and offered a means for developing rather than testing knowledge about the writing process (Penrose & Sitko, 1993).

In addition to interviews which were prompted by the reviewing of a videotape, students were on other occasions asked, immediately upon completing a piece of writing, to describe and explain what they did as they wrote and why. The immediacy and the contextual specificity of this “talk about text” elicited accounts which were specific, rather than general, as they focussed attention on the newly created text with the benefit of little time having elapsed and with the material text to hand, to prompt their reflections (see Appendix D). As these writers constructed representations of what they thought they had done and how they had dealt with the composing challenges they had faced, an avenue was available for better understanding the text production process from the deaf writer’s point of view. These conversations about text also allowed the teacher to note the aspects of text production to which the writer was attending, to come to see what might be making the task difficult, and to speculate as to ways in which the interaction between text and author might be more effectively mediated.
The Context for the Inquiry

This inquiry was conducted at an inner city, multi-ethnic elementary school for deaf children which houses classes from preschool through Grade 8, serving children from three to fourteen years of age. This is a publicly funded day school, which has a population of approximately 75 deaf students, and it shares a large building with a Kindergarten to Grade 6, public elementary school. A large number of students in both schools come from homes in which English is not the first language, and many of these families are dealing with the socio-economic issues of relocating in a new country. At this school for the deaf, white, native-born Canadians would be in the minority, but there is no one other cultural group that is the majority. This school is home to children from around the world - Somalia, Russia, Sri Lanka, India, China, Hong Kong, Korea, Vietnam, Jamaica, and Slovakia - and as one visitor remarked, the school has the feel of the United Nations. In meeting and communicating with parents, it is often necessary to call upon interpreters and an effort is made to provide written translations of reports, education plans and the most critical memos and messages. Most recently the school language policy was translated into Chinese, Vietnamese, Tamil, Somali and Urdu.

As is typical at most schools for deaf children, the majority of parents at this school are hearing. But less typically, many of these parents do not speak English as their first language, and even when they do develop some fluency in English, it would not be the natural language of communication in the home. Thus the life experiences of many students at the school includes exposure to, and the use of, three languages: the home language, English and sign language. This same multifacetedness applies to the issue of culture, as these children have to make sense of, not only the differences between the majority culture and the cultures of their
home, but of the differences between the deaf and hearing cultures as well.

However, despite growing up in multilingual and multicultural contexts, many of these children could be deemed to be lacking any complete L1 at school entry, since often the oral languages to which they are exposed are not fully accessible, and no systematized form of sign language has been presented. These students are typical of many deaf children, who begin school with a bimodal language base comprised of gestures, a few signs and some spoken words (Leutke-Stahlman, 1982). English (or some other spoken language) is not a true L1 for most of these learners as they do not achieve anything approaching age-appropriate competency in oral language, but neither is there early exposure to any form of sign language for the purpose of developing L1. Thus the “language” challenge for many deaf children entering the school described in this inquiry includes not only learning to read and to write, but developing a language for face to face communication as well.

The school has adopted a bilingual language policy in which both contact sign (as defined in detail by Lucas and Valli, 1992; Bragg & Olson, 1994) and American Sign Language (ASL) are used as languages of instruction and communication (see Appendix E). Contact sign is a language which results from the naturally occurring contact between American Sign Language (ASL) and English in the North American context. It is a viable avenue for communication and it is regularly used by deaf people when they are communicating with hearing people, but it is also used when deaf people are communicating with each other. There is some debate as to whether contact sign is a language in its own right, a register of ASL, a pidgin or a creole, but it is not correct to categorize it as either reduced English or reduced ASL.
Contact sign features continuous mouthing, with or without voice, and a grammatical structure that combines elements of English and ASL. At the lexical level, it generally uses ASL or ASL-like signs and not the signs from invented manual English systems. At the morphological level, it incorporates both English grammar (fingerspelled inflectional and derivational morphemes such as “ing” and “ness”), ASL grammar (marking verb inflections through repetition and continuous motion as in “is walking”, or through location and movement as in “came up to”), or a combination of the two (“double marking” negation by using the sign in conjunction with the head shake). At the syntactic level, it almost always follows English word order, allowing for the simultaneous mouthing/voicing which is a predominant feature of contact sign. Within this SVO syntactic framework, ASL structures such as setting up of topics “in space”, directionality, eye gaze, and indexing pronouns are also used to structure meaning.

The language policy was developed by a committee comprised of parents (both deaf and hearing), teachers and educational assistants (both deaf and hearing), the school psychologist, and the principal, over the course of two years and as a result of more than fifteen meetings and presentations by invited speakers. The goals were to review and revise the language policy of the school as the current policy had been in place since 1984, and more specifically to consider the role that ASL would play as a language of instruction and communication, and in the development of English literacy. In reviewing the numerous pages of minutes as well as the written feedback from various committee members, it became apparent that the path to the development of a revised policy was not a smooth one. Some of the concerns expressed at the outset included: agreeing on what was meant by culture,
bilingual education, and English based signing; weighing the efficacy and considering the research of various approaches to the development of language and literacy; developing ways to increase the sign language fluency of parents and staff; clarifying the role of speech and speechreading in the curriculum; and making decisions about the use of group and personal amplification systems.

As a member of the committee, I was witness to the fact that the meetings always generated lively debate and the discussions could often become tense, as the issues raised touched on personally relevant and culturally sensitive ground. Before a policy was finally agreed upon, more than one committee member withdrew as they found the process too frustrating and felt personally silenced by the process as issues of “deaf versus hearing” took centre stage. Others became increasingly dissatisfied with the direction in which the committee was moving, and one deaf parent, after agreeing to help present the new policy to the staff, withdrew at the last minute. In a note to the committee she wrote: “I am struggling with the policy that we have developed and with other parts of the committee’s work and this has affected my decision to present.”

The major point of disagreement centred on notions of the respective roles that ASL and naturally based English sign systems (contact sign) would play as languages of communication and instruction in the classroom and in the school. The communication policy states that naturally based English sign would be used as the primary language of instruction in the classroom, and that ASL would be the language of communication throughout the school. When the committee voted on each of the individual nine points of the policy, there was almost unanimous support for all items, except for the two which had to do with the use of
ASL and contact sign. Opinion on these two issues was split evenly among the committee members, and the following comments, taken from written feedback to the committee and from minutes of the meetings are representative of the depth of feeling that the discussion on these two points engendered:

"Putting ASL out of the classroom and into the halls and playground only repeats history…. Contact sign - it is broken ASL/broken English. It may have a role in translating concepts from ASL to English print, but not as the language of instruction in the classroom. It would be equivalent to using a creole to teach English. It is convenient for hearing (English) adult learners of ASL, but not appropriate when attempting to create a bilingual learning environment" (Written feedback from a Deaf parent of two Deaf children, September 1996).

"I think we understood that ASL has a very critical role to play in the child’s ability to think and solve problems. From my common sense point of view, if I want to learn any language I need to be able to repeat it and rehearse it and practise many, many times. I think we know that to be true. So through print alone - I think that’s the most difficult way for children to be able to internalize and transfer the rules of any language. When we talk about a manually coded English, I think that this would give the children - while it’s invented and maybe not invented, because it is a contact language, I understand, between deaf and hearing people anyway - would give the children the ability to rehearse and practice the language so much more. Then they would probably internalize some of these language structures that we want them to use and understand in print” (Principal’s comments taken from the minutes of a meeting, December 1994).
“Acquiring ASL literacy is an important for developing English literacy. ASL be used to provide a bridge to written English and reading” (Written feedback from a Deaf educational assistant, February, 1996).

“ASL should be the natural language of communication and interaction for all levels in subjects…. Use a natural form of English sign for grammar teaching of reading/writing/spelling skills” (Written feedback from a Deaf educational assistant, March 1996).

“No culture seems to use a written language without also using its signed or spoken form. This relates to our discussion since the Bi/Bi model advocates using a written language - English - which is totally separate from the signed language - ASL.” (Comments from a hearing parent taken from the minutes of a meeting, June 1994).

Now my question is …don’t you agree with Jewish language, don’t you agree with French language, don’t you agree with Italian language? If you agree with all languages but then why don’t you agree with ASL? What wrong with ASL… I want to understand? And what are you looking for? To look for evidence or fact? What about English or other languages like Jewish, French, others - do they have evidence or fact? ……. Did you look for faults or negatives in French, Jewish and others? Or did you look for another better language to teach students French, Jewish or others? ….. ASL is a beautiful language, too. Did you see us? Deaf people trying hard to learn English? It is hard for us to learn English for years but we are willing to
learn and still learning. We are in a huge hearing world that we can’t avoid. We have to face the hard way ...... So, I am wondering is ASL bothering you? Too hard for you to learn? Are you afraid? What wrong with ASL which has already linguistic? ......So, how will we teach them better English if we don’t use ASL?” (Written feedback from a Deaf educational assistant. April 1995).

“What I am saying is that to learn to write the second language, the “bridge” from your brain to your writing is your talking or your signing or whatever it is. I’m not arguing obviously for spoken English - that’s not viable. To me, that’s old news. But I am wondering, given that this issue of transference , as you said, is really nebulous - whether some form of coded English or MCE or contact sign or something can help as a support to provide the bridge from this (demonstrates signing in ASL) to written English. It puts English syntax out there for the eyes” (My own comments taken from the minutes of a meeting, December 1994).

The following exchange is illustrative of the level of emotion that can colour discussions about language in the field of deaf education with the “talk” surrounding this school’s language policy being shaped by the life experiences of the committee members and reflecting the tensions which are endemic to the larger discourse in the field. This exchange occurred when it was suggested by a hearing parent that the name of the committee be changed from the “ASL Committee” to the “Home and School Languages Committee” in order to more accurately reflect the fact that we were considering languages other than ASL in our discussions. After much discussion, it was finally agreed to call the committee the “Home and School ASL and
DCM (deaf committee member): Why change the name? I do not feel that you are listening to how we deaf feel.

HCM (hearing committee member): Are you talking about the committee name or our general discussion or both?

DCM: Both.

HCM: It seemed we were looking at ASL without looking at our programme. We have agreed to use ASL but we are not getting to the point of how to use it. It is obvious that we could have lots of ASL without addressing how to improve reading and writing.

DCM: Why change the name [of the committee] to “languages”?

P (principal): The question still is “what is the role of ASL”? It [the original name of the committee] did not imply that ASL would become the only language of instruction. We wanted to investigate possibilities. ASL can be the base language sometimes but the intervention language at other times. The focus is on learning English.

HCM: Any time we talk about English, it is hearing people oppressing deaf people! English is not my heritage language either.

DCM: We can discuss that at the next meeting.

P: We should make decisions as a democracy. I hope we can all agree and carry on.

After the committee had finished its work, the revised policy was presented to the school staff and the same issues which had plagued the committee in its discussions were
mirrored in the reactions of the staff to the proposed changes. There was not unanimous agreement as to the theoretical and pedagogical rationale underpinning the policy, and its implementation met resistance, with some staff members being quite vocal about their concerns with the proposed model. The following comments, extracted from the written feedback provided by the staff, are indicative of the range of responses the policy engendered.

"Does this mean ASL is just a social language? What message does this give our Deaf children?" (From a hearing teacher).

"Can you please elaborate on the statement about when ASL is to be used? Should we be switching to ASL in the staff room and the lunch room?" (From a hearing teacher).

Statement 4 [ASL is the language of communication throughout the school] is a bit strong. While things are fine now, in future years some people might use this statement to demand that ASL only be used. Staff members who are trying their best to use ASL could be vulnerable to criticism.... I suggest the following instead: ASL is the primary language of communication throughout the school. Including the word "primary" still means ASL is the most important communication language at the school, but also allows for some flexibility and tolerance when we all follow the policy (From a deaf teacher).

"Will this [naturally based English sign or contact sign] be more clearly explained to the staff?" (From a hearing teacher).
"I think if I could sit through X's presentation, listening to her emphasizing the importance of English over ASL in the development of literacy in Deaf children, then I think that the staff here could try to attend some Deaf presentations...... I often leave these presentations filled with ideas that I wished I could share and expand with some other staff, but I am often ignored or told there is no documented proof that ASL does help deaf children achieve English skills, to the point where I don't feel comfortable sharing my views with others who strongly believe in using Language Contact in education, which if I may point out has not been proved to work in achieving literacy in Deaf children” (From a deaf teacher).

The issues, concerns and tension evident in the immediate context of this school setting mirror those of the broader field of deaf education. The comments made by various members of this school community provide instances of individuals ventriloquating (Bahktin, 1986) the rhetoric that defines the discourse of the wider research and teaching community in the field of deaf education. The typical tenor of current writing in the field is a questioning and rethinking of current paradigms and practices (Livingston, 1997; Grushkin, 1998; Mayer & Akamatsu, 1999), always against the background of issues of Deaf, Hard of Hearing and Hearing cultures, with feelings of oppression and marginalization on all "sides", and the lack of a body of “evidence” that any one approach to the problem of developing higher levels of English literacy is most efficacious (Paul 1998a; 1998b).

While the tone of the field is often discordant, there does exist a certain sense of harmony in that there is general agreement as to one of the overarching motives for educational activity - the development and improvement of the reading and writing abilities of
deaf children so that they can accrue the personal, social, and economic benefits of literacy. enhancing their opportunities for fuller participation in both the hearing and deaf communities. In these ways the school context in which this inquiry was conducted is a microcosm of the field “at large”, and affords a research setting that, while unique in some respects, is representative of the settings in which many hearing and deaf teachers and learners participate.

In terms of the pedagogical concerns beyond “languages of instruction and communication”, the staff, and more particularly the teachers with whom I worked, shared a pedagogical commitment to develop learning environments which were inquiry oriented and dedicated to the co-construction of knowledge. The language and literacy programmes of the three classroom teachers who participated in this inquiry were similar in that they attempted to create environments which: actively involved the learners in meaningful experiences in order to generate purposeful language use, and encouraged and provided opportunities for a wide variety of language use. While developing precision in comprehension and expression were seen as important aspects of the programme, these were not to become the focus of attention at the expense of the student’s motivation, initiative and desire to make meaning from their experiences. But the teachers often reported that they struggled, in both the teaching of English and other subject areas, to maintain a balance between focussing on meaning and concentrating on form as their deaf students seemed to have so much difficulty with the latter.

The three teachers involved in this inquiry were all hearing, and although not native, they were fluent signers with one even being a graduate of an interpreter preparation programme. They were able to communicate easily and readily with their students and ran classrooms which were highly interactive and communicative, in addition to being well
planned and managed. Two students reported that they liked their teacher because "he is strict and fun too". It was also usual for each of these teachers to have an educational assistant working with them at least part time in the classroom. Most of these assistants were deaf and this helped to create classroom environments which allowed the children to interact with both deaf and hearing adults on a regular basis.

The students also participated twice weekly in ASL classes, in an ASL lunch hour club and in a monthly Friday afternoon ASL Lit Hour, all of which were taught by a Gallaudet University graduate who is a native deaf signer of deaf parents. As well, the students participated in oral communication classes twice a week, in which the various components of speechreading, speech, and auditory training were emphasized as important aspects of communication and language, with individual goals being based on the auditory/oral potential of each learner and varying as necessary. While as a general principle, the school recognizes the potential benefits of amplification for the development of communication, language and literacy, decisions as to the specific use of hearing aids for individual learners were made on the basis of reports from the educational audiologist and discussions with the teacher, parent and student.

**Identifying the Student Participants**

Jane, Alan, Alexandra and Mark, the four deaf students who worked with me throughout this inquiry, were identified and asked to participate on the basis of a number of criteria which had been determined as a result of a pilot study which preceded the undertaking of this study.

(i) Participants needed to be able to engage in fluent face to face communication in either ASL, contact sign or both.
(ii) The students had to be able to write texts of a length and quality which would indicate that transcription did not interfere with composition to the extent that, as writers, they were unable to say what they meant. To meet this criteria participants’ texts could not be rated any lower than the Survival (2) category on a holistic scoring scale (adapted from Moores et al., 1987; see Musselman & Szanto, 1998) which highlights the balance between considerations of conveying meaning and the use of appropriate form.

As further evidence that these students, at least relative to their deaf age counterparts, had a strong enough foundation in English to support them as they engaged in the writing process, see the reading comprehension scores and percentile ranks presented in Table 1. The grade equivalents presented in the table may appear low when considered against the age of the student - if one uses hearing students as a reference point. But it must be remembered that typically deaf students graduate from secondary school with a Grade 4 reading level, and that the entrance requirement for Gallaudet University, the largest postsecondary institution for deaf students in North America, is a Grade 6 reading level as measured by the Stanford Achievement Test normed for the Hearing Impaired (SATHI). Given that the students participating in this inquiry are still in elementary school and have already surpassed or are nearing the Grade 4 benchmark, and that the percentile ranks indicate that they are in the top ranks of deaf readers of the same age, it is reasonable to suggest that they have sufficient knowledge of English to expect that they will be able to engage in the writing process with at least some measure of success.
Table 1. Overview of reading comprehension scores based on the Stanford Achievement Test 8th edition, norms for the Hearing Impaired (SATHI).

<table>
<thead>
<tr>
<th>Student</th>
<th>Age at Testing</th>
<th>Test Given</th>
<th>Grade Equivalent</th>
<th>Percentile rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jane</td>
<td>13 yrs.</td>
<td>SATHI: Advanced 1</td>
<td>5.7</td>
<td>90th</td>
</tr>
<tr>
<td>Alan</td>
<td>13 yrs.</td>
<td>SATHI: Advanced 1</td>
<td>4.5</td>
<td>80th</td>
</tr>
<tr>
<td>Alexandra</td>
<td>11 yrs.</td>
<td>SATHI: Intermediate 2</td>
<td>3.8</td>
<td>84th</td>
</tr>
<tr>
<td>Mark</td>
<td>11 yrs.</td>
<td>SATHI: Intermediate 2</td>
<td>3.9</td>
<td>85th</td>
</tr>
</tbody>
</table>

(iii) The participants should not have any other additional identified conditions, such as cognitive or developmental disabilities, which would make the data collection techniques difficult to employ. But socio-economic factors, age of identification, nature of the hearing loss, and language of the home were not reasons for excluding a student from participating.

Once the four students had been identified, their parents were contacted to apprise them of the nature of the study and to obtain consent to have their children participate. A letter of explanation and a request for informed consent were sent to each set of parents (see Appendix F). All of the parents contacted gave written permission to have their children become involved in the inquiry, and it was also clearly explained to the students themselves that they
were participating in a research project. Parents and students were also informed that, in any written reports or discussion of the research, participants' names would be deleted and replaced with pseudonyms. In addition, any identifying features in the texts written by the students were removed. Parents were also told that copies of the completed thesis would be made available to them, and during the course of the study some of the parents asked for informal updates and expressed an interest in how the inquiry was proceeding. Parents were also made aware of an article (Mayer, 1999) which was based on preliminary findings from the thesis study.

In addition to the formal ethical review required by the university as an aspect of the thesis process, the school board, in which this school was located, also dictated that a formal review process be completed before they would allow research to be conducted in one of their school settings. This involved completing an application form to conduct research, providing a written description of the study, and submitting all letters of informed consent to a review panel of the school board before formal permission would be given to conduct the inquiry. This process also included getting signed permission from the area superintendent and from the principal of the participating school.

Portraits of the Participants

Jane

Jane is an engaging, serious 13 year old, Grade 8 student who is often described as mature and responsible by the adults who know her. She has a prelingual, profound bilateral hearing loss and uses her hearing aids consistently. With amplification Jane receives mostly suprasegmental information, and although she cannot discriminate any speech sounds, her
hearing does act as an aid to speechreading. Jane’s speech is unintelligible except to trained or familiar listeners, but the school speech teacher reports that Jane has well developed sight-sound-symbol relationships and is an excellent speechreader. Even in situations in which the information “on the lips” is unclear, she can make educated guesses about what has been said based on her understanding of linguistic patterns in English, and on her ability to relate what has been said to the current topic of conversation to determine if it makes sense.

Jane can sign fluently in both contact sign and ASL, and her ability to communicate in ASL is rated as excellent by the school’s ASL teacher. She can codeswitch readily and appropriately and is equally comfortable using either avenue for communication. When using contact sign Jane almost always uses consistent mouthing and/or voice. As evidence of her fluency in ASL and her strong abilities as a communicator, Jane was asked to represent the school at a regional “oratorical” competition at which she gave a four minute presentation in ASL on the topic of “My Vision of Tomorrow’s World.”

Jane has hearing parents who were born in Barbados and their first language is English. Although they acknowledge the value of sign language in her education, Jane’s parents do not sign well and emphasize the use of oral language at home. Jane reports that she communicates very effectively and naturally with them through a combination of speech, writing and some signs.

Jane expresses an extremely positive attitude to both reading and writing and she sees these as very important things for deaf people to learn. In a written survey on reading Jane wrote that, "I feel like...I want to go anywhere like the books does. Remember I told you about Fear Street...I like to visit there." In reference to writing she indicated that she likes to
write in her diary and to create stories, and she "likes to have friends and teachers read her writing." When her class discussed their concern that Canadian Airlines did not caption the in-flight "safety" videotape to make it accessible for deaf passengers, Jane took the initiative and wrote a letter on behalf of the group. She is clearly a student who sees writing as a powerful tool for communication and for access to the larger hearing community. Based on both standardized, formal reading tests and informal reading inventories and assessments, it was determined that Jane was working at the fifth to sixth grade level.

Alan

Alan is an active, creative thirteen year old student in Grade 8 who often calls himself "a crazy guy". He has a prelingual, profound hearing loss, is not a user of either personal or group amplification, and his parents report that audiologists have determined that amplification provides him no appreciable benefit. Alan rarely vocalizes and he has no intelligible speech, but according to the school speech teacher, he has an excellent sight-symbol relationship and has acquired the habit of mouthing linguistic structures both for rehearsal and to help the interlocutor understand the message. The speech teacher also reports that Alan has well developed speechreading skills, and in working with him, she puts considerable emphasis on making the relationships between spoken and written language explicit, reinforcing almost everything she says with print.

Alan communicates primarily through contact sign accompanied by mouthing, but the ASL teacher reports that his receptive and expressive use of ASL are appropriate. It is also worth noting that Alan makes extensive use of fingerspelling in his expressive communication particularly for incorporating new English vocabulary, expressions and idioms.
Alan has English-speaking, hearing parents who can both sign, but it is his mother who is the more fluent signer, having taken ASL courses at the interpreter level. Alan reports that he can communicate easily with his parents through a "mixture of ASL and English signs" and he understands them with "no problems". It is evident when speaking with Alan or his parents that the communication in the home covers a wide variety and range of topics, and is a natural and ongoing aspect of the family's life.

Alan expresses an extremely positive attitude to the learning of English and describes himself as an avid reader. As Alan remarks in a videotaped interview, "I am hooked on reading and many times at night I sneak my Archie books and read under the covers with a flashlight." In a survey, he wrote that "I always read by myself in my whole life and it makes me feel so more relaxing!" He does not see writing to be as pleasurable as reading, commenting that "I never write at home ever even not ever in my entire of rest of my life and besides it hurts my Damn hand!" Alan enjoys thinking and talking about English and his teacher wrote that "English idioms tend to entertain him and encourage him to write."

Based on both standardized, formal reading tests and informal reading inventories and evaluations, Alan was assessed at a fourth to fifth grade level.

Alexandra

Alexandra is a confident, determined eleven year old student in Grade 6 whose favourite expression is "I prefer". She is definitely a student who knows her own mind and questions the status quo (usually appropriately!) when she disagrees or has concerns. Alexandra has a profound, prelingual bilateral hearing loss and wears her hearing aids "when she feels like it". While both the educational audiologist and the speech teacher feel that she would accrue
benefits from using amplification, Alexandra is not motivated to use hearing aids as she believes they do not help her. The school speech teacher writes that, “Considering her age and ability, I respect her decision about the use of hearing aids, although I always ask if she has them on and encourage their use when I can.”

Alexandra communicates fluently in both ASL and contact sign, and her receptive and expressive use of ASL are rated as highly developed by the school’s ASL teacher. While she rarely uses voice in her face to face communication, Alexandra makes extensive use of mouthing when she uses contact sign and she is appropriately developing her ability to obtain information through speechreading.

Alexandra’s parents are hearing, native speakers of English and Canadian born. Alexandra has an older sister who is hard of hearing and in Grade 8 at the same school for the deaf which Alexandra attends. At home, she reports that she generally uses “English signs” and has no difficulties communicating with her family, but that it is easiest to chat with her mother and sister. Her mother laughingly reports that they communicate well enough that Alexandra can verbally challenge rules and authority at home.

In a written survey Alexandra expressed a fairly positive attitude to reading and writing but in her opinion reading is more difficult because “most time I don’t know what that words and must ask people. I don’t like that. Write is best.” She says she will read for pleasure “once in a while, if she is bored or restless.” Her favourite reading material is Teen Beat magazine, but she would like to try and read harder books like Fear Street by R.L. Stine. Alexandra is an avid writer and is known in the school for writing notes to teachers, to her parents and for keeping a journal. When there was discussion about her possibly moving to a
new school, she voiced her objections via a letter that she read herself at the review of placement meeting. Based on both standardized tests and informal assessments of reading, Alexandra was found to be working at a Grade 3 to 4 level.

Mark

Mark is an eleven year old student in Grade 6 who can sometimes be less than enthusiastic about some aspects of school, but he is very keen on math and computers. Mark has a prelingual, profound bilateral hearing loss and he is a very consistent user of both personal hearing aids and the school FM system. He can use speech naturally in his communication and has a positive attitude to using his voice even though it is not always completely intelligible to uninitiated listeners. The speech teacher writes that “he loves to learn new words and expressions, particularly those related to his special interests and those that he knows are used by his hearing peer group.... He understands the use of slang terms (such as Yep and Nope) and he loves to use these in appropriate situations.” Mark has strong abilities in speechreading and his sight-sound-symbol relationships are well developed. He is able to detect linguistic patterns in speechreading which are confusing as they appear similar on the lips, and he understands that based on his knowledge of English, he can make educated guesses as to their meaning. The speech teacher reports that Mark likes to make a game of speechreading in which he asks the teacher to mouthe words, phrases and sentences without voice, and he tries to guess what is being said without benefit of using his residual hearing.

Mark can communicate readily in both ASL and contact sign and the ASL teacher rates his abilities in this area as well developed. However she also notes that, although he participates readily in class and has a good understanding of the features of ASL, he needs to
develop a more positive attitude to his work in ASL. Mark’s contact sign is often accompanied by voice as well as by mouthing.

Mark comes from a home in which both parents are hearing, his mother being a Canadian, native speaker of English, and his father, a European-born, native user of Polish. His father is also a fluent speaker of English and this is the language of communication in the home. Although Mark’s parents have attended sign language classes at the school, neither of his parents are fluent users of ASL or contact sign. In a written survey Mark responded that he communicates easily at home using “English talk” and his father reports that Mark has become increasingly able to communicate orally with family members and friends. It is clear that Mark’s parents are very pleased and proud of his developing facility in this area.

In his responses during a reading interview, Mark did not express much enthusiasm for reading and writing and judged someone to be a good reader if they were reading a thick book. He knew that reading was important for high school and university, but he said that he thought it was boring and he did not read for pleasure, preferring to do homework, eat or play on the computer. If he does read he chooses Simpsons comic books or books from the Goosebumps series. Like Alexandra, he sees reading as more difficult than writing since “I know write because only a little bit hard because I learn how to writing. Read is too hard because of word I don’t know.” Based on standardized tests and other informal measures of reading, Mark was assessed at the third to fourth grade level.

Data Collection and Analysis

Data were collected, over the course of two years, not with the express purpose of showing growth or development over time, but rather to allow for the collection of data across a range
and variety of writing episodes, with minimal disruption to the ongoing flow of classroom life, and to provide sufficient time for the students and the researcher to become comfortable with the data collection technique. Despite having conducted a pilot study, it took some time to work out the logistical problems of videotaping the writing episodes and the subsequent signed interviews, and this contributed to slowing down the process in the beginning stages. It also became apparent that the prompted recall process would take more time than was originally anticipated, and it was not always easy to find sufficiently long blocks of time in the students' schedules to complete the interviews, keeping in mind that one of the goals of prompted recall interviews is that they take place immediately following the writing episode. To ameliorate some of these difficulties and to make the project more manageable, the focus at the outset was initially limited to Jane and Alan, with Alexandra and Mark being included later in the first year as the data collection process became smoother and more familiar for both the students and myself.

Data were gathered with the support of the classroom teachers and with the view that the students and teachers were co-investigators in this enterprise. As Jane wrote in the back of my school yearbook at the end of her last year at the school: "Wow! I never remember since when I was little girl and you was researched me .... I'm really like to see it. Thank you for make me felt great all through the years." Alan, in the same yearbook wrote, "Did you enjoy having me around for study for all years? I'm gonna miss ya!" In this way the inquiry ceased to be merely an exploration and a study of writing phenomena, but became, in itself, "a sort of active enterprise, a human practice, a social process in which co-acting participants strove to achieve common goals" (Stetsenko & Arievitch, 1997, p.165).
There was ongoing collection of the students' written work, with some of this writing being generated as a result of lessons and activities that were a part of the classroom programme, while other samples were produced incidentally as part of the student's life outside the classroom context. Unless otherwise indicated, the examples presented in this inquiry are uncorrected, and were produced with minimal or no assistance by the teacher. These samples provide a snapshot of the students' abilities as writers and give an indication of their current level of achievement.

As much as possible the prompted recall interviews and retrospective accounts were collected after writing episodes that occurred naturally as part of the regular program and in some respects the process of data collection became just another aspect of the students' language learning in the school. The teacher/researcher, accepted by the students as a co-participant rather than as a bystander, was able to observe how the learners tackled the writing task in a systematic way with minimal disruption to the normal rhythm of the school context. Consistent with the notion of an "instructional conversation" (Tharp & Gallimore, 1988), engaging in "talk about their texts" (with either a videotape or the material text itself serving as a point of reference for reflection), afforded an avenue for addressing the proximal goal of assisting and supporting the students as they worked to improve a particular piece of writing. And at the same time it provided a means for considering the more distal research goal of increasing understanding of the ways in which deaf student writers engage in the process of text production.

At the outset it was usually the teacher-researcher who stopped the videotape at critical moments such as when the writer paused or made a revision. The adult would then prompt the
student's reflections with comments like "You changed that word. Why?" or "I see you were fingerspelling. What for?" But over time the students became more comfortable with the process of the prompted recall interview and began to pause the videotape themselves while it was being viewed. They developed a heightened sense of their own cognitive processes and became more aware that they could reflect on their own behaviours. Jane would watch the videotapes of herself very intently and often asked to hold the remote control for the television so that she could stop the tape when she noticed something "interesting". Alan relished "thinking about his own thinking", and in one of his retrospective accounts he talks about the parts of his brain and how he "moves ideas from the back of his brain to the front so that he can access these ideas for writing". Alexandra was most interested in watching what she did while she was writing, being particularly surprised that she sometimes mouthed while she wrote. Mark was the least enthusiastic participant with respect to the prompted recall process and required the most encouragement to respond with more than a shrug or a response of "I don't know".

The transcripts of the prompted recall interviews and retrospective accounts were reviewed in an attempt to identify any patterns or consistencies between the reports of these four writers. Having been a co-participant in the interview process had already given me a general sense of the nature of the behaviours and strategies that the students were engaging in and reporting on, but to synthesize the unwieldy bulk of transcription data required a more systematic analysis. Each transcript was reviewed to identify all of the composing strategies that were either observed by the teacher-researcher and/or reported on by the student writer. The warrants for a claim that a particular strategy had been used were very straightforward,
the measure being that the behaviour or strategy had to have been directly observed or reported. As a result of this review, it became possible to group the composing behaviours and strategies of the writers into four general categories: fingerspelling, reading and writing, direct instruction, and mouthing and mouthing in conjunction with signing.

The summary in Table 2 presents an overview of the nature and frequency of the reported and observed behaviours and strategies of the four writers in this inquiry. The left-hand column indicates the names of the student participants, and the titles of the pieces of writing about which an interview was conducted. Across the top of the table are the four identified categories of composing strategies, with an additional column being added to account for miscellaneous comments such as “I don’t know” and “I just know how to do it”. The body of the table presents an account of the number of times a particular strategy/behaviour was observed or reported on during an interview about a particular piece of writing. To be given credit for having employed a particular behaviour or strategy necessitated that the transcript of the prompted recall interview or retrospective account indicate a direct and transparent warrant for the claim that the strategy had been used.

Fingerspelling was easy to identify as the students were observed to actually engage in this behaviour while they were in the process of writing. Some examples of words and phrases which were fingerspelled during the writing process included: "geremy for Germany", "manhandle", and "drives me crazy". Jane explained that fingerspelling helps her to know words and to get them down on paper. In attempting to spell the word "elementary", she commented that she knew it was wrong because it looked funny when she wrote it down. Then she fingerspelled it and remarked that she knew it was partly correct because she could
fingerspell "E-L-E-M". She didn't know the middle part because the fingerspelling was "messy" but she knew the last letter was "Y".

It was not possible to observe the writers recalling previous experiences with reading and writing to assist in text production, but rather the students would report that they had done so. Alan often reported that he knew an English word or expression because he had read it somewhere before and he made many specific references to what he had read in Archie comic books. He would often use the dialogue from these comics in his stories favouring phrases like "Hey!", "Humph!" and "Yikes". Alan also used exclamation marks quite liberally in his writing, often adding two or three exclamation points at the end of one sentence. This would also seem to indicate the influence of his comic book reading. However the influence of previously read text is not confined to comics and Alan, when asked how he knew to write the word "rather", said he knew it from a book he'd read in which a male character said, "I would rather eat over there".

Jane's reports were similar to Alan's in that she also commented that she remembered words from texts she had read. Jane is an especially avid user of the TTY - a special telephone device with a visual print display of the conversation which is used by deaf and hard of hearing individuals. In a prompted recall interview she explained that she borrowed TTY conventions such as using "three dots in row in her sentences" to signal to readers that she was thinking. Alexandra and Mark reported that they used certain words and knew how to spell them because they had seen them in print - garlic (garlic), soldier (soldier), and sniffed (sniffed). Adopting this strategy did not always result in a correct spelling, but it helped the students come close and allowed them to use a wider lexicon in their writing.
All four writers reported that they preferred to watch television programs with captions because then "they understand better", and that they learned new words from captions and used them in their writing. This was especially evident when the students were writing about a news item or a favourite program to which they had been previously exposed via some form of captioned media.

As in the case of recalling text, the influence of explicit instruction was not directly observable but was commented on by all four writers in this inquiry as they indicated that "remembering what their teachers told them" or "remembering a rule" helped them to figure out what to write. The students specifically mentioned that rules of grammar and punctuation are among the things they remembered being taught. Alan, when asked why he changed a verb, remarked "I learned the rule. I know that 'will' means future." Jane made a similar comment when asked how she knew to add the commas to a list of words in a sentence. Alexandra reported that she knew how to use quotation marks correctly because they had a lesson on this topic in her class and there was a chart on the wall in the classroom to help them remember. Mark gave a similar explanation when asked how he knew to add "ed" to indicate past tense, and to put capital letters at the beginning of sentences.

Jane also reported that direct instruction had helped her with aspects of text structure. When asked why she had moved a section of text, she explained that "ideas have to fit together in sections ... you know what I mean. I remember last year I learned about that - that ideas have to go together in writing." When asked how she had learned it, she laughed and told the teacher, "Remember you taught me! Remember when we did essay writing you told us about ideas going together - about the paragraphs".
Table 2. Overview of the nature and frequency of observed/reported composing strategies.

<table>
<thead>
<tr>
<th>Student</th>
<th>Fingerspelling</th>
<th>Reading/Writing</th>
<th>Direct Instruction</th>
<th>Mouthing or Mouthing with Signing</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jane: Discrimination</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>My Vision of Tomorrow's World</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Pandora</td>
<td>0</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Letter to a Friend</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Journal Entry</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Alan: Discrimination</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Letter to HIP</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Future People</td>
<td>0</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Journal Entry</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The Fox and the Goat</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Alexandra: Ghoul School</td>
<td>1</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Note about Me</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>My Diorama</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Journal Entry</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Mark: War</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Story Starter</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dance with J</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Journal Entry</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
With respect to the use of mouthing, and mouthing in conjunction with signing, the students were observed to engage in this behaviour either while composing, while rereading or revising the texts they had written, or while talking about their texts during the interview process. When videotapes of Alan were reviewed, he was often seen to mouthe as he wrote. When this was pointed out to him, he said that it was "weird", and he was surprised to see himself do this. When asked why he did this, he said, "You know I don't have the skill of voice but when I mouthe it helps me to know the words". He then enumerated a list of English words that he said he knew because he could mouthe them. This list included many proper nouns and words such as "comfortable", "assume", and "found". When discussing his written texts, Alan consistently used sign with simultaneous English mouthing, and his mouthing is so clear that when watching him on the videotapes it is often quite easy to speechread what he is saying.

Jane was often observed to reread text she had written as part of her writing process. While doing this, she would "tap" the eraser end of her pencil on each word in the sentences she was reading. When asked why she did this she said, "I'm reading what I wrote - like if I wrote it I already know it like...", and then her sentence trailed off and she began to sign the relevant sentences in English with continuous mouthing. When it was pointed out to her that she had signed English, she said, "Well for me signing (uses the ASL sign for "chat") then writing - it doesn't make sense to me - it's funny. If I understand ASL and I write ASL it doesn't connect. It's confusing."

Alexandra was also observed to mouthe while she wrote, but when asked, she was not sure why she did it, speculating that it helped her to think about the words. When she
composed “My Diorama”, Alexandra was seen to mouthe individual words such as “shell”, “have”, and “for”. Mark mouthed less frequently while composing, but he often accompanied his rereading and retelling with voice.

In rereading the texts they had written, all four students consistently used contact sign with mouthing, making an effort to account for each item in the written text in their signed presentation. This observation is consistent with the reports of the classroom teachers who noted that when reading their own texts or the texts of others, the students regularly made use of contact sign, matching the order of their signing to the words on the page.

To provide a clearer picture of the nature of the discourse which is captured in the transcripts, a portion of the interview provided in Appendix C is presented in greater detail below. While the transcripts themselves offer an English translation of the signed comments made by the students and thus provide insights into the nature of the composing strategies of these four writers, they do not do justice to the multi-modal nature of the students’ discourse and do not afford a sense of how signing, mouthing, and gesture are inter-related in the expressive, face to face language of these students, and how these can be considered in relation to the written texts.

In the following excerpt, the signed portion of Alan’s comments appear in upper case letters, the mouthed portion in bolded lower case, relevant gestures or behaviours appear in brackets and the English translation of what has been signed is noted in italics. To make the relationship between these modes easier to follow, each paragraph deals with only a four to five “word” signed sequence with the attendant mouthing and English translation appearing in the same paragraph in the lines below the signed utterance.
As well, to give some sense of how Alan mouthed and signed ""words"" simultaneously, some examples of this phenomenon are isolated and presented via photographs extracted from the videotape of the prompted recall interview. The photographs are situated in the text above the sign and/or mouthed word to which they refer. Since the ongoing stream of signed communication is by nature visual and three-dimensional, these photographic images are limited in their ability to represent the continuous, simultaneous movements of the hands and mouths of the student writers, but they do give the reader some impression of the nature of the communication strategies of these learners. The following sequence is one part of a response to the researcher's question, "How do you get the ideas (for your writing)?"

I pick from list (pauses and flips back the pages of his journal to show the range of his ideas)

I pick from this list.
My idea from front

I get an idea from the front of my brain

BACK (negative head shake - points at back of head)-

(nothing was mouthed)

- not the back -

SMELL THERE ALSO (points at front of head - affirmative head shake)

smell front

from the same place that you get the sense of smell.

MOST ALWAYS IDEA- IDEA FROM BRAIN (makes a circular motion with the “brain” sign in front of the head)

most always think from front brain

My ideas come from that part of the brain.
This excerpt is illustrative of the nature of contact sign as it was used by the writers in this study. Alan's utterance basically follows English word order and this allows him, in a number of instances to mouthe English in conjunction with his signing. Note the sentence "I pick from this list" in which he mouthes the words "I", "from" and "list". Another example in which he is clearly using mouthing to mark an English word occurs when he signs "GUESS" and mouthes the word "assume". In ASL there are not separate signs to mark the difference between guess and assume, and Alan has made this distinction in the mouthing which accompanies his signing.

He also incorporates ASL features into his expressive language, such as when he moves the location of the sign for "front" to his head to indicate that he is referring specifically to the front of his head, and when he accompanies the sign for "BACK" with a negative head shake to indicate that the ideas are not located in the back of his brain.

The significance of this excerpt is that it is representative of the nature of the signed communication that Jane, Alan, Alexandra and Mark used as they read and talked about their texts in retrospective accounts, and in this way it opens up possibilities for considering not only what these writers had to say about the composing process, but also for thinking about the ways in which it was said. It serves as an exemplar of contact sign as it was used by these four writers,
and it also highlights the ways in which signed, mouthed and ultimately written modes of making
meaning can be seen to function in effective complementarity as the students engaged in the
language and literacy learning process - a point which will be taken up at considerable length in
the chapters to follow. This excerpt also affords the reader, who is less familiar with sign
language data, some notion of the complexity, nuance and richness of this avenue of
communication which is not captured with the same effect in a straightforward English
translation.

Breaking “Methodological” Ground

This study is the first to employ any form of prompted interview technique or retrospective
account to investigate the composing processes of deaf writers. As such, there was no framework
to use as a guide in collecting, analyzing and presenting the data. The cumulative summary in
Table 2 was compiled as a result of many hours of watching and transcribing videotaped
interviews. As was described previously, for the prompted recall interviews, students were
videotaped while in the process of creating a written text and these tapes were then viewed jointly
by the teacher/researcher and the student author. During this viewing, the adult would provide
prompts for the student in order to gain insights into what the student was doing at various points
in the composing process. This interaction was also videotaped and then transcribed for further
consideration along with the transcriptions that were made of retrospective accounts.

What became readily apparent was that the transcription process would be a laborious
one, as watching the signing on the videotape and writing it down at the same time was very
difficult. For some of the videotapes, an intermediary step was added, which involved audiotaping
a voiced interpretation of the signed interaction. Transcribing from the audiotape was found to be
easier than working from the original signed videotape, although in either case it remained a time-
consuming exercise. Other researchers who may decide to use this data collection technique
would be well advised, before beginning, that this is a multi-step, extended research approach
which involves a significant time commitment.
A related avenue of investigation that is suggested by this study is an examination of the use of prompted recall interviews and retrospective accounts as pedagogical tools. As the study progressed and the students' experience with reflecting on their own thinking grew, they became increasingly insightful about their own literacy learning processes. This heightened awareness was evident in that the students were better able to talk about when and why they had employed a particular composing strategy, and they also began to develop a clearer understanding of the differences and relationships between ASL, English and contact sign - the most obvious example of this being their heightened awareness of the role that mouthing played in the writing processes.

A review of the transcripts and the videotapes themselves yielded a large corpus of raw data, which on the surface appeared unwieldy and dense. However upon closer examination of the students' reports and observed behaviours, and as result of having worked through the process with the writers, it became apparent that certain threads ran through the data. These threads became evident as certain comments and observations made by the students, and particular behaviours that were observed by the teachers and the researcher, were noted as occurring repeatedly in the case of all four writers. Table 2 illustrates how these threads have been pulled together in a format which depicts the nature and range of composing strategies which were reported or observed as a result of the data collection process, and it allows for the presentation of a set of bulky data in a manageable form.

As the life situations and backgrounds of Jane, Alan, Alexandra and Mark have much in common with many deaf literacy learners, it can be reasonably suggested that the composing strategies reported by and observed in these four students may be representative of those used by other deaf writers. This is not to make a claim that this is an exhaustive list of all the resources potentially available to deaf writers, but to propose that the summary presented in Table 2 is suggestive of the strategies that deaf students employ as they write. It is not possible to make a
strong case as to the relative weight or importance of one strategy as opposed to another as the nature of the topics, the length of the pieces, and the circumstances surrounding the writing episodes varied greatly. All of these factors would have had an influence on whether and how often a particular strategy was employed in that instance of composing. For instance, fingerspelling was utilized less frequently when students were writing about personal or everyday topics, as in this case the students tended to use familiar vocabulary. Recalling previous exposures to print was more evident in texts which were written as part of a classroom literature unit, since much of the required language and vocabulary would already have been encountered in the texts the students had read.

But despite such variations, I would contend that these accounts are illustrative and suggestive of the range and type of composing strategies that deaf student writers employ as they engage in the process of text production. And if these strategies are seen as representative of those which may be used more widely by other deaf writers, a closer examination and consideration as to how and why these particular strategies are employed could assist in developing our understanding of the composing processes of deaf student writers, and in speculating as to the types of teaching and learning contexts which would be supportive of this process. How effectively could each of these strategies be seen as a mediating factor in the text creation process? What might account for the prevalence of mouthing and contact sign? Why was ASL not mentioned as a composing strategy and what role might it play in the writing process? And what are the benefits and limitations that each of these strategies affords?

The following chapter will take up these questions and will provide an account of how the data presented in this chapter can be interpreted and considered against the theoretical backdrop of language and literacy learning in general, and how it can be viewed specifically in the light of reported research in the field of deaf education. The aim will be to position the findings of this inquiry in a broader framework, suggesting that the literacy learning strategies of the four writers in this study have much to contribute to our understanding of how deaf students engage
with print. And the in-depth discussion presented in the final two chapters will also explore the potential ramifications that considerations of individual writers in action might have on activity systems which focus on the teaching and learning of language and literacy with deaf children.
Chapter Four

The Deaf Student Writer’s Tool Kit: A Discussion of the Findings

Choosing to adopt a CHAT approach to this inquiry, which in the aggregate calls for an analysis of the activity setting in addition to the protocols and the written texts (Smagorinsky, 1998), dictates that the composing processes of the deaf student writers in this study be examined in relation to the context in which the writing took place. This context encompasses those aspects of simultaneously “being in” and “being surrounded by” which define the Umwelt of any individual.

In the Russian matryoshka doll, a tiny figure is nested in the centre of a set of like dolls of increasing sizes, each slightly larger doll containing and encompassing the doll before. In this way each figure is part of the “whole”, is surrounded by the “whole”, and is in an interdependent position within the “whole”, as each piece is fundamentally linked to the others if the “whole” is to be maintained as an intact entity. This is analogous to the levels of context that constitute the situation of the deaf writer composing a text. The composing is shaped by the nature of the classroom in which it occurs, which has been shaped by the school in which it is located, which has been shaped by the communities in which the school exists and so on. But this shaping is not a linear, top down process, but rather there is a dynamic interdependence, between the layers which define an activity setting that is always, in certain aspects, unique. “Such considerations lead to the unavoidable conclusion that in order to give an account of culturally mediated thinking (like the process of text production), it is necessary to include in one’s analysis not only a specification of the artifact through which the behaviour
is mediated but the circumstances in which the thinking occurs” (Cole, e-mail communication, 1999).

In discussing the findings of this inquiry, I will take into account both the immediate school setting and the larger context of the deaf community. And in examining the nature of the deaf writer’s engagement in the text creation process I will adopt the metaphor of the tool-kit (Bruner, 1986; Wells, 1996b). In learning to read and write through participation in activity with others, the students are appropriating a linguistic tool-kit - a cultural resource that enables them to participate more effectively in the community of language users of which they are novice members. But while these mediational tools are culturally embedded, the tool-kit is not generic and all learners, as a consequence of their own unique participation in the activity setting, construct a personal version of this cultural tool-kit. Thus individual writers direct their actions to the goal of making meaning in the world in which they live, in terms of the cultural theory of experience that is captured in the language of the community (Halliday, 1975; Wells, 1994a), mediated by the tools (the means and practices which have been appropriated through social interaction) that become available for engaging in independent activity.

Synthesizing the data from the verbal reports and the written products of these four writers, serves to bring into focus the nature and diversity of the deaf student writer’s tool-kit. Recalling previous exposures to print, remembering what had been directly taught, using fingerspelling, and mouthing with or without signs are all elements of this tool-kit. While no claim is being made as to the relative weight (frequency and emphasis) that each writer placed on the use of any single tool, in every instance of text production, each writer reported (or was
observed) making use of all of the tools which have been described in the previous chapter and which will be discussed in detail in the following paragraphs.

Components of the Deaf Writer’s Tool-Kit

Fingerspelling

Fingerspelling, a unique feature of the communication practices of the deaf signing community, involves using the manual alphabet to literally “spell out” words in English. This one to one representation of fingerspelled letters to English orthography is typically used by deaf signers to communicate English words, proper nouns, idioms and phrases which do not have lexical equivalents in ASL, or to emphasize certain elements of a signed utterance. Jane, Alan, Alexandra and Mark were all seen to make use of fingerspelling in their face-to-face communication, while composing text (to recall vocabulary and to remember how to spell words), and when they were rereading the texts that they had written for either the purposes of revision or of reading it to others. This is a logical strategy given that the links between the fingerspelled and printed words are obvious and direct, thus making it one of the aspects of the connection between the signed and written modalities that is most transparent for beginning deaf writers (Mayer, 1998; 1999).

This obvious relationship between fingerspelling and text makes this avenue ripe for exploitation as a vehicle to support the teaching of reading and writing. “Because decoding into fingerspelling represents a way of relating one part of the signer’s language (and of course the English language on which it is based) with print, it may also provide them with a way of increasing their written vocabularies” (Hirsh-Pasek, 1987, p.471). Padden and Ramsey (1996) suggest that deaf children’s language skills in ASL, fingerspelling and print are interrelated,
and they identify fingerspelling as one aspect of reading behaviour (Padden & Ramsey, 1998).

While there are obvious merits to using fingerspelling as a tool to mediate text, there are limitations to its use as well. Fingerspelling can represent English very well at the lexical level (proper names and idiomatic expressions), and it can also be used to emphasize bound morphemes (a feature of invented sign systems such as SEE and Signed English), but it is too cumbersome to represent the continuous stream of spoken English. The Rochester Method (also know as Visible English), a systematic attempt to completely encode spoken English in fingerspelling, was short lived and never widely implemented as a communication philosophy. It was simply too unwieldy, in actual use, to be workable as an efficient means for communication, and there were questions raised as to whether such a stream of “visible English” was just too visually overwhelming to be comprehensible (Reich & Bick, 1977).

Since a constant, unbroken flow of fingerspelled words creates a visual and cognitive overload for the deaf learner, this avenue does not function as a comprehensible means for presenting the full stream of spoken English in a visual mode. Although all of the morpho-syntactic and grammatical aspects of English can theoretically be found “in the fingerspelling”, this information is not readily decoded and understood, and therefore fingerspelling does not support the deaf writer’s text creation process at the syntactic level. But fingerspelling does offer a means to “get at” lexical aspects of text production which include the spellings of entire words or parts of words (bound morphemes such as “ness” and “ed”) and the identification of the first letters of words through initialized signs. It was in these ways that the four deaf writers in this study made use of fingerspelling as a tool in the process of text production.
**Reading and Writing**

In explaining how it is that language learners come to join the “literacy club”, Smith (1988) argues that children learn to read by reading and to write by writing, and in a subsequent work, he makes the strong claim “that knowledge of all the conventions of writing can only come from reading” (Smith, 1994, p.195). It is consistent with his accounts of the literacy development of hearing children to find that previous experiences in reading and writing texts did impact positively on Jane, Alan, Alexandra and Mark’s engagement with the writing process, as they brought their “text” experience to bear on the writing “problem” at hand.

It has even been argued by some that exposure to and interaction with print, via top-down models of literacy education, should be the sole or primary avenue for the acquisition of English by deaf writers (Yurkowsky & Ewoldt, 1986; Mashie, 1995; Mason & Ewoldt, 1996). Ewoldt (1996) describes a top-down model as one that “places emphasis on the construction of meaning for text, with the understanding of grammar and individual words as outcomes of this meaning based engagement” (p.7). She goes further and claims that lacking knowledge of sentence form and print characteristics need not interfere with the ability to make meaning from, or create meaning with text. In a similar vein, Livingston (1997) argues for an “uncommonsense theory, much like a whole language theory,” which would support the view that language acquisition and learning in general are tacit, holistic and top-down processes (pp.13-18).

Classrooms like the ones in which Jane, Alan, Alexandra and Mark participated, which do put an emphasis on using reading and writing in meaningful ways, provide a supportive environment for the development of higher levels of written literacy. But even in contexts with
hearing children, "there is still no research evidence that immersion in rich experience is sufficient for all children" (Cazden, 1992, p.12). Preparedness for literacy varies from learner to learner, and effective pedagogy must take into account these individual differences and must reflect a solid understanding of the knowledge and processes involved in learning to read to write (Adams, 1990).

Certainly few would deny that language learning should be "holistic and interactive and that children need to perceive it as functional for them in relation to the activities they find both challenging and personally meaningful" (Wells, 1994a, p.82). But to focus on only the top-down aspects of the language learning process ignores the persuasiveness of claims for the critical role played by bottom-up skills (Gray & Hosie, 1996, p.219). Kelly (1995), in his summary of this issue as it relates to deaf college readers, argues that while top-down processes play an important role in comprehension, bottom-up fluency is also a necessary component for developing reading competence. I would argue that the notions of "bottom-up" and "top-down" are applicable to models of writing instruction as well, since both avenues are necessary, not only to the process of learning to read, but learning to write as well.

Jane, Alan, Alexandra and Mark were all reading at a level which would allow them to use reading as a tool in the process of writing (note the SAT-HI scores in Table 1), and all of them, with the exception of Mark expressed a very positive attitude to reading. They all reported that having read something or having seen a word in print, helped them to "know" it and use it in their writing, and to varying degrees they were all seen to reread their texts as they were in the process of composing a piece of writing. Jane and Alexandra were the two writers who engaged in this strategy most regularly. Alan was less apt to do so, but this is
more likely a feature of his impulsive nature and of his tendency to hurry to get things done. Mark was the least likely of the four writers to reread what he had written, unless he was prompted, and in a related observation, he was also the student who expressed the least interest and enthusiasm for most reading and writing activities.

But despite the fact that these writers participated in meaningful text-based activities, and were reading at above average levels relative to their deaf age peers (note the percentile ranks in Table 1), they did not produce texts that would be comparable to those of their hearing peers, or that would be seen as commensurate with their reported reading scores. An examination of the texts themselves reveals that form often interferes with function, with meanings too elusive for confident interpretation by native users of English (See Appendix B). The evidence from the writers in this study would indicate that, for deaf learners whose knowledge of English is often limited, concerns must be raised with regard to adopting a pedagogical stance that presumes that one learns to read and to write primarily by reading and writing.

Even hearing learners who, by virtue of their competence in spoken English, can construct many of the rules not only for retrieving meaning from text but for creating meaning with text as well, have been found to require more than holistic and meaningful interaction with texts to develop literacy in their L1. For all language learners, learning to read and write by reading and writing implies some “threshold” level of mastery of reading and writing before these two processes can function as effective tools for literacy development. To put it simply, learning to read and write through reading and writing is limited as a strategy if you are not proceeding with learning to read and write in the first place. This “chicken and egg”
paradox is a particular tension in language learning classrooms populated by learners who do not “join the literacy club” via legitimate participation alone.

“If English were presented to deaf children via print only, natural language acquisition would not take place. We should not expect that deaf children’s access to English, the learning process, and eventual English proficiency outcome, would be similar to their hearing counterparts” (Singleton et al., 1998, p.20). Such an approach puts deaf learners in the rather untenable position of being charged to utilize what they don’t have, to learn what they don’t know. And even for writers like Jane, Alan, Alexandra and Mark, who have achieved this threshold level, they seem less able to glean all of what they need to know about writing from simply reading “writing”, particularly as it pertains to aspects of text production such as grammar, syntax, and text cohesion. Hearing learners do not need to construct their basic knowledge of English grammar and syntax by engaging in the process of reading. This knowledge is assumed. However the deaf writer must learn from text, not only all of the same elements with respect to text creation that hearing writers do, but they must also use text engagement as the basis upon which they construct a representation of the language itself.

The fact that the four writers in this study can read relatively well compared to their deaf age peers, but continue to struggle with the “English” in their texts, suggests that meaningful experiences with reading and writing, and being able to read, are not sufficient in and of themselves if seen as the sole mediating tools in the composing process. Similar arguments have been made by others in the field (Svartholm, 1994), who suggest that an avenue for redressing this concern is to put more emphasis on the bottom-up aspects of the reading and writing process via explicit or direct instruction about the “principles of English”
through the medium of ASL. The premise is that direct instruction about the troublesome grammatical and syntactic aspects of English will serve to ameliorate the difficulties that deaf writers encounter in these areas.

Direct instruction

This call for direct instruction stands in contrast to adopting the broad view that form will naturally follow function (Pinnell, 1985), in which it is assumed that all or most aspects of language learning will come automatically to the majority of students if we just leave them to wander about in the richness of the language community. Not all learners come with backgrounds that equally position them to “pick up” language solely through exposure, and not all aspects of language learning (such as synoptic genres) are equally amenable to being “picked up” through experience alone. For example, Harley (1998) found that, in Grade 2 French immersion classrooms, the explicit teaching of the genders of French nouns had a positive impact on the learning of this particular grammatical feature which has been found to be resistant to acquisition through exposure alone.

Particularly for students who are culturally and linguistically divergent from the majority or who come to language learning with a different set of experiences, it is important to make them aware of patterns and aspects of the target language which may be opaque and less evident to them. For these learners, whose cultural and linguistic backgrounds do not orient them to see the patterns that are obvious to native users of a language, descriptions and explanations to guide their attention can be useful. “Only when basic writers have the freedom that comes from knowing the acceptable forms can they participate fully in that community. Only then, as a matter of fact, does rhetorical stance have any meaning for them. For only then
can they adapt form and meaning to particular audiences. Only then can they express their personae as writers. Only then can they say what they want to say" (Gorrell, 1987, p.58).

This is not to argue that it is expedient and necessary to entirely forfeit congruence and relevance, relying instead on explicitness and direct instruction, for those learners who have a more difficult time recognizing patterns, learning forms and making the connections between spoken and written text. The trick is balancing the two. It is not a question of taking a rules versus experience approach, but rather of including explicitness without letting it become a straitjacket in order to foster meta-discourse as a resource.

There is also a sense in which engaging in meta-discourse about writing only makes sense after the writer has come to see the enterprise as meaningful and is able to enact a recognizable version of the activity. Englert (1992) makes this point in her discussion of using think-sheets as a cognitive strategy in the planning and organizing aspects of the writing process when she notes that “think-sheets are not entirely appropriate for students who are not conventionally literate because young writers first need to learn to write fluently and comfortably, with the freedom to learn about writing and communication” (p.166). As with any complex task, explicit instruction is most efficacious when it is presented as relevant to a particular problem a learner is trying to solve, and when it provides an explanation of how the specific skill or principle being presented is instrumental to engaging in the activity.

But acknowledging the positive benefits of direct instruction still leaves us with the problem of identifying which aspects of language learning are “teachable”. And given what we know about the aspects of literacy development which are problematic for deaf learners, it becomes germane to ask whether explicit teaching of rules and meta-talk about text will serve
to address the syntactic problems with English that deaf writers face? Is syntactic fluency a teachable skill?

The writers in this study did make use of what they had learned through direct instruction to construct a text that conformed to the rules of standard English, and they frequently commented that they knew what to write because someone had told them. Jane, Alan, Alexandra and Mark most often called upon what they had been explicitly taught in instances in which they were: applying a grammar rule or principle to make decisions about which word or form of a word to write (verb agreements, verb tenses, plurals, contractions); utilizing the principles of revising and editing that had been discussed as "things that proficient writers do" to improve their texts (rereading what they had written, moving sections of text, deleting redundant information); or planning the content and organization of the text (choosing an appropriate title, paragraphing, creating narratives with a beginning, middle and end).

The direct instruction these writers were alluding to included the specific teaching of English elements, as well as a focus on metalinguistic awareness - the ability to look at language itself as an object for reflection and study (Strong, 1988; Gray, 1995). For the learners in this inquiry, explicit instruction was delivered through either ASL or contact sign, depending on the nature of the topic under discussion. And from an examination of the reports of these four writers, support can be found for the suggestion that there are at least some features of writing development that can be worked on directly, and that an explicit focus on certain aspects of writing does assist the learner in the process of creating a text.

But in some situations, the students could articulate the "rule" but were unable to apply
it appropriately or did not realize that this was an instance in which it should be applied, illustrative of the notion that many systems can be described by rules, but that this is not the same thing as using the rules to carry out a process (Markman & Dietrich, 1998). Jane, Alan, Alexandra and Mark could talk about aspects of text creation that were problematic (such as word order), and summon up rules or explanations that had been taught (every sentence needs a noun and a verb). But “knowing” this information did not always help them apply the knowledge appropriately to the writing task or to even be aware that this was an instance in which the rule should be applied. This is analogous to Kelly’s (1988) argument that deaf writers often produce texts automatically with minimal concern for grammatical correctness and with little attention paid to issues of English form.

Perhaps it is the case that there are some specific skills (rules for punctuation, editing strategies, verb agreements) which are teachable, and this can, for some dimensions of learning to write, be a useful endeavour. But “non-specific” elements of learning to write (word order, cohesive devices, the nominal structures of synoptic genres) are less teachable, and when they are “taught” take on the quality of pseudo-skills - abilities which can be presented as rules but which can not be utilized in any meaningful way to mediate the composing process.

In some models of bilingual education for deaf students it is argued that the organization of English syntax can be taught via explicit instruction through the medium of ASL, provided the meaning of the text has first been made clear in ASL. “This ASL-English translation strategy and whole to part sequence in both languages can be used throughout the day depending on the instructional activity. If the goal of the lesson is to teach English, signing
stories/lessons in ASL must be followed up by direct English instruction for deaf students to get the benefits that hearing children do, that is models of English words and sentence grammar" (Nover & Andrews, 1998, p.64). Evidence from the writers in this study suggests that while explicit instruction can play a supporting role in mediating the composing process, there are limitations as to how effectively this tool can function as the primary avenue for developing linguistic knowledge of English. And it would be overly optimistic to imagine that, as a result of explicit teaching alone, deaf writers could overcome all of the challenges they face with English form, challenges which will be addressed in further detail in the final chapter of this thesis.

Mouthing, Speechreading, and Mouthing in Conjunction with Signing

These three strategies are grouped together, not because they always occur concurrently, but because by definition, mouthing and speechreading are linked to the expressive and receptive nature of the contact sign that was observed being used by Jane, Alan, Alexandra and Mark as they were engaged in the writing process. In fact one of the most striking features of the text production processes of these four learners was that English mouthing alone or English mouthing in conjunction with signing were observed to be a consistent, although not continuous, feature of the composing process.

Yet none of the writers, in their prompted recall interviews, spontaneously mentioned mouthing, speechreading, or contact sign as a strategy that they employed to make a specific lexical choice or grammatical decision. They did not report that they called upon these "tools", as strategies in specific instances of text production, as they had done in the case of fingerspelling, remembering a rule or recalling previously read texts. Rather, the writers were
seen to engage in mouthing and mouthing in conjunction with signing as an integral aspect of the writing process, and these strategies were not confined to moments of text production, but permeated the entire activity, only being remarked on by the writers after they had been explicitly identified by the teacher-researcher during the interview process. Alexandra actually mouthed while she composed, and when we reviewed the videotapes, pointing this out to her, she was genuinely surprised. When asked why she did this she said that, "I just do that when I write. I don’t know why... And besides I can’t sign and write at the same time."

This reaction of surprise was common to all four writers. In talking about his texts in retrospective interviews, Alan’s “mouthings” are so clear that it is easy to speechread his utterances from the videotapes, and when asked about this he explains that it helps him to “know the words”. In rereading and revising her texts, Jane signed “contact sign” with mouthing to herself and when asked about it, after having watched herself on videotape, she comments that “If I sign another way it doesn’t match really. Like if I write English then sign ASL - like the writing is English and the signs are ASL ... Wow! That’s hard”. Probably because he had the most usable hearing and intelligible speech of the four students in this group. Mark would sometimes speak and sign, rather than mouthe and sign, as he reread his texts, and it could be hypothesized that he used speech, as a hearing writer would do, simply because it was available to him.

It has been well documented that for deaf individuals phonological coding or awareness does play a role in the reading process (Hanson 1986, 1991; Hanson & Fowler, 1987; Waters & Doehring, 1990; Kelly, 1993; Leybaert, 1993; Burden & Campbell, 1994), and skilled reading has been associated with phonological awareness (Hanson, 1989; Kelly,
This claim is often greeted with scepticism since, by definition, deaf people cannot hear the sound structure of a language. In commenting on the topic, Goodman (1997) wrote that, "I suspect that the so-called evidence of the use of phonology by deaf readers (who can’t in fact experience phonology) simply reflects instructional programs that have still not outgrown the oralist traditions of deaf education .... I do not want to impugn the motives or the integrity of any researchers but research ‘facts’ are never free of the theory on which the research is based. In doing research on deaf readers, and using a theory of reading that makes use of phonics as an absolute in all reading, one must question the ‘fact’ that deaf students use phonology.”

While understandable, this criticism is guilty of taking too narrow a view of the nature of phonological awareness and of the tools that are available for making the phonological aspects of English available for deaf learners.

A presumption is made that the only way to develop sensitivity to the phonological aspects of English is through audition, and it could certainly be granted that this is the initial, primary route for the majority of hearing children in their development of implicit phonological awareness - that is the ability to segment words into their constituent sounds at the syllabic or subsyllabic level. This is an ability which has been found to be positively correlated with future reading success, at least in languages like English and Swedish in which the regularity of correspondence between phoneme and grapheme is low, although it is worth noting that this same positive correlation has not been found to be the case for orthographically regular languages like German, Greek, Italian and Portugese (see Harris and Beech, 1998, for a summary of the research on this point).

Contrast this with explicit phonological awareness - the ability to make phoneme-
grapheme correspondences and to manipulate phonemes within words - which is developed and sharpened as a result of increased reading, writing and exposure to print (Ferreiro & Teberosky, 1982; Homer & Olson, in press). Seeing in print, what they have already heard, assists hearing learners in making connections between the two modes, with the written language making the implicit knowledge of the spoken language, explicit (Olson, 1994).

For profoundly deaf learners print can serve an essentially similar function, not in mediating the relationship between what has been heard (the narrow view of phonological awareness), but in relation to what has been seen, with speechreading affording an avenue for deaf learners to “see” the spoken, phonological form of English. But although lipreading is visual, for the purposes of “seeing it as speech” only about one third of the sounds of English are clearly visible on the lips for the purposes of being “read”, and almost half of these are homophonous with other sounds, meaning that they cannot be distinguished from each other visually (Power, 1973).

“Even though the deaf may have good phonological awareness, in the sense that they are often drilled extensively in phonemic tasks as they approach the school years, this alone cannot make contact with the properly specified phonological representations, for (by definition) these do not exist for the deaf. Only when they are confronted with an alphabetic orthography will some of the phonetic contrasts they cannot “hear”, and which will thus be perceived as homophones in interpreting speech, become clear. Such clarifications may become instantiated both as orthographic and phonological realities..... And in the deaf people we have studied, exposure to English written language enlightens in this way, but through covert sensitivity rather than overt

Campbell and Burden are making the point that even though lipreading alone is rather inefficient as a route for accessing phonological information about English, it might nevertheless form a basis on which further knowledge of the spoken language can be built, particularly if it is presented in conjunction with print. “Literacy may afford an important way into spoken language through clarifying distinctions that may not be grasped by lipreading alone” (Campbell, 1997, p.139). Campbell explains that, in her view, lipreading is best described as a “visuo-perceptual function” which operates, not in a categorical or serial fashion, but rather “in cascade, with the ‘final’ identification of the lipread utterance depending on a wide range of contextual and perceptual factors” (p. 134), and a contextual factor which supports the effective operation of lipreading, as a tool for accessing spoken language, is the concomitant development of literacy.

If lipreading is seen as supporting the development of the phonological awareness which has been identified as a characteristic common to the reading processes of deaf learners, then it would be reasonable to expect that mouthing (lipreading’s expressive counterpart) might be implicated in the development of phonological awareness as it relates to the writing process as well. This would provide a potential explanation for the extensive use of mouthing that was evident in the composing processes of Jane, Alan, Alexandra and Mark. But how could one qualify the nature of the phonological awareness which this mouthing is seen to support?

Alan did comment in a retrospective interview that mouthing helped him to “know words” and it could be argued that in this way mouthing offers a route to the lexicon of
English, and mouthing/speechreading probably does support the production and comprehension of individual vocabulary items (Sutcliffe, Dowker & Campbell, 1999). But with the exception of Alexandra, the writers in this inquiry were not observed to explicitly and carefully mouth such items in isolation as they were engaged in the writing process. They most often reported that the recall of individual words was dependent on fingerspelled or print-based cues.

A possible explanation might be that it is not so much at the lexical but at the postlexical level that phonological awareness plays a critical role. In the reading process, Stanovich (1986) discusses models in which phonological information is less implicated in the lexical, decoding processes of the fluent reader, but is activated postlexically where it serves to support comprehension processes and plays a key role in determining reading ability. In citing Perfetti (1985), he argues that "fast visual access rapidly and automatically activates the phonological codes that serve a reference-securing function in working memory which facilitates comprehension" (p.376) and that the mark of the good reader is facility in using phonological information in this way rather than relying on this information, derived from spelling-sound knowledge, for word decoding only. He suggests that, in the fluent reader, "word recognition via direct visual access occurs more autonomously, and other knowledge sources tend to interact only with the outputs of completed word recognition, not the word recognition process itself" (p.377).

This line of thinking presents a fruitful avenue for thinking about the mouthing/lipreading strategies of the deaf writers in this study. Taking the view that these mouthing and lipreading strategies, which for deaf individuals are linked to phonological
awareness, are in turn tied to the postlexical aspects of the literacy process, affords a possible explanation for these “phonologically-based” behaviours on the part of deaf literacy learners. This phonological process for deaf readers has been typified as an “idiosyncratic yet consistent, sound based strategy” (Kelly, 1995) which is noted in the behaviour of skilled readers even when these readers are profoundly deaf and use ASL as their first language. And this argument is consistent with the claim that there is an interdependence of phonological units and reading units in the literacy development of all language learners, with the relevant attention to phonological units varying even between oral languages, as in the case of English readers making greater use of rhyme while French learners are more sensitive to the syllable as a unit in the reading process (Transler, Leybaert & Gombert, 1999, p.127).

It has been well documented that the majority of deaf writers do relatively well in the orthographic aspects of text production (Musselman & Szanto, 1998), and it has been posited that a reliance on direct visual learning can account for the relatively good performance of deaf students on the conventions of writing which are specific to print and amenable to acquisition by visual means (p.255). But deaf writers generally do less well at the morphosyntactic level of text production and it would be reasonable to argue that this aspect of writing is not as amenable to acquisition via the same print-based, visual means which appear to work well in other areas (Mayer, 1998; see Transler et al., 1999, who make a related argument with respect to reading). And perhaps it is in this area that mouthing and contact sign play an important role.

In this study mouthing and contact sign were integrated into all aspects of the writing process, and in discussing their texts, all the students consistently used contact sign rather than
ASL, even though all were fluent and capable users of the language. The students, in their reflections, provide some insights into why this is the case. When asked to explain why, Alan looked puzzled and then said, "Why would I sign (ASL), I'm not talking to anyone. People would think I was talking to a ghost." This comment indicates that, when he is writing, Alan is not using his signing to communicate with others, but rather he is signing to mediate the process of writing for himself. As Jane puts it, "Signing (uses the ASL sign for "chat") then writing - it doesn’t make sense to me - it’s funny. If I understand ASL and I write ASL it doesn’t connect. It’s confusing."

In other words there is not an obvious, natural connection between ASL and written English for the students to exploit as a means for supporting text creation, but there is a connection for these learners, as indicated by their behaviours and by their accounts, between contact sign and written English. In this way contact sign functions not as a conscious strategy, but as an unconscious communication behaviour in mediating actions in which the focus is on the discussion or production of an English text.

This is not inconsistent with the conclusions of Parsons (1996) who noted that deaf adolescent learners, whose preferred means of communication is Sign Supported English (SSE), used both signing and/or mouthing as rehearsal strategies to memorize material. She points out that these learners expressed dismay on occasions on which only the hands, and not the faces, were clearly visible on the screen. She argues that in making meaning these students were drawing on a range of visual resources which included not only signs but lip patterns, facial expressions and body language.

In using mouthing in conjunction with signing, Jane, Alan, Alexandra and Mark are
making use of a visuo-kinesthetic process as they write which goes beyond the simple fact that print signs and lipreading are accessible visually. It is not the "visuality" or "manuality" of the sign language alone which supports text creation, but the fact that this visuo-manuality is tied to the orality of English through the unique simultaneity of lipreading, mouthing and signing which defines contact sign. I would suggest that it is this visuo-motor semiotic mix which the writers in this study employed as they were engaged in the text creation process. And it is this "unified perception, this synoptic totality which is more than the sum of the parts into which it may be logically analysable" (Dexter, 1994, p.69) which defines the mouthing/signing processes of these four student writers.

And it could also be suggested that it is this visual-motor Gestalt which supports the creation of a stream of English words which harkens back to Stanovich's argument for post-lexical access. The visuo-motor Gestalt of contact sign may provide the phonological, postlexical access that buttresses the production of a stream of English text, and this provides a possible explanation for the consistent use of the combination of mouthing and signing observed in and reported on by the writers in this study.

**Considering the Nature of the Tool-Kit**

It could be argued that a common thread among these reported strategies is that they are either directly English, as in the case of reading and writing, or they have a strong natural relationship to English, as is the case with mouthing, mouthing in conjunction with signing, and fingerspelling. It appears that the students use "English-based" strategies to support them in the writing of English text. By using this particular set of composing tools the students are attempting to find the connection between their face to face language system and the written
system to enable them to bring their linguistic knowledge to bear on their developing knowledge of writing.

They use a range of strategies to analyse their sign stream to allow them to “put it down” or represent it in print, and this range of strategies may be sign-based, speech-based, fingerspelled, or print-based. The components of the deaf writer’s “encoding” tool-kit parallel those that deaf readers make use of in the decoding process. In considering the apparent phonological coding proficiencies of deaf readers, Leybaert et al. (1989) and Campbell (1992, 1997) concluded that word decoding processes were derived from a combination of lipreading, fingerspelling, articulation and exposure to writing, no strategy on its own being sufficient for the task. These also mirror the strategies - orthographic (use of and interaction with print), oral (speech and speechreading), and kinesthetic (articulatory speech movements) - that Hanson (1989) suggests are the route via which deaf students develop cognitive awareness of written language.

The notion that there is not a single path to literacy but multiple routes is consistent with the argument for a diverse tool-kit. Nelson (1998) refers to “tricky mixes” of learning conditions which are necessary to support the literacy and ASL development of deaf children but which as yet are not well understood. Padden (1998) writes about multiple routes to reading, and Ruiz (1995), in describing the literacy development of her young deaf daughter, argues that models of literacy acquisition at both a theoretical and practical level need to take into account the diversity of paths that children take in becoming readers and writers.

John-Steiner, Meehan & Mahn (1998) suggest that for all beginning language learners “the development of language processes involves the construction of a functional language
system - the slow and complex interweaving of external and internal, auditory and vocal, verbal and nonverbal, cultural and familial, and physiological and psychological systems" (p.130) and they stress the importance of identifying children's use of various artifacts and learning style modalities (p.128). This interweaving process and the artifacts themselves are rooted in and inseparable from the social context in which the learner exists and from the patterns of the wider social functions of language in use. In other words, readers and writers, in making meaning with others in particular contexts, exploit the semiotic resources of the discourse community of which they are a part, and each learner's opportunities to exploit the full range of potentially available cultural artifacts will be facilitated and/or restricted by the nature of the activities that he/she engages in and by the semiotic artifacts that are embedded in these settings.

“Children search for organizing principles that, although linked to their experiences both inside and outside of school, are also guided by instructional emphases on systematicity” (John-Steiner et al., 1998, p.133). If Jane, Alan, Alexandra and Mark are reporting that mouthing, mouthing in conjunction with signing, fingerspelling, remembering what they had been taught, and recalling elements of what they had previously read and written are some of the strategies they use as aids in constructing English text, what can we infer about creating the educational conditions for systematically exploiting their use? And in thinking about the nature of the tool-kit, would it not follow that classroom environments which would foster the use of these tools would incorporate direct instruction, fingerspelling, reading and writing, and contact sign into the classroom context as integral aspects of a language/literacy programme?

In referring to the language policy of the school which these students attend (see
Appendix E), it is clear that the importance of these tools has been recognized, and there was unanimous support for including the policy points which emphasized the use of fingerspelling, print and direct instruction. However, as was described in Chapter 3, support for the use of contact sign was mixed, and to suggest systematicity or a supportive context for its use, with its attendant emphasis on English mouthing and speechreading, proved problematic, as some stakeholders felt that the inclusion of contact sign was a challenge to the role of ASL. But ASL, by definition, does not incorporate English mouthing and thus it cannot, when used as the sole language of instruction, provide support for the development of mouthing and speechreading, and the alternative, some form of contact or English sign, is seen as anathema to some members of the school community.

Even though ASL and contact sign already co-exist and are employed in this activity setting, there are different ways of valuing and weighing these two linguistic tools among the participants in this community. There is disagreement as to whether the semiotic resource of contact sign should be provided as an appropriate form of assistance in the classroom setting. This creates a tension for many teachers who, in the role of the “more knowledgeable others”, do see contact sign as a viable and necessary tool in creating the most enabling zone of proximal development for deaf writers. Since they often experience “social grief” if they are seen to value and employ contact sign in their pedagogy, the potential exists for constraints to be placed on the nature, design and implementation of their classroom language and literacy programmes. Ideally the key basis, upon which teachers make judgements about the most fitting forms of pedagogical assistance for individual students, should be shaped and driven by the unique nature of each learner’s Umwelt. But this pedagogical stance is inevitably
positioned under the cloud of the larger political and social issues that permeate the school setting, and the potential exists for the needs of the individual to become subsumed and lost in the concerns for adopting approaches that are perceived as more socially and culturally acceptable.

There is always a variety of ways to "get things done" and ASL does indeed contribute to the process of "getting writing done", with much recent work in the area focusing on the positive correlations and relationships between ASL and English literacy skills (Chamberlain, Morford & Mayberry, in press). In reviewing the videotapes of the writing sessions with Jane, Alan, Alexandra and Mark, they were often seen to pause and gaze into space before beginning to write. When they were asked about this, they reported that they were thinking about a good topic or idea for their composition. Alan described this as having a list of ideas in his head which he saves in his brain in order to have a ready source of ideas for his writing. Jane explains it as, "It's in my brain - my brain tells me. It says what to write. Like an idea pops up and I write that and then I add more. I use my imagination." When the videotape was paused again at the moment they stopped "gazing" and actually started to write, the students were asked questions such as "How do you know what to write first?" or "How do you decide what words to write?" Alan reported that "he writes what he says in his mind" and Jane explained that she "talks in her head and thinks the words in her mind" when she writes.

These comments indicate that these writers are aware that in the writing process they must convert ideas, which may be generated in ASL, into words that can be put down on paper. And what they offer us, through their responses in prompted recall interviews and through retrospective accounts, are descriptions of the composing strategies or cognitive tools
they employ to "translate" their mental representation of meaning into the English required to create a material text, or in Bereiter and Scardamalia's (1987) terms, to move an item from the content space to the rhetorical space. They provide insights into how they use these cognitive tools to "shape at the point of utterance" so that this shaping moves in the direction of written English. While ASL can be supportive of this process, it does not offer any particular help at the linguistic level. This conclusion is in line with Hanson’s reports of native deaf signers who "were found to be using phonological information in the reading of English rather than referring to ASL (1989, p.85).

Most of the "top-down" aspects of writing such as content generation and text organization are not tied tightly to any particular language, but much that is related to the "bottom-up" aspects of the writing process (word choice, grammar and syntax) depends on the English proficiency level of the individual writer. Texts written by the writers in this inquiry serve to illustrate this point in that these four learners are able to convey meaning even though there are still obvious problems with English syntax and grammar. In a written response to the question, "Explain which is harder for you - reading or writing?" Jane wrote, "Sometimes when I write, some words are wrongs because I usual ASL... right...so that's why I'm confused to do. but I do understand how to read." In making this comment, Jane is indicating that she is aware that ASL, which she sees as her usual avenue for communication and thinking, can create confusion as it does not directly support the creation of English text. And her own words, quoted here, provide a direct illustration of this point in that the idea is quite clear, but the English representation of it is not.

In an interesting twist, Alexandra and Mark reported in their written surveys that
writing was actually easier than reading (quotes relevant to this point appear in their profiles in Chapter 3). This perspective can also be accounted for by the differences between making meaning in ASL and English even though Alexandra and Mark do not explicitly comment on the point. In reading, the English text remains fixed and static on the printed page, leaving little room (at least in the minds of these learners) for ASL, and they become occupied with and express concerns that they don’t know the English words on the page. Conversely in writing, they feel they have more flexibility in that the ideas which they generate in ASL before they write just need to be captured in some way in text. But the actual form of the text is “up for grabs” in that writers are free to create the text and they do not choose English words that they “don’t know”. The meaning is not a problem (for the writer at any rate) since the writer, by definition, understands the text that he/she has written, by virtue of having created the text in the first place.

Conceptualizing the challenge for the deaf writer in terms of this interplay between meaning and form offers a perspective from which to consider the viability and utility of ASL in relationship to the other composing strategies that Jane, Alan, Alexandra and Mark describe. All of these writers were fluent users of ASL and incorporated ASL in the brainstorming, idea generation and discussion aspects of the writing process. There is nothing in the observed and reported behaviours of these writers to conflict with the notion that there is a positive correlation between ASL and English, nor to suggest that ASL has a negative impact on the writing process. But these four writers do not specifically identify ASL as a tool that is employed in the moment by moment text creation process, as they report doing for the other strategies that have been described in this inquiry.
The Tool-Kit in Context

These observations and student reports help illuminate the specific nature and particular aspects of the interdependence between ASL, contact sign and written English which as yet are not well understood, and which currently occupy the attention of many researchers and educators in the field of deaf education. I would propose that if ASL, contact sign and all the other strategies employed by the deaf writers in this study were considered in terms of how they function as resources for idea generation and meaning representation in the specific context of the activity of writing and learning to write, it would become possible to explore how these tools mediate between the form of the language and the functions which these forms serve. And taking the view that contingency is characteristic of every functional act, it could be argued that in mastering any activity, learners in their interactions with others not only appropriate but fashion the tools which will serve to address and further their own purposes.

To make this point more clearly, it is expedient to return to Engestrom’s expanded mediational triangle (see Figure 4). The students in this inquiry employed a wide range of mediating tools as they were engaged in the process of text creation, with these mediating tools being diverse in nature, demonstrating how the kinesthetic, visual and auditory dimensions of language function in concert and support each other in the writing process for deaf learners. No one mode is ever used “all by itself” in the context of any meaningful activity, and given the unique neurological, physiological, and socio-cultural situations of deaf learners, it is reasonable to argue that the ways in which these modes are linked for these students would be particular to their semio-Umwelt.
Figure 4. A model of the activity system of the deaf student writer.

Thinking about functioning as unimodal, while characteristic of many attempts to analyse semiotic systems, does not capture the complexity of the ways in which subjects manipulate and appropriate mediational means across modalities as they engage in meaning-making activities. Taking such a unimodal focus to a consideration of the writing processes of deaf learners downplays the intricacy of the activity as it attempts to separate and compartmentalize manual-motor from visual-perceptual from auditory-oral. It denies the notion, evidenced by the nature of the tool-kit employed by the writers in this inquiry, that there are links between these modes which are clearly evident in, and arguable integral to, the composing process. The point of further scholarship and inquiry would be to address and better understand the full complexity of this tool-kit and how it mediates the activity of writing for other groups of deaf learners.

The school community in which Jane, Alan, Alexandra and Mark are engaged in
learning to write does offer a context in which all of the mediating artifacts which have been identified in this inquiry are recognized and valued - at least at the policy level. But as has been previously described, these mediating tools are viewed and valued differently by the various stakeholders in this setting. For some, contact sign represents exactly the synthesis of modes which would positively support the writing process, while others see it as a challenge to the use of ASL in the classroom. These conflicting stances reflect the perceived status and power relations between the members of this school community (the division of labour), and the attendant linguistic preferences between those who see the need to keep ASL pure (no mode and code mixing) and those who are content to have this code and mode mixing occur by way of contact sign. These rules for how ASL and contact sign are used and presented in this community mirror the ways in which these tools are thought about in the hearing and deaf communities which imbue the school setting.

Through their comments about the languages they use, the students in this inquiry are demonstrating that they are, at least at some level, aware of this confusion and conflict in relation to the community, the rules and the division of labour in the school setting in which they participate. Alexandra, who is a more fluent user of ASL than English, describes ASL as being “harder for me because it must perfect sentences and English it doesn’t matter sentences”. And while she is a fluent user of ASL she reports that she usually signs in English, but then goes on to say that she only understands English signing sometimes. These comments are clearly contradictory and provide good evidence that Alexandra has a confused image of herself as a language user. In like fashion, Jane, who was observed to use contact sign on each occasion that she was videotaped, responded in a survey that she did not understand English
signing and did not use it. Alan wrote that he "loves being deaf" and sees himself as a strong signer, but he also reports that some people don't understand him and tease him when he uses his "English signs". Mark made the clearest separation between "English talk" and ASL, reporting that he used one at home and the other at school, pointing out that signing at school should be ASL.

But despite the conflicted feelings and understandings about languages and modalities which is reflected in their words, the students, while engaged in the writing process, did make use of the very tools which they reported as either being implemented inconsistently or used in limited fashion in their day to day school activity. Thus, for these students, even though the appropriation of the cognitive tools which support the process of learning to write is played out against the background of conflicting social relationships, they ultimately take from the setting what they need to get on with the business of writing and learning to write.

Cognitive tools have their roots and are embedded in the larger sociocultural contexts in which they occur, and as Hutchins (1996) argues, the utility of a cognitive artifact depends on other processes that create the conditions for its use and that can exploit the consequences of its use. If this is the case, we need to attend both to the motives that impel our students and to the situations and resources we establish in the classroom that will provide the tools and opportunities for student growth. The challenge for educators of deaf students is to create classroom environments that offer possibilities for nurturing and exploiting the full range of available cognitive tools. To limit the richness of the semiotic mix in educational settings, for either pedagogical or political reasons, is to limit the possibilities for deaf students learning to write.
Chapter Five

Learning to Write as Mediated Action: Signing as Semiotic Resource

Reconceptualization (Chamberlain, in press), rethinking (Livingston, 1997) and new paradigms (Grushkin, 1998) are terms which have peppered the rhetoric in deaf education of late. This constant struggle to reframe the issues with respect to pedagogy and research in the areas of language and literacy learning is understandable, since the concerns attending these domains have stubbornly resisted improvement - if improvement is measured as higher levels of English literacy for the majority of deaf learners. The fact that these levels remain perennially low is a major preoccupation of researchers and educators in the field. This is a concern which I share and it was this concern which drove the undertaking of the inquiry reported in this thesis. And as a consequence of participating in an investigation of this issue with Jane, Alan, Alexandra, Mark and their teachers, I have been prompted to rethink my own assumptions about the literacy development of deaf learners and, in particular, the activity of learning to write.

In my own rethinking I have drawn heavily on the framework of sociocultural theory and will suggest that, in investigating the composing processes of the deaf student writer, it is constructive to think about the activity of writing and learning to write as an instance of mediated action (Wertsch, 1998). I will argue that what has limited reconceptualizations of the issue to date is that the emphasis has been placed on debating the primacy of the individual versus the influence of the social, neglecting to take into account the role of mediation of action through artifacts. In other words the focus has either been on the individual deaf student
who, as a consequence of deafness, has “trouble” learning to read and write, or on the nature of the environment, defined by its impoverished or inappropriate linguistic input, which is seen as the source of the deaf learner’s trouble.

This is not to say that there has been no attention paid to notions of active individual, active environment and the construction of knowledge, but what has been left out of such discussions “is the essential presence of a third factor in the process of co-construction: the accumulated products of prior generations, culture, the medium within which the two active parties to development interact” (Cole & Wertsch, 1998, p.250). In the terms used in this inquiry, there has been minimal attention paid to the nature of the tool-kit that deaf writers employ while engaged in the composing process, and in examining how literacy development and learning to write is a transaction that involves the individual (the deaf writer), the mediational artifacts (the tool-kit), and the cultural and social contexts (the school for the deaf, the family and the deaf community) of which the learners are a part.

Such an approach focuses attention on the ways in which deaf writers employ a specific set of tools as they engage in the process of learning to master the cultural tool of writing, and in such a framework, development can be defined in relation to how individuals encounter and master these sets of cultural tools. And differences in particular domains of development, such as those between hearing and deaf literacy learners, can be seen in terms of their differing abilities to use these cultural tools. “The principles that guide the evolution of the mind are the product of socio-historical forces which regiment language in culturally specific ways: these ways in turn determine the development of mind in a never-ending dialectic of mind in society” (Lee, 1987, p.104). And “when considering how to enhance or
change a course of development, the key may often be to change the cultural tool rather than
the skills for using that tool. As we will see in what follows, there is often great resistance to
changing a cultural tool even when it is recognized as being clearly outdated, so this is not
always easy. Yet the perspective of mediated action suggests that it is an alternative that
deserves more consideration than it is often given” (Wertsch, 1998, p.38).

Any aspect of language, such as writing, is only worth learning insofar as it enables
and empowers us to use it as a tool in meaningful, sociocultural contexts, and in an ideal
world everyone would have equal access to all the cultural tools and resources of any given
community. But the fact of the matter is that each community has its own set of discursive
tools, linguistic resources and sites for social interaction, which are multiple, fractured, and
not equally available to all members. For deaf students writing is certainly a tool worth
learning as it serves many meaningful and empowering functions, playing a critical role in the
social and economic life of both the hearing and deaf communities (Maxwell, 1985). But since
the majority of deaf learners do not learn to read and write at a level commensurate with their
hearing peers, it could be argued that access to this tool and mastery of it has not been equal.

In thinking about learning to write as an instance of mediated action, it is reasonable to
suggest that, since most deaf learners do not master the cultural tool of writing with the same
degree of proficiency as their hearing counterparts, the problem may lie in the nature of the
mediating tools available to these learners. “There is little doubt that a focus on how
mediational means enable action is important when trying to understand action and the
transformation it undergoes. However, a narrow focus on the kinds of empowerment provided
by cultural tools gives only a partial picture and one that is benign in an important sense. It
does so because it overlooks a countervailing, though equally inherent, characteristic of mediational means - namely, that they constrain or limit the forms of action we undertake” (Wertsch, 1998, p.39).

The benefits afforded by any mediational tool are only relevant when considered in relation to engagement in a particular action, and thus the same set of mediational tools can at different times and in various contexts both enable and constrain. Think of the L2 learner of English who can call upon the linguistic resources of his/her L1 to mediate the positive transfer of concepts between languages, but in the process faces negative interference from the L1 as well. In the inquiry described in this thesis, four deaf student writers have described the nature of the mediating tool-kit which they employed as they were engaged in the writing process. This set of tools is also open to examination as to the affordances and constraints they offer as mediating resources in the composing process. To begin to better understand how well and appropriately these tools function to mediate the action of writing, it would be worthwhile to examine more closely the nature of the action which these tools are meant to mediate.

**Writing as Representation**

A fundamental aspect of learning to write is coming to understand that the marks on the page correspond to entities that can be spoken, with this knowledge being a precondition for learning how those entities can be further thought of as representations of sound (Olson, 1995, p.294). The writer must come to realize that the “marks on the page” have a systematic relationship to the wordings in the stream of speech, and that, as well as conveying meaning, these marks are also a representation of spoken language. Thus to learn to read or to write any script “is to find or detect aspects of one’s own implicit linguistic structure that can map onto
or be represented by that script. In this way, the script provides the model for thinking about the sound structures of speech. The model provides the concepts that make these aspects of speech conscious” (Olson, 1996, p.147).

As hearing children learn to read and write, they are able to find explicit representations in print of their implicit linguistic knowledge. In this way, they are able to hear their spoken language in terms of the written text, and they begin to see their speech as an object for reflection and attention. Being able to objectify spoken language then paves the way for the hearing writer to use spoken language as a mediating tool in the text creation process, as these writers are beginning to see their spoken language in terms of the distinctions which the writing system provides.

The notion of coming to understand written English as a representation of face to face language applies equally to both deaf and hearing novice writers as they undertake the task of learning to write, as the written word directs the reader or writer to look for a corresponding unit in speech or sign. But for the deaf learner who signs, the linguistic knowledge they have acquired implicitly is not represented explicitly in the written code, and it is difficult to see signing in terms of the categories defined by the written text. In addition, while signs are efficacious as representations of meaning in face to face to communication, difficulties arise when writers are compelled to find or represent these signed meanings in print.

This notion of “representation” encompasses not only the act of representing, but it also refers to the nature of the artifact being used to construct this representation. While in theory it can be claimed that anything can represent anything else, certain representations are culturally agreed upon as being more expedient, apt and appropriate in given situations (Wartofsky,
1979). In fact, becoming a member of any culture involves "buying into" a notion of conventional representations as cultural artifacts - written genres, orthographic systems, number systems and the like. If commonsense dictates that written English represents spoken English, through the use of an alphabetic orthographic system, it begs the question: How can the deaf writer, lacking access to what is represented, gain access to the process of representation? And how is the nature of this representation related to the efficacy of the semiotic resources which are available to mediate this act of representing - this activity of learning to write?

The act of representing meaning in writing requires that writers choose forms for the expression of what they have in mind, the representations which they see as most fitting and logical in the given context. "The interest of sign-makers, at the moment of making the sign, leads them to choose an aspect or bundle of aspects of the object to be represented as being criterial, at that moment, for representing what they want to represent, and then they choose the most plausible, the most apt form for its representation" (Kress & van Leeuwen, 1996). Seen in this light, the challenge for the child learning to write is in finding the ways to construct knowledge through the exploration and further development of the representational structures they already have at their disposal - those mediating tools which are "to hand" (see Olson, in press, for the more general argument). And in the inquiry described in this thesis, four deaf writers offer us insights into the nature of the mediational tool-kit or the representational structures they have available to assist them as they construct a representation of meaning in a written text?

It has already been argued that the tool-kit described by these writers is comprised of
resources which have an "English" quality. This strikes one as particularly unsurprising, given that the writers are looking for representational structures (mediating tools) which will help them create a representation in written English, which is itself a meta-representation of spoken English. This also explains why spoken English affords the hearing writer such an expedient tool to mediate the initial forays into learning to write. And in turn, as Vygotsky (1978) argued, writing makes children conscious of language, and as Olson (in press) suggests, this comes about as the result of the process of model or metaphor - seeing one thing in terms of another, with that relation specifying a new concept. Which aspects of language are brought into consciousness is dependent on the nature of the writing system, with different writing systems bringing different aspects of speech into consciousness (Homer & Olson, in press). In other words, the hearing child comes to see speech in terms of an alphabetic orthography, bringing spoken language into focus as a "thing" to be reflected upon but also, I would suggest, as a tool to be manipulated and exploited in the text creation process.

Taking the claim further, I would contend that as deaf writers engage with print they come to see, not spoken, but signed language in terms of the model that print affords, and that the nature of the English orthographic system directs the learners to find particular relationships between sign patterns and structures, and the written mode. Just as the hearing writer's growing knowledge and awareness of print brings into focus aspects of spoken language which "map onto" or can be found in print, the deaf writer's focus is turned to an examination of the sign language which is used to mediate the process of text creation. "ASL signers have over time developed conscious and unconscious strategies for learning to read [and write] that involve deploying elements of their language for the purpose of forming associations between

Thus as the deaf writer begins to engage in the activity of learning to write, using the set of signing resources which are “to hand”, these resources may themselves be transformed. In other words, in coming to the task of writing, the students capitalize on their knowledge and facility in ASL, bringing this tool to bear on the problem of creating a written text. As they deploy this resource in the writing process, the tool itself is altered and recast to more closely align it with the image of the text which is being produced. And in turn, this transformed tool can come to function as a mediating tool in future instances of text creation.

As was reported by the writers in this study, idea generation often occurs in ASL or in inner sign, and it can represent the most expedient and effective avenue for deaf learners to discuss topics, plot and content. But as has been pointed out in previous chapters, there is little common ground between a linguistic representation of ideas in ASL and the linguistic representation of the same ideas in English print, and this provides a rationale to account for the greater difficulties that deaf writers, including those in this study, have with the lexical and morpho-syntactic aspects of written English.

But while, as modes of meaning making, signing, speaking and writing deploy different sets of semiotic resources, in practice there is an unavoidable functional integration of the three for deaf individuals. In an examination of writing as a discourse process for hearing learners, it is necessary to consider it against the backdrop of speaking and to investigate the critical connections between the two (Sperling, 1996). In thinking about the deaf writer who composes “under the influence” of their Deaf Umwelt, it is necessary to
consider the development of writing against the backdrop of signing, and to think about the ways in which this mode of meaning making is compatible with the learning of writing. A corollary conclusion would be to suggest that perhaps there are certain ways of signing “which better prepare students for the writing that schools value” (see Sperling, 1996, p.61, who makes this case for other culturally diverse learners). And it could be further argued that considering sign language, in concert with writing, as two complementary yet divergent modes of meaning making, offers an important example of the ways in which there can be a functional integration of semiotic resources even where there is a difference in both mode and language.

Lemke (1999) expresses a concern for the materiality of the meaning making process and the implications for the kinds of meanings we make and how we make them, and he goes on to examine the distinctions between typological and topological modes of meaning making. With respect to language, he describes typological meanings as those which can be captured in the categorical distinctions of sentences and words, and topological meanings as those which are more fluid and continuously variable, relating to what are often called the paralinguistic aspects of language such as prosody, gesture and spatial relationships. All languages, as meaning making processes, combine both typological and topological features, but in sign language this complementarity takes on unique aspects. “Topological” gestures and spatial relationships, which in English serve to supplement the linguistic stream, take on typological functions, in that gestures are linguistic units (individual signed “words”), and spatial relationships denote the categorical, syntactic relationships between the signs.

ASL is a language that represents meaning via a typological, syntactic space in which
elements are combined according to arbitrary and conventional rules, and via a topological space that makes use of spatial properties (chart-like and diagram-like) for combining elements into larger units of meaning (Macken, Perry & Haas, 1995). And as a heterogeneous system it is extremely effective in that “it permits communication to flow at the same rate as spoken language, in spite of the fact that it takes about twice as long to make an ASL sign as to say the corresponding English word” (ibid, p.363). Thus while both spoken English and ASL combine verbal and visual forms of representation, sign language, by the very nature of its mode of articulation, blurs the line between what is visual and what is verbal and between what could be viewed as typological or topological.

This distinction is relevant to the situation of the deaf writer if one considers that written language clearly foregrounds the typological aspects of meaning making, even though it is a visual form of representation like ASL. Unlike the exactness required in writing, the gesture and spatialization of ASL allow for greater latitude and flexibility in making meaning and communicating information. Meanings which are represented typologically in speech, and even more so in writing, are represented at least partially in a topological manner in sign through the continuous variation and modulation of movement that signing allows. As deaf writers attempt to bring this visual-gestural system of representation in line with the representations of meaning captured in print, they face the challenge of reconciling the differences between these typological and topological modes of meaning making. “A formal emphasis on typological meaning constructions [such as learning to write], on definitive categorizations and sharp boundaries, is necessarily in tension with topological aspects of the phenomena [signing]” (Lemke, 1999, p.183, material in brackets added). And I would argue
that the writer’s tool-kit described by Jane, Alan, Alexandra and Mark is suggestive of the semiotic resources, both verbal and visual, which are brought into play as deaf writers deal with this tension.

But “we cannot account for the dynamical, self-organizing, and emergent character of spontaneous social interaction and activity if this data, or our focus on it, artificially dismembers the unity of meaningful action into what our various semiotic analyses (linguistic, verbal or gestural) have evolved to describe separately. If we separate, it should only be in order to more richly reconnect” (Lemke, in press), and in developing a general semiotic theory of writing and the deaf writer, I would propose that it is necessary to explore these connections through an examination of the mediating tools employed by these writers as they engage in the activity of writing.

**Not All Tools are Created Equal in Mediating Action**

In thinking about the tools which mediated the text creation process for the four deaf writers in this study, it is germane to note that there has traditionally been less disagreement among educators and researchers in the field about the value and use of fingerspelling, direct instruction and reading as resources to be exploited in the writing process. And in line with Wertsch’s (1998) contention that all tools come with “built in” affordances and constraints, it has even been acknowledged, as was discussed in the previous chapter, that each of these tools has limitations with respect to how well they will mediate the process for individual deaf writers. There is a growing consensus that we do not yet have a clear sense of the “tricky mix” of tools which will most effectively mediate the process for the majority of deaf writers in most situations.
But the mention of one particular tool in this tricky mix is almost certain to raise concerns and generate heated debate. The suggestion that some form of English-like signing (contact sign) might play a role in the writing process is often met with resistance because it is viewed in terms of the potential threat that it poses to the role that ASL is seen to play. However, I would suggest that if ASL and contact sign were thought of, not as competing, but as complementary modes of representation, it would go a long way to reconciling some of the debate that surrounds the use of these cultural artifacts as mediating tools in the literacy learning process. And conceptualizing the problem of learning to write as a linguistic problem of representing meaning in a print mode allows ASL and contact sign to be re-examined in terms of the ways in which they can and cannot mediate this process.

With the recognition of ASL as a legitimate language being relatively recent (Stokoe, 1960) and considering the ongoing struggle that has attended the acceptance of ASL as a language of communication and instruction in educational settings, the concern on the part of the Deaf community is understandable. Historically, visual linguistic schemes were deemed to be inferior to verbal schemas either in an absolute sense or in ease of representation (Baron, 1981, p.48), and comments such as the following one, which come almost twenty years after Stokoe’s seminal studies on the linguistics of ASL, continue to fuel concern. “I deny the thesis, stated in the introduction, that ‘deaf people possess visual systems of communication that are real languages in linguistic complexity and communicative capability, in no way inferior to spoken languages’. To me, the contrary is the case” (Van Uden, 1986, p.93). As a consequence, it is hardly surprising to find that, in the ongoing communication, language and modality controversies in deaf education, the dialogue has had an antinomical flavour in which
one must be seen to "come down" on the side of either ASL or contact sign, leaving little negotiating space for considering their co-existence (see Wertsch, 1998, for the more general argument).

Contact sign has been recognized as a naturally occurring aspect of the deaf community as a result of the fact that "there would be contact between English and ASL in the American [and Canadian] Deaf community even if the medium of instruction had always been ASL from the very inception of deaf education, because of the respective functions of ASL and English in the lives of deaf people who are at once members of the deaf community and members of the society at large" (Lucas & Valli, 1992, p.123). But recognition of this fact has not led to wide acceptance of the use of contact sign in educational settings. "Contact signing will naturally occur in educational settings, but its occurrence does not seem to justify its use as a medium of instruction or its being taught to parents, to prospective teachers, and to students, because contact signing alone cannot provide access to the full range of language use that parents, teachers, and students will see" (ibid, p.124). There is a resistance to the notion that ASL and contact sign can coexist in effective complementarity in classroom settings. Yet the reports of the four deaf writers described in this inquiry are contraindicative of this contention.

"If human language is a means of social exchange, then the purpose of that exchange will have a strong influence on the particular form the linguistic representation takes; it may even affect the choice of modality. An understanding of the term functional perspective is therefore critical to our discussion of speech, writing, and sign as particular forms of linguistic representation" (Baron, 1981, p.92). Within the deaf community, ASL, contact sign and
written English serve different social and linguistic functions, illustrative of a distinct diglossic situation in which two languages and two modes are clearly distributed according to functional domains, with each language/mode in some sense being irreplaceable by the other. These three modes of meaning making have co-evolved historically and continue to develop as intersemiotic systems, functioning together to serve the needs of the deaf community. I would argue that the differentiation and valuation of the three is primarily the concern of linguists and researchers, but does not represent a concern to the ordinary users of the languages. And unfortunately this construction of difference, instead of being illuminating, often casts one side of the difference in predominantly negative terms (Penuel & Wertsch, 1995).

"Not only is there a basic dialogic relationship between individuals as expressed by Bahktin (1986), but social groups and their conflicting Discourses are in a dialogic relationship. No discourses are neutral; they are valuational, always from the perspective of the social group that sanctions the Discourse” (John-Steiner, Panofsky & Smith, 1994, p.39). In the field of deaf education it is often the case that one needs to be seen as for or against ASL, with this positioning having social, cultural and political ramifications for individual language users. This has much to do with the strength of the connections between the ways in which the use of certain representational forms signals one’s identity and allegiance to a particular cultural group. For some individuals, rethinking the role of ASL, to allow for the use of contact sign in educational settings, is tantamount to questioning their cultural orientations and perspectives. The comments made by the stakeholders in the school setting described in this inquiry and the tensions that attended the development of a school language policy are representative of this dilemma.
On a theoretical level it is well and good to argue that learning to write for the deaf student involves code switching and the joint construction of new linguistic forms, but it must be acknowledged that attempts to put this theory into practice are fraught with difficulties. If activity refers to “a socially defined setting in which the implicit assumptions determine the selection of actions and their operational compositions” (Wertsch, 1985, p.212), it would be expected that the socio-cultural influences of the deaf and hearing communities would sanction certain actions, operations and mediating tools over others. But “among other things, the motive that is involved in a particular activity setting specifies what is to be maximized in that setting. By maximizing one goal, one set of behaviours, and the like over others, the motive also determines what will be given up if need be in order to accomplish something else” (ibid, p. 212).

Within the field at the moment, motives are conflicted as a result of the cultural, institutional and historical forces which define the ways in which ASL and contact sign are viewed and valued as cultural tools in the Deaf community. On one side of the debate there are arguments for the use of contact sign, also referred to as manual English or pidgin sign English, which claim that this linguistic tool has an important mediating role to play in the development of language and literacy for deaf learners. Marschark and Harris (1996) cite studies to support the claim that the best situation for deaf children learning to read and to write is to be exposed to both sign and English, and he argues that these findings “contradict the rationale behind the strong proposals of Johnson et al. (1989) concerning the undesirability of English-based artificial sign systems in the education of deaf children” (p. 295). Gonter-Gaustad (1986) conducted a study which indicated that certain basic English skills can be
developed through the use of Manual English codes.

On the other side are those who see contact sign, as an incomplete, inadequate system of communication which is unsuitable as a mediating tool in the literacy learning process. Kuntze (1998) argues that manual English meets the linguistic requirements of a “simple communication” but that only a complete language like ASL is adequate for providing deaf children with the symbolic and cognitive tools they need to make progress in literacy development (p.13). Stewart (1987) warns against regressing to the use of pidgin sign English, as opposed to using ASL or an invented manually coded English system, as he claims it “may undermine attempts to instill other linguistic competencies in deaf children” (p.68).

According to Livingston (1997), English-like signing “is a system of signing that does not fit the meaning-making and meaning-sharing needs of a visual/gestural modality and, as such, conveys only gists or partial understandings of information that Deaf students are entitled to in full” (p.6). Although they acknowledge that language mixing is naturally a part of children’s developmental process, Nover & Andrews (1998) recommend that teachers do not mix the language systems in the classroom by using artificially constructed manual systems but rather codeswitch between ASL and English, presenting English only via reading, writing, fingerspelling, lipreading and the like (p.53).

**Mediating Tools and Cultural Artifacts - ASL and Contact Sign**

While not exhaustive, these positions are representative of the current state of the discourse in the field, allowing one to make the case that, with respect to a consideration of the mediational tools that are employed in the process of writing and learning to write, signing is the focal point for the debate, standing as it does as a defining feature of the Deaf
community. Up to this point I have used the terms, cultural artifact and tool as if they were interchangeable, but I would like to argue that it is productive to make a subtle distinction between them. The notion of artifacts conjures up a sense of cultural products which offer tangible evidence and traces of the activities of a given culture. "Artifacts are in some respects models. Their structure carries, within it, so to speak, a theory of both the human who is using it and the range of environmental circumstances in which it will normatively be used" (Cole, 1996). Thinking of ASL as a cultural artifact leads one to think about ASL as the manifestation of the efforts of generations of deaf people to effectively mediate their world. It then seems reasonable to attempt to capture and describe the nature of this artifact, ascribing to it "static" qualities that define it in terms of some perceived linguistic standard.

As well as providing evidence of cultural "work", artifacts may also function as tools in the construction and reconstruction of knowledge by individuals as they participate in relevant cultural activity. In this way artifacts "are models: representations to ourselves of what we do, of what we want, and of what we hope for. The model is not, therefore, simply a reflection or copy of some state of affairs, but beyond this, a putative mode of action, a representation of prospective practice, or of acquired modes of action" (Wartofsky, 1979, p.xv). In the act of creating metarepresentations such as writing, we make use of artifacts which are themselves representations.

But in the action of representing, various artifacts are put to use as tools to mediate the construction of a product, and in the process the artifacts themselves (as tools in use) may be transformed. In the process of learning to write, spoken language plays a mediating role, but as a writer becomes increasingly "print" literate there is a substantial reciprocal effect on this
tool and as a consequence the nature of the writer’s spoken language is transformed, taking on some of the qualities of the written mode. The claim is not that these literacy effects are automatic and seen in every instance (Scribner & Cole, 1981), but rather that they would be most evident in other literacy-related activities (Wells, 1996a). In other words, as a result of learning to write, spoken language itself takes on some of the qualities of the written form, and in turn this new mode of speaking serves a mediating function in the other. And if this is the case with hearing writers, it would be reasonable to suggest that in similar fashion the nature of ASL would be transformed as a consequence of its being used as a mediating tool in the writing process. Just as Greenfield and Smith (1976) argue that literate hearing individuals can speak a written language, so might it be claimed that English literate deaf individuals can sign a written form.

The four deaf student writers in this thesis study are all fluent users of ASL but do not rely on this language to mediate the writing process at the “point of utterance”. Rather they were consistently seen to use contact sign as an integral feature of the text creation process. I would like to suggest that this example illustrates how deaf individuals, as cognitive opportunists, make use of what is “to hand” (Kress, 1997), and in the process may choose to employ tools as they “find” them or transform them, as they see fit, in order to engage in problem solving action. This is consistent with the notion that artifacts from one activity system may be expropriated into a new system, with the artifact itself being transformed in the process. While these transformations, when looked at on a microgenetic level, are not grand in scale and may even be seen negatively by many of the participants in the activity, they do have the potential to affect and alter the trajectories of collaborating groups and ultimately cultures.
themselves, through the cumulative effect of a succession of small changes (Wells, 1999).

"The child is never simply a passive recipient of the ways of speaking [or signing] that he or she encounters, but is continually constructing from them a personal meaning potential and a related perspective on experience. At every stage in his or her development, therefore - in childhood and beyond - each individual has unique contributions to make to the interactions in which he or she participates and an opportunity thereby to contribute to the modification of the social structure. For as Halliday emphasizes, it is by individual acts of meaning in the situations in which those interactions occur, that the "social reality is created, maintained in good order, and continuously shaped and modified" (1978, p.139). In keeping with his chosen perspective, therefore, Halliday’s explanation of the possibility - indeed the inevitability - of change is inter-organismic, based in the dynamics of interaction and his conception of social man” (Wells, 1994a, p.78). And these individual acts of meaning, which ultimately contribute to the shaping of the social structure, are tied to notions of tool use and mediating artifacts.

I would propose that it is in thinking about the individual in action that the metaphor of tool use is most relevant, as one considers active agents solving particular problems by employing the resources to hand. In contrast, with artifacts there is a sense of “objects” which are extracted from practice, and which can take on the features of relics or icons which have the potential to be revered or rejected. “Artifact”, as a concept, has a synoptic quality, allowing for a consideration of any cultural tool as an object which can be thought of independent of the actions and activities in which it is embedded. This distinction is by no means absolute but is suggestive of the tensions and resistance that may surround the appropriation and mastery of any particular cultural artifact (Werstch, 1998).
Adopting this view offers a rationale for explaining the divisive discourse with respect to how ASL and contact sign are viewed in the larger deaf community. ASL, as artifact, is seen as the natural language of the deaf community - the cultural product of generations of signing deaf individuals which continues to function as a viable cultural tool in the day to day activities of the deaf community. And it is precisely because it continues to function as a tool that it has survived, even in the face of institutional attempts to marginalize and even eradicate the language (Lane, 1992). Although recognition and legitimacy as a language are important in securing the status of ASL as a linguistic artifact, these are not the factors which guarantee its continued existence.

Contact sign, as has been explained previously, has been deemed to be the inevitable result of the inescapable contact between the deaf and hearing communities. Just as ASL serves a role as a discursive tool in the Deaf community, so too does contact sign. But while the existence of this linguistic “hybrid” as a mediational tool is acknowledged and recognized, its status as a cultural artifact of the deaf community continues to meet with resistance. This contradiction is played out in the changing power relations between the communities and individuals, which can be analyzed at both the micro and macro levels by tracing the variable uses of this discursive tool to mediate the contradictions and transform the activity system (Russell, 1998).

While the internal contradictions of a given activity system in a particular phase of its evolution can be more or less adequately identified, any model for the future which does not address and solve those contradictions will eventually turn out to be non-expansive (Engestrom, 1991, p.14). On the other hand, addressing these contradictions, in the course of
both individual and collective development, is often the reorganization or adaptation of current semiotic practices. While the ideal might be that all individuals have at their disposal the full range of mediational means or modes of thinking that are associated with a culture and know which of them must be employed in particular situations (Wertsch, Tulviste & Hagstrom, 1993, p.351), this is often difficult to realize in practice for two reasons: agents do not have equal access to and mastery of the full range of available mediational tools, and there can be strong socio-cultural influences which serve to place higher value on the use of one tool as opposed to another. But the valuing of any tool only makes sense if it occurs in relation to the job it was intended to do.

In terms of material tools such as hammers or calculators, there is little point in debating whether they are good or bad tools. A hammer can be deemed apt and suitable if one is in the process of trying to hang a picture but it would be completely inappropriate if one were knitting a sweater. While the use of calculators in the classroom is often the source of much debate, they are not seen as unilaterally “bad” tools but rather as inappropriate for some learners in some situations. In similar fashion “signs do not have autonomous meaning but rather take on meaning through their role in the cultural history of the people who produce and interpret them. The meaning of particular signs may change through the activities of the people who use them” (Smagorinsky, 1997, p.67).

I would make the case that ASL and contact sign both have heuristic utility, and function as dynamic representational resources and modes of meaning in the deaf community and, as “tools in use”, both are constantly being shaped and remade by their users as they participate in a wide range of cultural activities. As aspects of a living language system, these
changes are inevitable, and the linguistic diversity that has been identified within the deaf community is a result of these changes. For instance, with the recognition of ASL as a bonafide language, with its subsequent linguistic analysis and study, and with the increasingly wide use of the language in educational settings, there has been a predictable increase in the arbitrariness of the signs used and arguably (Baron, 1981) a decrease in iconicity. The invented sign systems introduced into the deaf community via the education system in the 1970's, while widely rejected as cumbersome and unnatural, did leave their mark on ASL in the form of some specific lexical items and the increased use of initialized signs (signs which are formed using the letter from the manual alphabet which corresponds to initial letter of the written word). The elements of these artificial systems, which were appropriated by the deaf community, were those which served a linguistic purpose - even though this purpose had not been identified in advance.

And I would suggest that as ASL and written English function together as tools for meaning making in the Deaf community, the die is cast for the emergence of contact sign as an aspect of the ongoing natural evolution of ASL. I would further contend that contact sign is a direct result of attempting to adapt the sign channel to more closely fit the model provided by the written form and that it comes to function, in turn, as a tool in mediating the processes of learning to read and to write. While these changes are functionally motivated, it is also important to distinguish that these linguistic resources, while functioning to mediate linguistic activity, also have social value attached to their use.

In considering issues of linguistic diversity, Cole suggests "that a CHAT approach ...... uses a bridge strategy with two-way traffic ......that wherever culture-using creatures interact,
they create between them a hybrid subculture, appropriate to the activity it mediates (1998, p. 300). He goes on to say that these hybrids go by many names - third spaces (Gutierrez, Rymes & Larson, 1995), tertiary artifacts (Cole, 1996), and border or boundary objects (Star, 1989; Thorne, 1993). Thinking about contact sign as a linguistic form fashioned from the raw material of ASL and written English, allows for a conceptualization of contact sign as a tertiary artifact or a boundary object, and is useful in helping to explain and understand the circumstances of its use and how this plays out in the deaf community and more specifically in educational settings.

Competency can be seen as clearly linked to context. That is to say, one is deemed to be literate relative to the community that serves as the reference point for this appraisal, and thus an individual can be seen as literate in one context and not in another. While notions of competency are tied to contexts, the mediational resources or cultural tools that support one in the development of this competency can be seen as portable. In this sense competency can be seen as a reflection of one's ability to use an already acquired tool-kit in new situations, and in this way competencies can be said to span diverse contexts and even blur the boundaries between otherwise distinct communities (Kirschner & Whitson, 1998, p.27). I would suggest that this is consistent with Olson's point (in press) that "knowledge is constructed when the learner can take one set of concepts and use them as a model for thinking about some other set of events". Contact sign blurs the distinction between the deaf and hearing communities as it is an instance of using cultural artifacts (ASL and English) from both contexts to create a mediational resource that straddles the line between the two.

It is the fact that contact sign, as artifact, sits at the intersection of the deaf and hearing
communities that causes the sense of discomfort around its use. The axiom that semiotic resources are influenced and shaped by historical, cultural and institutional settings accounts for the fact that "mediational means that help organize the intrapsychological plane are often shaped by forces other than the demands of efficacious mental functioning" (Wertsch, 1989, p.154). This goes some way to accounting for the differing viewpoints with respect to recognizing a role for contact sign in the classroom, and paying attention to the "communication history" of the Deaf community helps one to understand the tensions that surround this issue in the school setting described in this inquiry. However, although the data reported in this study, consistent with research reported in related areas of literacy development, suggest that contact sign does play a role in the literacy learning process, the resistance persists - not only within the school but in the larger community as well. But "as is the case with many antinomies, the key to dealing with this one may be to recognize that the very formulation of issues in either/or alternatives is counterproductive" (Wertsch, 1995, p.60) because this antinomy is, like so many others, "false" and "misleading" (ibid, p.60).

Jane, Alan, Alexandra and Mark incorporate both ASL and contact sign into their text creation process as a matter of course because each serves a functional purpose in the writing process. While engaged in the activity of writing and learning to write, these writers are not concerned with the status of ASL and contact sign as cultural artifacts. They simply employ them as tools which are "to hand" to mediate the text creation process. And what they have to hand, is employed in a most commonsensical way as they attempt to represent meaning in print.

In the process of writing and learning to write, they learn that, although written English
is not a transcription of what they sign in ASL, it does provide a model, however distorted, for thinking about sign language. This accounts for Jane’s comments that “they (ASL and print) don’t match really” and “if I understand ASL and write ASL, it doesn’t connect - it’s confusing”. These students are discovering something about the sign language they are using - that it does not “map on to” writing in any direct way, and that English-like signing comes closer than ASL. Thus as these writers begin to “write sign language”, the nature of signing itself is transformed, at least when they are engaged in print related activities which call for a representation of meaning in English. Such was the case when these writers were observed to read the texts they had written, as they modified their signing to bring it “in line” with the script on the page. They “read aloud” in contact sign, not ASL, with the written text serving as the model for the signing and determining the nature of the sign produced.

This line of argument is based squarely on the propositions put forward by Olson (1996, 1994, 1995b) and, in applying his argument to the history of the development of writing in the deaf context, I would suggest that the deaf writer is attempting to represent a sign language with a script that is ill suited to the task (1996, p.144). In attempting to reconcile the contradictions between the two, they make use of the connections which are there (such as fingerspelling and initialized signs) and they begin to modify other aspects of their signing to conform to the model suggested by the categories of the script. This modification, for the writers in this study, takes the form of contact sign and I would propose that it offers an explanation for the prevalence of contact sign in the deaf community as well.

I believe that it also helps to account for the fact that the standard to which contact sign is often held, by those who are critical of its use, is the written and not the “spoken” form, with
the tendency being to analyze contact sign as a “piece” of writing, not as a “piece” of spoken text. Critiques do not focus on whether contact sign functions effectively as an avenue for communication or as an avenue to mediate the reading and writing process, but rather express concerns that it does not directly reflect each and every English morpheme in the signed stream. This concern as to how well contact sign maps onto written English tends to be the focus even though the message in contact sign may be understood (Mayer & Akamatsu, in press), and even though the “missing” signed morphemes can be accounted for in the mouthing/voicing which accompany the signing, or can be found in alternate representation in the ASL grammatical features which are an aspect of contact sign.

To pull apart contact sign in this fashion is an attempt to analyze it as a cultural artifact apart from its role in cultural practice. In contrast, a conception of contact sign as cognitive tool embedded in practice is illustrative of adopting an analytic perspective in which “knowledge has not been abstracted as an object that can be discussed, compared, or hypothetically modified” (Bereiter & Scardamalia, 1996. p.495). In other words, to analyze contact sign by extracting and considering only the signed elements, does not take into account that elements of English such as mouthing and aspects of ASL such as directionality are fundamental to this system of meaning making. And adopting this narrow perspective ignores the fact that contact sign mediates the literacy learning process even though it may be judged by some to be inferior as a tool for making linguistic meaning. “The meaning of a sign or symbol at one moment in time can only be established in a more or less definitive way when this process of meaning finding (or construction) is supported by additional information from a surrounding field in which the meaning is functioning” (Van Oers, 1998, p. 475), and
to consider contact sign apart from the reading and writing which surround it, does not do justice to what its use can mean to the deaf learner of English. With this caveat in mind, it would seem most productive to think about contact sign as a multimodal avenue of meaning making which is embedded in a particular set of cultural practices.

In the discussion of the findings of this inquiry, there has been an emphasis on the semiotic resources which deaf writers employ in literacy related activities and it has been suggested that these mediational tools have clear connections to English. However this is not meant to suggest that ASL has no role to play in the literacy learning process. But to account for ASL in this process requires a conceptualization of the activity of writing and learning to write that expands on the notions of writing as a system of representation, or to be more accurate, metarepresentation. The writing process also encompasses the ongoing thinking about, planning and organization of ideas that will become the content of the text, and it is in this aspect of the text creation process that ASL can play an important role.

Thinking about writing as a metalinguistic activity puts the emphasis on how “written language plays a central role in the development of consciousness of language, particularly in highlighting properties and functions of speech [sign] as well as of structures of discursive interaction. Moreover, writing highlights not just language, but brings into consciousness the complex relations between oral [signed] and literate discourse and the world” (Brockmeier, in press). In this conception of writing “becoming literate is not just acquiring a skill; rather it is growing into a literate culture, into a literate tradition which comprises many discourses, including an elaborated metalinguistic discourse” (ibid).

Brockmeier contends that this notion of literacy as a metalinguistic activity can not be
viewed as an homogenous entity; rather it encompasses and is related to a broad range of factors and criteria such as: phonemic awareness, orthographic awareness, poetic features of language, verbal and nonverbal communicative practices, story-telling and narrative practices, writing technologies and material practices, multilingualism and bilingualism, and social environments. It is clear that in each of these factors listed, as they relate to the notion of writing as a metalinguistic activity, ASL and contact sign would differ in importance with respect to how well they would be seen to mediate the action within a particular domain. For instance, ASL functions most effectively as the linguistic tool for storytelling in the deaf community, as well as in educational settings such as the one in which the four writers in this study participated. In this way, ASL can be seen to support students’ understanding of story structure and this would have a positive impact on a writers’ sense of how to organize the ideas in a written text. This is borne out in observations and reports of Jane, Alan, Alexandra and Mark, who often used ASL during the brainstorming, prewriting stage of the text creation process. But in areas such as phonologic and orthographic awareness, ASL played a far less significant role, with contact sign, mouthing and other English tools assuming the more prominent position.

The writers in this inquiry are making opportunistic use of the cognitive artifacts which are to hand as they cobble a path to literacy. In practice there is less concern with which of these tools are sanctioned for use by the institution or the culture, than with what is most expedient to address the goal at hand. ASL, contact sign and the other tools described by the writers in this study are not in conflict for these individuals as they go about the business of learning to read and to write. All four of these students are rated as proficient users of ASL
and at the same time are ranked well above the norm with respect to their reading and writing abilities in relation to their deaf age peers. This positive correlation is consistent with the findings of a recently reported set of studies (Chamberlain, Morford & Mayberry, in press) which point to the robustness of the correlations between ASL and reading ability.

But this correlation, while robust, is not indicative of cause and effect but rather provides evidence for the position that ASL does not hinder the development of English literacy, and that it might even support it in some ways (Mayer & Wells. 1996, p.105).

“Future research should be directed toward the exploration of how the different modalities, phonologies, and representational systems of ASL and English come into contact, if they do, and how they are mediated in signs and writing” (Grushkin, 1998, p.199). To this I would add that we should focus our concern as teachers and researchers on the nature of this mediation and the linguistic tools involved - not for the purpose of analyzing them as pure forms but in terms of the role they play in literacy-related activity (Frawley & Lantolf, 1985, p.24). And in thinking about roles ASL and contact sign play in the process of writing and learning to write, it would be more productive to talk about notions of affordances (Gibson, 1979) which are relational and open-ended, allowing that ASL affords one set of possibilities and options and that contact sign affords another in mediating the literacy learning process. This grants a role to both and concedes that they can work in effective complementarity. This is a position that could have a significant impact on the design of future pedagogical models in the education of deaf learners.

**Models of Teaching and Learning**

“The meaning of literacy pedagogy has changed. Local diversity and global connectedness
mean not only that there can be no standard; they also mean that the most important skill that students need to learn is to negotiate regional, ethnic, or class-based dialects; variations in register that occur according to social context; hybrid cross-cultural discourses; the code-switching often to be found within a text among different languages, dialects or registers; different visual and iconic meanings; and variations in the gestural relationships among people, language, and material objects” (The New London Group, 1996, p.69). The suggestion is that there are no universal models and goals for a “good education” but rather that every model is, and must be, culture and subculture specific. But how much diversity of end state competencies cultures and educational systems will tolerate or foster, raises the question of what the instructional goals are for diverse cultural groups (Sperling, 1996), with the situation of the deaf learner of English being a case in point. Should deaf students be viewed as one variety of ESL learners, capable of achieving similar goals via ESL pedagogical approaches (Swisher, 1989)? Should the end state goal be nothing less than the achievement of reading and writing levels equal to that of hearing, age-matched peers (Grushkin, 1998) or should we acknowledge that achieving this level of text-based literacy is problematic for a large number of profoundly deaf learners (Paul, 1993, 1998)?

The assumption in some models of learning to read and to write (Goodman & Goodman, 1990) is that language acquisition is nondevelopmental and that the main thing that “children need from the beginning of formal instruction is to expand the repertoire of functions they can accomplish with the aid of print, with this expansion occurring naturally with the accretion of experience in comprehending the world through print. Consequently, mastery of the code goes hand in hand with expanding the functions to which reading [or
writing] is put" (Cole, 1996, p.272). Other pedagogical approaches are predicated on developmental frameworks which presume some sense of one stage preceding another (Chall, 1983; Adams, 1990) and which assume some qualitative and fundamental reorganization of the learner’s behaviour along the way. Hemphill and Snow (1996) agree that exposure to and engagement with a wide range of functions is important but they also suggest that if we view children as skilled linguistic problem solvers, form masterers and flexible sociolinguists, we would also provide activities to develop children’s abilities to consciously analyze and think about language as an object of reflection and we would recognise that rules for producing discourse are arbitrary, and language, community and situation specific (p.198).

"Teaching in a sense defines the problem space in which children construct their knowledge. Discovery provides a large problem space; expository teaching a more delimited one. Each has its risks. Too large a problem space and the child may never hit on a solution; define it too narrowly and a student may simply memorize a solution. Effective pedagogy is a matter of balancing the constraints" (Olson, in press). In many ways this view is in accordance with my own as it allows for an integration of the “top-down and bottom up” aspects of the literacy learning process, and it grants a place for the notion of reading and writing development as a jointly constructed activity between teacher and learner. But I would expand on this notion of teaching and learning as “problem space” and add that access to mediational means plays a role as well.

Wertsch (1998) suggests that one reason for the conflicting results of research on effective methods of instruction is the “failure to appreciate the power of the mediational means involved” .... “mediational means are often viewed as simply reflecting underlying
psychological and social processes, not as having a central role in shaping discourse” (p.119). But models of teaching and learning which prescribe trajectories and imply that all students will reorganize their literacy learning activity in particular ways with a particular set of tools at particular times are questionable in their attempts at generalization (see Cobb & Bowers, 1999, p.9, who make this argument with respect to mathematical activity). Thus while we do have norms or standards with respect to the end products of the literacy learning process, there is no one right set of tools to mediate the activity and “even though we may arrive at very similar places, we have got there by quite different paths” (Kress, 1997, p.96).

I would propose that expediency rather than prescription is an appropriate description of the opportunistic actions of students engaged in the process of learning to read and to write, and the students described in this inquiry, like the young children described by Kress, make use of the semiotic resources they have to hand as they construct and transform their meaning making with print, often in unique and seemingly unconventional ways. And in this process, even though there is not a set of prescribed tools, the teacher, by virtue of his or her position as the more knowledgeable other, can to some extent predict the mediational resources which a learner may find most helpful. By directing the learner’s attention to these tools in some way, the teacher can be seen as aiding and abetting, making sure that children will have to hand what will make learning most possible (Kress, 1997, p. 37) - even when, as in the case of deaf learners, these most enabling tools may be looked upon by some with skepticism and disfavour.

Because schools participate in negotiating the meanings students attach to identity, the ways in which teachers and schools value and organize teaching and learning practices
becomes relevant to a conceptualization of students' behaviours (Davidson, 1996, p.5). “Any attempt at educational change, whether facilitating teachers' professional development or identifying social networks and cultural resources within local communities on which to build positive change, always implies political as well as pedagogical choices, for it always involves change in relationships and competition for resources, and it must always involve creating settings for connecting teachers and community as key participants in initiating and sustaining that change” (Moll, 1997, p.198). To open up the possibilities for change in the literacy education of deaf learners means dealing with all of the political and pedagogical issues and tensions which Moll refers to and which have been explored in this thesis. Any consideration of deaf writers making use of the semiotic resources to hand to mediate text production “in the moment” can not escape the fact that this action is linked to the activities and artifacts which now surround or came before. An unfortunate result in the case of the deaf learner is that the most efficacious tools for mediating action can sometimes get lost in the cultural shuffle, with the immediate needs of the learners taking a back seat to the grander political agenda.

“What is needed is a more adequate understanding, in practice, of the relationship between the agentive individual and the communities of practice in which he or she is a participant, and of the ways in which knowing and knowledge building in different modes are imbricated in the mediation of all but the most routine activities” (Wells, 1998). In this inquiry I have focussed on developing a better understanding of how deaf student writers go about participating in their immediate community of practice, and of the different ways in which they report that they come to know and build knowledge in the process of writing and learning to write. I have described how this “doing and knowing” is socioculturally situated and have
emphasized the importance of taking context into account. My hope is that this discussion will
go some small way to aid in developing, if not an adequate, at least a better understanding of
the composing processes of deaf student writers, and the ways in which pedagogical practices
can be constructed to aid and abet this process along the way.
Conclusion

The question which prompted the investigation described in this thesis was born of my own experience as a teacher of deaf students. These are students who face particular and unique challenges in becoming literate in English and they typically graduate from secondary school with reading and writing levels at a fourth grade level. As is outlined in detail in earlier chapters, this unsatisfactory situation can be attributed (at least in part) to the fact that these learners do not have ready access to English in its primary spoken form and that, in addition, there is no direct mapping from American Sign Language (ASL) to English script to aid them as they engage in the process of learning to read and to write. This difficulty is compounded by the fact that many of these students do not have command of any sign language upon school entry and that once they are in school there is a debate among the professionals as to whether ASL or contact sign should be used as the language of instruction in the classroom.

To address this concern and to shed some light on writing processes which are not yet well understood or investigated, I undertook a study of the composing processes of four deaf student writers. As a result of this inquiry it became apparent that these writers made use of a number of means or strategies to produce and interpret a written text. These means included fingerspelling, remembering what they had been directly taught, recalling previous experiences with text, mouthing, and contact sign. But while all of these means were seen to mediate the production of a written text, it is the reported use of contact sign which has the potential to generate the most heated debates in the field of deaf education as many professionals argue that contact sign has no place in an educational setting.
However the students in this study were found to make extensive use of contact sign in the text creation process and used this linguistic tool as a strategy to mediate between sign and print. In every composing episode reported in this thesis the writers either recounted or were observed to make use of contact sign as they composed a text, often explaining that contact sign allowed a closer match to English than that afforded by ASL. This finding is significant and represents one of the major contributions that this thesis makes to the field of deaf education as it supports the view that contact sign does indeed have a role to play in educational settings.

In some respects this finding should not be seen as particularly surprising since it mirrors the situation in the deaf community where many deaf adults regularly make use of contact sign in interactions with hearing individuals, or when interactions have a connection to or involve English text (Lucas & Valli, 1992). But as a result of the language wars which continue to predominate the field and which were also in evidence in the school described in this inquiry, the acceptance of contact sign as mediating between ASL and written English remains problematic. This is an issue which is as much political as it is pedagogical.

The findings of this thesis suggest that what is needed is a rethinking of this position to allow for the use of both ASL and contact sign in the classroom as they can and do function in effective complementarity to mediate the writing process for deaf learners. By positioning this rethinking in a CHAT framework, the inquiry presented in this thesis serves to highlight and explore the tensions between what is seen as individual and social in the course of the development of the deaf student writer, allowing for a discussion of both the pedagogical and political aspects of the language learning situation of the deaf student writer.
Adopting an activity theory framework offered a means to consider these agents and their mediational means within the framework of an activity setting. In this way I have aspired to conduct a systematic inquiry, adopting a pattern of methods to make links between theory and practice and which emphasizes what Wells (1997) refers to as a situated dialectic between the two. My goal was not to discover “evidence” in the traditional sense, or to make claims for causes and effects in the complex, culturally mediated behaviour that is the writing process, but rather to consider learning to write as not only as an individual, psychological phenomenon but as a socially situated activity.

But if this use of activity theory is to function as a concrete tool in educational research activity, it must be embedded in the actions of rethinking and improving practice and as such it should be shared with the participants of the setting to clarify, communicate and reorganize the object of the activity and the mediating tools employed. In this way activity theory serves not only as a framework for discussing data after the fact for the benefit of other researchers, but it provides a structure for considering classroom practice and it is only in this fashion that it functions as a tool that can effect real change. “In the activity approach a human’s actions, objects, tools, or symbols are never absolutely meaningful by themselves. Their meaning is constituted by the role these elements play, as well as by the values that they get in the sociocultural activity, in the eyes of the agent” (Van Oers, 1998, p.481).

But in communicating the findings of any research it must be remembered that educational circumstances differ from school to school and classroom to classroom, so it would not be appropriate to suggest “solutions” to the challenges faced by the deaf student writer, intending that they be strictly copied and replicated across a wide range of settings. The
promise of a thick description such as the one presented in this inquiry is that it can point the way to potentially worthwhile pedagogical initiatives, and may add to the repertoire of resources and approaches that others can draw on in creating supportive teaching and learning climates for deaf student writers. It also suggests possibilities for future directions in the research of the literacy learning processes of deaf students - particularly research that is school-based and grounded in practice. And if learning to write and the development of the individual deaf writer is an ongoing polemic between changing individual and changing society, investigations of this process must be seen to take this dialectic into account (Beach, 1995).

Few would deny that writing is a complex cognitive activity and that all writers engage in this process in qualitatively different ways. Nor would it be unreasonable to assume that the writing process for deaf individuals would be any less complex - in fact, there would be every reason to believe that exactly the opposite scenario would be the case. And “the value of research to professional development may therefore be teachers’ examination of educational research on students’ thinking processes that may open their eyes and minds to the diversity and complexity of students’ thinking” (Rhine, 1998, p.30). In this spirit, the investigation outlined in this inquiry develops knowledge as it relates to the composing processes of the deaf student writer, trying to capture some sense of the complexity, specifically in terms of what the students do, what they know and how they come to know and do these things as they write (Lightbown, 1985). This "doing and knowing" is tied to the larger socio-cultural framework of the classroom, the school and community, and it is from this larger context that the students "mine" the cognitive artifacts which they make use of in their individual writing
process. In this way the act of "shaping at the point of utterance" is itself shaped by the activity setting in which it exists, and we, as teachers, researchers and co-participants in the activity, have an important role to play in the shaping of this setting as our deaf student writers make meaning using what they have to hand, to eye, to ear, and ultimately, to mind.
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Appendix A: Survey Samples

Name ____________________________________________
Date Feb 8, 96

GETTING TO KNOW YOU

1. How many languages do you know? What are they? English, ASL. Very little bit know Estonia.

2. Which language(s) do you use at school? ASL and written English.

At home? English... sometime with your friends? ASL.

3. Most of the time when you sign, do you use ASL or English?
   I do use signing ASL.

4. Can you understand ASL? Yes

   English signing? No
   Written English? Yes

5. Do you like to read? Yes
   Do you like to write? Yes

6. Which is harder for you - reading or writing? Explain why.
   Nothing harder for me, but little bit. Because sometimes I written English... or read... I mean hard to find out WREDS words... that I don't understand... or confused. Sometimes, when I write... some words are wrongs... because I usual ASL... right... so that's why I'm confused to do... but I understand now to read.
GETTING TO KNOW YOU

1. How many languages do you know? What are they? English

2. Which language(s) do you use at school? English
   At home? English
   With your friends? English

3. Most of the time when you sign, do you use ASL or English? ASL

4. Can you understand ASL? Yes
   English signing? Yes
   Written English? Yes

5. Do you like to read? Sometime
   Do you like to write? Yes

6. Which is harder for you - reading or writing? Explain why.
   Sometime I understand reading
   I know writing!
   Because a little bit hard.
   Because I learn how to writing.
1. If you had to guess...
   How many books would you say you owned? 56
   How many books would you say are in your house? 59
   How many books would you say you've read in the last month? 4

2. How did you learn to read?
   Well... I learned how to read about um... 3 yrs of age.
   I kept to learning how to read improve.

3. Why do people read?
   Because it's important for people to read books.
   Need to read and learn and also to just be able to imagine anything.

4. What does someone have to do in order to be a good reader?
   They should to learn how to read, knowledge.
   New words like you did.

5. How does a teacher decide which students are good readers?
   Well... a teacher decide which students are good readers...
   Because the students read too much
   and know all mean and also understanding.

6. What kinds of books do you like to read?
   I like to read the books called "Fear Street", "Point" and um... I think that is all.
7. How do you decide which books you'll read?
I do decide which interesting books... called
women... "Fear street", "Point" and some very
interest books.

8. Have you ever reread a book? No. If so, can you name it/them here?
No. I can't name it/them because I
doesn't read it/them.

9. Do you ever read books at home for pleasure? Yes. If so, how
often do you read at home (for pleasure)?
Well, I was often read scary books called
"Fear Street" and "Point" when I have time
to read it after I do my homework.

10. Who are your favorite authors? (List as many as you'd like.)
My Favorite author is R.L. Stine and my old
Favorite author is Bruce... Sorry I can't
remember his last name.

11. Do you like to have your teacher read to you? Not really. If so, is there
anything special you'd like to hear?
Well... there is some special I'd like to
hear sad stories and interesting stories.

12. In general, how do you feel about reading?
I feel like... I want to go anywhere
like the books does. Remember I told you about
"Fear St." I like to visit there.
Writing Survey

1. Are you a writer? 2a. (If your answer is YES, answer question 2a. If your answer is NO, answer 2b.)

2a. How did you learn to write?
When I am two or three years old, I learned to write.

2b. How do people learn to write?
People do learn to write when they were younger.

3. Why do people write?
Because it is really important for them to do it.

4. What do you think a good writer needs to do in order to write well?
I think a good writer needs more properly to write well.

5. How does your teacher decide which pieces of writing are the good ones?
My teacher decide which pieces of English or right spelling.

6. What kinds of writing do you like to do?
I do like to write stories and Diary too.
7. How do you decide what to write? 
I do decide to write stories from ideas or create something interesting.

8. Do you ever revise or edit a piece of writing? If so, describe what you do.
I do both to see if I'm right or wrong and prepare what I will write about.

9. Do you ever write at home just because you want to? Yes
If so, how often do you write at home (just because you want to)?
I do often write Diary at home every evening.

10. Who or what has influenced your writing? How?
My teachers, two books, and friends influenced my writing. They were talking something interesting about or they always use it as habit.

11. Do you like to have others read your writing? Yes Who?
My friends and my teacher that I like to have them read my writing.

12. In general, how do you feel about writing?
I do feel comfortable and good for me to writing improve or whatever I likes to do about writing.
Appendix B: Writing Samples

Example 1

This is an excerpt from a speech, “My Vision of Tomorrow’s World”, that Jane wrote for an oratorical competition.

I always love to read the books, most the time I don’t understand what the sentences means, I have to ask my teacher or my parents about what the sentences means all the time. I thought maybe it could be good idea to have a special computer for the deaf people .... like when you read and you don’t understand the sentence then you can go to the computer and type the sentences and it will explians you by a person who signs ASL. That could make me understand better way.

When I read a bok, I noticed a big word that I don’t see that word before, then I went to get the dicatory book and I read the word means. But I still don’t understand. I tried to look at it over, over and over. It didn’t work sometime. I want to have a easy one which can make me understand from a computer by a person who signs Asl that can explain it clearly.

I always wearing my hearing aids. I don’t like it. Because it always looses. I didn’t hear properly because when I was in the ear .... I tried to hear out of the highway noises. I want ... in the fortune.... to et a right hearing aid that have a proper way to hear. Like number one is for speaks, #2 is for hearing the songs, and #3 is for normal like modern I have. It could help people to understand better than modern. I like the idea about the hearing aids without batteries. The hearing aids are similar the calculators. It could be best in the fortune.

Example 2

This is an excerpt from a letter of introduction that Alan wrote to HIP magazine. He was interested in finding a deaf penpal.

Dear HIP,
My name is __________. I’m 12 years old. My grade level is seventh. I love being deaf. I hate hearing aid because it hurts me a lots! And it also always cause the pain in my ear! Some hearin kids seem like me. Sometimes hearing kids ask me to how to learn sign language. I alway love to teach babies to learn how to alphabet! My family is all hearing people! But My family knows how to sign language very well! .......... I love being deaf!!!! Sometime another deaf kids wishes that they were hearing people! But mostly many deaf love being deaf! I also have another reason to the hearing-aid! because all these nosie in the all shout, crash, machine, yelling thing that makes nosie is alway bothering me!
Example 3

These texts were written as part of a literature unit in which the students considered the theme of "discrimination". The students had read the novel "The Elephantman" as well as several excerpts from books on deaf heritage. The students wrote essays comparing and contrasting the situation of the elephantman to that of the deaf individual in the late nineteenth century. These are uncorrected, unedited first drafts.

Discrimination
By Alan

A long time ago all people always discrimination other people. All people even doesn’t like deaf people and also elephant man. Sometimes when a deaf was born and mom like deaf baby except Dad doesn’t love deaf baby. All people also always call the deaf people "dummy"! Why? Because all deaf people don’t talk with mouth and it does make a senes! Because all dummy can’t talk because dummy have a white thing to wrapped over all body! Today wouldn’t let it happens again, because today got laws and rules! In facts when the century have changed .... all people found out that all deaf people are made from God as same god even made hearing person people. Too so that means it’s only for a nature earth with human! In earth happen always have a black people, elephant man, hearing person and deaf people in all nature century! In old century .... all rich people doesn’t have a feeling but sometimes some of them rich people got the feeling! Now today all deaf people, black people, elephant man and a hearing person people became friends for forever of their rest of life! They lived wonerful noe after all!

Different between Same
By Jane

Elephant man is difference between deaf people because people knew the elephant man, but not know the deaf people because they look normal to people. If people find out some people are deaf, they will disrespect and copies them and also discrimination them. If people see the elephant man, they will be afraid of him because he wasn’t normal body like people. But elephant man and deaf people understanding and don’t care that they born to be deaf or problem body. Deaf people live in a house. Elephant man live in the hospital. Elephant man was heavy weight and deaf people normal weight. The deaf people and elephant man aren’t stupid, they have brain, able to see, memories and imagine. Of course they wear clothes. Deaf people have hearing aid, use sign language and reading lip because they were deaf. Elephant man don’t use hearing aid, speak and hear from his ear because he was hearing. But they were the same because they can read, write and learn something. They were the same feeling from heart. They can meet new people who respect them. I know they already met a queen. Elephant man and deaf people were difference and same between them.
**Example 4**

This is an excerpt from a piece that Alexandra wrote to accompany a diorama that she had made as part of a unit of study on oceans and sea life.

**My Diorama**

Under the ocean there are many things. In my diorama are a crab, gold, seahorse, coral, lobes, o_______, house, many shell, plant and colour sand and men look for gold. The o_______ has 8 legs and has no eye and is swam. That crab is very s_____ because it has a gold and it shell live. it have many shell, 2 shell is 1 shell that is lobes’s house and br_______ shell. The plant is big line. The sand are bige, green, oraran and pink. The men want golds. The gold in plant to go and in the cave mouth. The seahorse say “HEY! What you doing here?”

**Example 5**

Mark’s classroom teacher used “story starters” as part of her writing programme. The following two paragraphs are Mark’s completion for one of these story starters.

The car took her to haunted house. She walk front door. She knock but no one there. Limo driver said “there is no one in there for ten year!” She open the door and she in the house. then door close itself. Not even wind. It was ghost. She turn around and scream. then she faint. she fell back and hurt herself. then she awake. she saw a ghost. she said, “a ghost.” the ghost said “Yes!” she asked question to ghost. she move that house and friend over. She asked what your name? the ghost said my name is casper. I’m friendly ghost and famous because I’m in casper movie. she said I saw that movie before. she is move to casper’s house over and friends over.

The End.

**Example 6**

Mark wrote the following story after a discussion which took place around Remembrance Day.

**“War”**

M_______ is soilder of Canada and USA. E_________ become nurse. S_________ is geremy soilder. There war Canada vs geremy. M_______ in war he and 4 soilder sit on helicopter We adrive in geremy I jump from helicopter and other four soilder then I pull rope Then parachute float up the sky We landed the ground We looking for geremy soilder I told them lie down Then I shot his left chest I walk closer and look at face Then I know his name is S_______ Then I angry I said “Why you work geremy soilder?” S_________ said “I want war with you to death” Then I turn and left and shot One geremy soilder shot my left sould 4 soldier pick me up to helicopter flying back to canada then nurse pick bullet out of slouder.
This is a portion of a four page story titled “Ghoul School” which was written by Alexandra.

They open a cupboard. Nothing. A ______ saw a trap door, J________ open it and saw ....... blood in many bottles. K________ run to the library and grab a book called “How to find Vampires and get rid of it”. T________ run to office. Some kids found nothing in office but some kids found bloods in staff bathroom and look for bloods. T_______ look at chapters number in How to get rid of Vampires. It said If vampire have no blood to drink over a 30 min. they dies or out a wood stick in those heart or put garlic water on them or show them the cross. Boys put all blood in fire. then they went to gym get sqrit gun, pour garlic water in it. Then went outside and get stick. Kids made many cross and hang it around the school and one for each kids. The boys pour garlic water on floor.
Appendix C: Transcripts of Prompted Recall Interviews

The students’ original, unedited text appears in italics. The attendant comments from the transcription of the prompted recall interview appear in normal font.

Example 1

T (teacher): Before you started to write you flipped back and forth in the pages of your journal. Why do you do that?

Alan: I flip back to read the question my teacher asked me last time. That helps me know what to write about.

T: Then I see you holding your chin and staring.

Alan: I am thinking about what I will write. I'm thinking about good ideas.

T: How do you get the ideas?

Alan: You know I have a list in my head and I save it in my brain. So when I need an idea or my brain runs out of gas (signed and mouthed word for word), I pick from this list. (pauses) I get an idea from the front of my brain - not the back - from the same place you get the sense of smell. My ideas come from that part of the brain. Also I assume (signed "guess" but mouthed "assume") I have a skill for ideas.

The "X" High School

When I get out of the "Y" school then I will go to the "X" school in next year!

T(points at the word "will"): I noticed you erased this word.

Alan: Oh well I knew it had to be future - I had to change it.

T: How did you know?

Alan: Because teachers told me - I learned the rule. I know that "will" is future.

My Mom say that my Mom rather have me going back to home then going "X" in morning.

T (points at the word "rather"): You stopped here for a while.

Alan: Oh I was thinking about like - I know it (the word) from a book I read and the man in the book said "I would rather eat there."

And my Mom also says that when I'm in 10 grade level then I will be living in "X's" bedroom! I will stay in "X" for 5 days (Mon-fri) on sat-sun I will stay at my home!

T: Here your eyebrows are raised and your eyes are looking up and you are mouthing.

Alan: I was thinking - I was counting the days. You know - like how many days I will stay at the dorm.
My Mom said that we maybe will visit the "X" in March!! Not in break week!! I hardly can wait! I found out that "Z" is lousy of learn thing!!

T: See the videotape. You move your lips a lot when you are writing.

Alan: I wanted to write those words - because I want to write them - that's how. (pauses) Because that was how I felt how to say that.

Example 2

T: You didn't start writing right away - you sat and looked "into space" for a while. What are you thinking?

Jane: I think about what I am going to talk about - what I will write about. Then I had an idea about "what's up" at home - or another good idea. Then I thought about adding more in depth (mouthed clearly) from what I wrote before in my journal.

T: Just before you start to write I see you move your head. How do you know what to write first?

Jane: I just do it. It's in my brain - my brain tells me. It says what to write - like an idea "pops up" and I write that and then I add more. I use my imagination. It's natural.

Two Schools

T: You didn't write the title right away. You stopped halfway into your story and added it. Why did you do it that way?

Jane: Well I didn't know what my title would be at the start. That's why I added it later. So it would make sense. My teacher said that was okay and a good idea.

I know that you heard about what Sara, Anna and I told you about yesterday. Do you think it could be fun to live in "X" ... I ... mean dorm ... in "X"?

T: You stopped and then you used ... (three dots).

Jane: Well it's when I'm stuck. I'm thinking and I don't know the words - like you know - like on the TTY when you are thinking.

In dorm ... it have a lot of to do ... like ... clean the room, cook by yourself for breakfast, watch after your objects, and something else.

T: I noticed you went back and added the commas. Why did you do that?

Jane: It's a list and a list needs commas. That's a rule.

It does have a lot of people ... like about a hundread thirty-five or a hundred fifty deaf students and some of them are rude and nice and thirteen deaf teachers.

T: I noticed you came back to this section and added the part "and some of them are rude and nice". Why did you do that?
Jane: I forgot - I wanted to say that here (turns the page and points to a section later in the text) but it didn't fit so I moved it to the first page. You know - like the ideas have to fit together in sections in a composition - like this part is about "what's up" at "X" and this part is about what's good and things like that. You know what I mean. I remember last year I learned about that - that ideas have to go together in writing.

T: How did you learn that?

Jane (grinning): You taught me! Remember when we did essay writing you told us about ideas going together - about the paragraphs (mouthed clearly).

I think seven deaf teachers in High School and six in elemesly ... I mean young school. It does have a good education.

T (points to the word "education"): You used white-out and changed that word. How did you know to change it?

Jane: If it's a word I use a lot then I have it memorized and I can spell it. If it's a hard word, then I draw a blank (shrugs shoulders).

T: What do you do if it's a hard word and you can't spell it?

Jane: If I can remember that word and I can't spell it, then I just pick an easier word.

T: (points to the word "elemesly"): What about that word?

Jane: Oh, okay. I know it's wrong but it's just a little wrong - it's almost right.

T: How do you know it's wrong?

Jane: It looks funny. (Jane then attempts fingerspelling the word).

T: Do you know how to fingerspell "elementary"?

Jane: Well mostly - you know. (demonstrates fingerspelling the word) Part is right (E-L-E-M) then it's messy (wiggles fingers). Then something, something, then Y.

It does have a big rule for dorm and school altogether. If I need help about my work which I need to understand, so I can ask the teachers to help.

T: You stopped writing and with the eraser end of your pencil you went back and pointed at the words in the sentences you had already written. Why do you do that?

Jane: I'm reading what I wrote - like if I wrote it I already know it like - (Jane then re-reads the relevant section by signing it in English).

T: I noticed you just signed it in English.

Jane: Well if I sign it another way it doesn't match really. Like if I write English (looks puzzled) - sign ASL - like the writing is English (pauses) - and the signs are ASL (shakes head) - Wow, that's hard - weird (continues to look puzzled).
T: Why is it hard?

Jane: Well for me signing (uses the "chat" sign) then writing - it doesn’t make sense to me - it’s funny. If I understand ASL and I write ASL it doesn’t connect (looks puzzled) - it’s confusing. Mostly I think English.

T: What doesn’t connect?

Jane: If I chat of course I use ASL but when I write it’s English -of course - you know that (Jane’s facial expression indicates that she sees this as an obvious point).
Appendix D: Transcript of a Retrospective Account

In discussing the text, Alan used consistent mouthing with signing.

T: I notice that you always moute when you sign.

Alan: I feel comfortable. And besides (signed "beside" as in location and mouthed the word) it helps me learn well. Like if I take the subway or a taxi on my own (mouthed clearly) then I need to know the skill of speechreading. But, of course (mouthed clearly), you know I don’t have the skill of voice. But when I moute it helps me to know the words - like "comfortable", "help", "found". Besides it’s my habit.

T: You told me you are good at reading.

Alan: My mother and father always taught me well (mouthed) to learn it. They explained to me (mouthed) that it is important I learn English and that I learn that I want to read.

T: How did they teach you?

Alan: They told me.

T: How do they tell you? How do they communicate with you?

Alan: With ASL and English signs both - with ASL and English mixed together.
Appendix E: Draft Communication Policy

1. “School X” is a bilingual community.

School “X” is committed to creating a bilingual environment in which both American Sign Language (ASL) and English co-exist and thrive. Deaf and hard of hearing students need to learn, use, respect and value both ASL and English as important and necessary components of their education and their lives. In such an environment, ASL and English will coexist in complex ways, and it must be remembered that every individual has the right to understand and be understood. The communication style of every individual will be respected.

2. “School X” provides a fully accessible visual environment.

A visual environment is critical if deaf and hard of hearing individuals are to have equal access to information. Therefore, “School X” is committed to incorporating the following into the school environment:
- the use of captioned media
- Electronic announcement boards
- flashing light fire alarms
- a closed circuit in-school television system
- the use of TTYs/TDDs
- flashing signalling devices for in-classroom TTYs

3. Naturally based English Sign will be used as the primary language of instruction in the classroom.

“School X” believes Naturally Based English Sign (Contact Sign) will support and encourage the development of English literacy. “Contact signing is a system resulting from the contact between ASL and English and consisting of features from both languages” (Lucas & Valli, 1992). Contact Sign differs from invented sign systems (SEE1, SEE2 and Signed English) in that emphasis is placed on a visual, rather than a sound-based vocabulary, and it does not incorporate awkward sign affixes, prefixes and tenses. It adopts sign order that more directly adheres to English word order (Bragg & Olson, 1994).

4. ASL is the language of communication throughout the school.

“School X” recognizes ASL as the natural language of the Deaf community and the defining characteristic of Deaf culture. Knowing ASL will allow deaf students to participate more readily in the larger Deaf community and to more easily connect with individuals from Deaf communities beyond the local context. As well, the use of ASL has a positive impact on the development of cognition. For many students, it also allows for greater ease of communication and provides an avenue for creative expression.
5. Print back-up is critical for developing English literacy and will be used in all classrooms.

Backing up in writing, English that is presented in sign or through speech, gives deaf and hard of hearing students further visual exposure to English and this will support the development of English literacy.

6. Fingerspelling will be used at all age levels.

Fingerspelling plays an important role in Contact Sign for both clarification and emphasis. And just as with writing, fingerspelling provides another visual back-up to support the development of English literacy.

7. English as a subject will be taught daily in the Primary, Junior and Intermediate divisions.

Deaf and hard of hearing students do not learn English through incidental exposure alone. Therefore explicit, directed language teaching is necessary. Lessons will incorporate the study of English grammar, syntax, vocabulary and literature.

8. ASL classes are provided for all students.

Since ASL is the natural language of the Deaf community, it is important that all students develop an appreciation for the language and fluency in its use. Classes will incorporate the study of ASL linguistics, storytelling, poetry and Deaf culture.

9. Speechreading, speech, and auditory training will be provided for all students who evidence potential in these areas.

Speaking, listening, and lipreading are important aspects of communication, and for those students who are able, these will be emphasized and encouraged through individual and group lessons, and in an ongoing basis in the classroom. Appropriate amplification will be provided.

Further Recommendations

1. Standards are needed in how we model communication in ASL, Contact Sign and English.

2. Hearing and deaf staff must be encouraged to improve their ability to understand and express themselves in ASL, Contact Sign and English so we can better communicate with each other, with the students and with parents. "School X" should provide professional development to ensure that staff have the opportunity to become fluent signers and users of English.

3. Families should receive the opportunity and support necessary to develop sign language and English fluency.
4. “School X” should design a research project to track students’ progress for several years subsequent to the implementation of the revised communication policy.
Appendix F: Letter of Consent Sent to Parents/Guardians of Student Participants

Dear Parent/Guardian,

As you may already know, I spent the last school year on sabbatical leave studying in the doctoral programme at the Ontario Institute for Studies in Education. My studies were focussed on the area of language and literacy with a particular interest in learning more about how deaf students develop literacy in English.

I have now reached the stage of my studies where I will be conducting research that will lead to the writing of a thesis. I am planning to carry out my research at (name of the school), in collaboration with the classroom teachers. The goal of this research would be to help us, as a group of teachers, learn more about the processes involved as deaf children learn to write English. By learning more about what deaf children do as they write, it should be possible to gain insights into how we can better develop English literacy with our deaf students. This research has been approved by the Toronto Board of Education and has the support of the school’s principal and the teachers who will be involved.

In this research I am hoping to work with a small number of students from the junior and intermediate classes at the school. Please accept this letter as a request to include your child in the study.

As part of the study, your child would be videotaped while he/she was writing and again while he/she was talking to a teacher or myself about what they were thinking while they were writing. Because the study will be carried out over an entire term, your child will be videotaped on several occasions. Samples of your child’s written work would also be collected. The videotaping and collection of writing samples would be done by the classroom teacher or myself. No outside researchers will be involved. In addition, all of the activities connected to the study will form a natural part of the classroom writing programme. Therefore, students will not need to be withdrawn from their regular classes if they participate in this study.

The purpose of this study is to consider the writing processes of deaf students in general, not to evaluate children individually. Your child will in no way be graded or marked based on their participation in this research. As well, on any written reports of the study, names will be deleted and replaced with pseudonyms. Any other identifying features will also be removed. Videotapes made as part of the study may be used at conferences or presentations, but they will be used only to describe the study, not to evaluate or assess student participants.

If you agree to have your child participate in the research outlined above, please complete the attached form. You should also be aware that, even if you agree at this point, you do have the right to withdraw your child from this research at anytime if you should wish to do so. Please feel free to contact me at the school if you have further questions about this research project.

Thank you for considering this request.
Request for Informed Consent

I, (name of parent/guardian), give my consent to allow my child, (name of child), to participate in the research study entitled "Investigating the Composing Processes of the Deaf Student Writer". I have read the attached letter which explains the research and I understand that this study involves the videotaping of my child and the collection of written language samples.

(Date) (Signature of Parent/Guardian)