COMPOSERS IN ELECTRONIC RESIDENCE:

MUSIC, TECHNOLOGY AND TEXTUAL PRESENCE

by

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ABSTRACT

This study concerns Composers In Electronic Residence (CIER), a relatively new program that links professional composers with music classrooms via online textual and musical exchanges in a computer conferencing environment. CIER provides a provocative research site due to that fact that students use MIDI technology and telecommunications as tools for learning and are focused on original student composition. These represent two rapidly growing and seldom studied areas of music education.

Overall, the work focuses on exploring the process of engagement, discussion and interaction in/among the CIER virtual community. Cooperative research inquiry techniques were utilized where participants are involved in many aspects of the research process. Five schools comprising six teachers as well as two composers and myself constituted the research community. Data included all the conference interactions, both textual and musical, concerning the student composition and instructor forums through two, six month sessions. Further data were provided through reflective reports, journals and student questionnaires.

Given the emergent nature of the research methodology, the writing represents more a chronological voyage of discovery than a situation where research questions are formed and focused on prior to data gathering. The first four chapters explore the literature in areas related to CIER and this research including classroom composition, educational applications of computer conferencing and applying cooperative techniques in online environments. Chapters Five and Six present the story of the two sessions, via participant voice, focusing on the pertinent issues that arose. These included pedagogy, composition technologies and the development of an effective conference framework best suited to the teachers', students' and composers' needs and views. Chapter Seven represents my own theoretical reflection on the issues investigated both in the beginning chapters and the data presentation chapters. Here, the work is framed as a study of human interaction mediated by the technologies of composition, the technologies of online communication and the technologies of cooperative inquiry.

For Nathalie and Jared

and

in memory of Drew Schwinn

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A composer is someone who tells people what to do.
John Cage, Composer

As a performer, I want to be told exactly what to do.
Steve Reich, Composer

John Cage (1961) pointed out that the dominance of European notation in Western music has unjustly elevated composers above other musicians, and that the mode of transmission and preservation of music--the score--has confined access to composing music to a few people. The ramifications of the Western mind set have left composition as an elite and often obscure branch of music education in public schools.

The present state of affairs, I believe, is about to change drastically. Recent digital technologies (e.g. musical instrument digital interface) are allowing new opportunities for creating music. Software sequencers interfaced to synthesizers by MIDI can record, play back, edit and transpose music as well as create the score from music recorded with the synthesizer. Furthermore, the music can be stored as a set of instructions (called a standard MIDI file) and transmitted over the Internet. With this radical shift in technology comes a need for research in the use of music technologies and the implications for music education.

While performance is the dominant focus of Western, K-12, music education classrooms (Swanwick, 1991; Reimer, 1989; Webster 1992), Robert Walker (1989) states that music schools are "caught in a cultural time warp" (p. 23). Bennett Reimer (1989) believes music classrooms are just now

catching up with the invention of the phonograph and cautions that if educators "continue to concentrate on performance-focused methodologies" the music classroom, as we know it, will be "left in history's dust" (1989b, p. 28). Both Reimer and Walker see the future of music education as being greatly influenced by technological advances such as MIDI and telecommunications and by the emergence of composition as a relevant and important part of a music education that has all too often been ignored. Composers in Electronic Residence (CIER), a relatively new program that links professional composers with music classrooms via online textual and musical exchanges on the Internet, provides a provocative research site for two important reasons. Classrooms involved in CIER:

- use MIDI technology and telecommunications as tools for learning
- are focused on student composing

In this study, a type of participatory ethnography/cooperative inquiry informed by the work of Lather (1986, 1991), Thomas (1993) and Reason (1988, 1994) was utilized to explore and assess the process of engagement, discussion and interaction in/among the CIER community. In this study I have:

- created and sustained a process of cooperative enquiry, involving the participants in all aspects of the research process
- provided a descriptive representation (through narrative means and participant voice) of the CIER program over a one year period involving two, six month sessions
- utilized the above two means to create a theoretical reflection on the events in CIER and the issues that arose in this study

Given the emergent nature of cooperative inquiry as a research

methodology, the writing in this research represents more a chronological voyage of discovery than a situation where research questions are formed and focused on prior to data gathering. Before detailing the methodology, which appears in Chapter Four, I will present various ideas, issues and research relevant to this study and the CIER program itself, in the first three chapters.

Chapter One reviews this century's developments in institutionalized Western music education with a focus on themes relevant to CIER classrooms--composition and technology. A review of the research in these areas will also be introduced. Chapter Two looks at another area important to the functioning of CIER--telecommunications. This chapter will present an overview of the development of online communication and its applications in education as well as a review of the research in this area. Chapter Three focuses on the CIER program itself. Here, I will give a brief history of the development of the program and acquaint the reader with how it works in both the technological and pedagogical frames. Along with the methodology detailed in Chapter Four, these initial chapters provide the reader with the necessary background for considering the results presented in Chapters Five through Seven.

Composition and the Western Mind Set

Composers in Western society, like their literary and visual art counterparts, have always been shrouded in a kind of mystique--that of the suffering, misunderstood, intellectually gifted, (and often) male artist. Durrant and Welch (1995) speak of the anecdotes of Bach going blind by candlelight, Haydn praying for inspiration and Beethoven tearing up pages of a manuscript in rage, as they go about the serious business of "writing music, at a desk, with pencil and manuscript" (p. 16). As Cage noted at the beginning of this chapter,

these prejudices (music composition as a written artifact by great, male artists) remained through the mid point of the 20th century and have left composition an often obscure component in music classrooms. However, recent advances in technology as well as a reexamination of the notion of composing in schools over the last thirty years is leading towards a fundamentally different approach in music pedagogy (Eloy, 1992). In this chapter I will examine how certain technological and intellectual forces have shaped the role of composition in Western music education as well as explore relevant research in the area of composition and technology. But first, for reasons of rigour and contextualization, it is necessary to explore the traditional or historical concept of composition in Western music education.

Historical Background

Historically, composition is most conspicuous by its utter absence in music education, especially in the public school setting. This is not surprising, however, if one traces the forces that shaped music pedagogy in Western society. I will confine my discussion to developments in the West, more specifically Britain, the United States and Canada, because the majority of my sources assume or presuppose such a context and due to the fact that this study is concerned with music classrooms in Western settings. Furthermore it would be wrong as well as naive to think that "music education" is what goes on only in public educational institutions. Private lessons, impromptu groups, book and video personal instruction systems etc., obviously count for a large proportion of music education. However this chapter is concerned with the institutional development and redefining of composition in music education, as the subject of this study, CIER, involves music classrooms in public school settings.

It is neither a secret, nor a revelation that the Christian Church played a fundamental and ubiquitous role in the history of music and music education. One thousand years ago, Guido d'Arezzo, a Parisian Benedictine Monk, began teaching singing with visual aids for pitch notations. The purpose of such music education was purely religious and would continue to be for 800 years. Music was "taught exclusively for the purpose of training men and boys to perform religious ritual" (Walker, 1984, p. 22).

Early recollections of institutionalized music education point to an almost exclusive emphasis on performance, specifically singing. This emphasis would be mirrored during the rise of secular music education in Britain, Canada and the United States (Walker, 1984; Green & Vogan, 1991) and could probably be held partially responsible for the historical notion that "all musicianship stems from the ability to sing" (Walker, 1984, p. 5).

In Canada and the US, "singing schools" of the 18th century were the earliest form of public music education and consisted of instruction in reading music of a liturgical nature (Britton, 1958). The rise of public school education in the 19th century saw the dismissal of the "tune book" and a new preoccupation with developing the public taste, nurturing vocal and instrumental skills and improving teaching methods (Walker, 1984; Britton, 1958; Green and Vogan, 1991). Walker notes the emergence of two new classes of people in relation to music. Besides performers, a new awareness was felt for the "composer" and the "commentator" (i.e. informed listener or critic). At the same time, nineteenth century European romanticism, with its aspects of virtuosity and eliteness, was creating even more emphasis on the technicalities of performance as well as reinforcing the separation of the composer from the performer, and both from the listening public (Gellrich & Sundin, 1994).

Methodologies from the early part of the twentieth century, such as the Orff and Kodaly methods, continued to reinforce motor skills (i.e. performance) and literacy. These methodologies were part of an evolving trend in education to adapt instruction more to children's developmental stages (Smithrim, 1995). Composition, then, was still considered far beyond the capabilities of public school children as it was understood that the composer needed great facility in one or more instruments and the mastery of Western notation (Cerana, 1995). Composition was confined to private lessons for the more gifted youngsters and to the upper years of University music education (Green and Vogan, 1991).

Klotman's (1976) notion that music education has been at least a generation behind real world developments was perhaps most evident at the mid point of this century. While music education consisted almost entirely of developing motor skills on European court instruments and literacy concerning the "classical masters", the Western world of music (both art and popular) was undergoing nothing short of a revolution. Composers such as John Cage and Edgar Varese were challenging the very foundations of Western music. Varese, "one of the truly original spirits in music of our time" once stated "I have been waiting a long time for electronics to free music from the tempered scale and the limitations of musical instruments. Electronic instruments are the portentous first step toward the liberation of music" (in Machlis, 1970, p. 324). At the same time popular music such as blues, rock and jazz were awaking a new generation of music devotees, while challenging the notion of the separation of performer and composer.

Composition Reframed

At the beginning of this chapter I alluded to two forces that have redefined, and continue to redefine, composition in music education--one

intellectual (i.e. pedagogical thinking) and one technological. By intellectual, I refer to the writings and examples of certain musicians and educators who, through their efforts, seem to have incited a reframing of the traditional place of composition in the music education curriculum. Technological refers to specific composing technologies such as personal computers, inexpensive synthesizers and MIDI (musical instrument digital interface). While other technologies were part of a redefining of composition in the early part of the century (Varese's earlier comments were made in 1931!), the tools were often expensive and obscure and thus had little practical application in the classroom. I will begin this discussion by focusing on the intellectual developments since they, for the most part, preceded the technological revolution that has appeared only recently in music education with regard to composition.

Brian Dennis, a British composer and music educator, felt that "the health of an art is in danger if those who teach it fall too far behind those who practice it" (1970, p. 1). He proceeded, as did John Paynter (1970), to offer ideas of how composition could embrace new trends in modern music and apply them to compositional activities in the classroom. Perhaps this was part of a larger trend toward composition that began in Britain in the early sixties. Keith Swanwick (1994), discussing British music education, claims that "way back in 1962--as were many other teachers--I was working with children helping them to compose in small groups" (p. 6).

The interest in composition as an activity in the classroom was not due to the rise of a suddenly *well educated* student populace who were mastering concert instruments and complex Western notation and harmony. It was due to a reframing of notions of music as a written artifact as well as an attempt to shift "away from the image of a composer and concentrate more on the

process of composition" (Terry, 1994, p. 100). Perhaps this new line of thinking is best echoed by Durrant and Welch:

> Music is aural, not written: primarily to do with sound, not written symbol. The value of creative exploration of sound, as with the exploration of colour or words, lies in the creative exploration itself: the making through experiment. The exploration of sound does not of *necessity* have to refer to the written symbols, traditional Western notation or any other system (1995, p. 19).

While Plummeridge (1991) admits that in Britain "compositional activity, of one sort or another has become an accepted feature of class music teaching" (p. 50), composition has remained largely absent in Canadian and American schools (Reimer, 1989; Schafer, 1988; Upitis, 1990; Webster, 1992). The United States did, in 1957, begin a program that would last ten years called the Contemporary Music Project. And while it was based on a composer in residence model, the composers were present in the school not to teach or discuss composition but to "write for the public schools" (Klotman, 1976, p. 12). Thus at this critical juncture in music education (as witnessed by changes in Britain), the United States for the most part, clung to its "instrumental fanaticism" (Brault, 1992, p. 27) and the "monolithic concentration on bands and orchestras" using "performance-focused methodologies" (Reimer, 1989b, p. 28).

I do not mean here to draw a sharp line of distinction between British schools that compose and American schools that do not. However, the literature does indicate a trend for British schools to utilize compositional practice (non traditional) in the teaching of music much more than their U.S. counterparts.

Canada remains somewhere between the two countries (as is, perhaps,

the case in many situations) with respect to the attitude towards and use of composition in the classroom. Two Canadian composers/music educators do, however, figure prominently in the composition debate. R. Murray Schafer has, since the 60's, been espousing the use of composition in the classroom and his arguments and ideas are similar to those discussed earlier in Britain. The question of notation systems guides his thinking as well:

> Conventional music notation is an extremely complicated code, and years of training are necessary for its mastery. Until it is mastered, it is an impediment to confidence. It is debatable whether we have these years to squander in the public education system. Ideally what we want is a notation that could be mastered in ten minutes, after which music could be returned to its original state--*as sound* (1976, p. 247).

Upitis (1992), following this line of thinking, has published an entire book on the compositions and invented notations of children which urges educators not only to let children explore their own sound/music creations but also to invent the systems that represent it. Still, much of this work seems to have gone unheeded. Schafer himself states:

> I do not know whether my work is taken seriously or not...I have been aware that I have often been brought in as a diversion. Schafer makes whoopee for a few days, after which the class gets back to the serious business of playing the clarinet (1988, p. 290).

Goddard (1989), summing up music education in Canada at the beginning of the decade notes that "concert performances and the rehearsal preparation required to realize them remain the primary instructional activity in school music, especially at the secondary level" (p. 15). Today, one might speculate that this mind set is about to change, or already has, due to the

introduction of inexpensive and easy to use composing technologies such as MIDI, synthesizers and computer sequencing software.

The Technological Frame

Lon S. Beery (1995) sums up much of the current view surrounding the introduction of composing technologies into the music classroom:

> The implications of using synthesizers and computers for music education are enormous. Students can create, edit, and hear their own compositions by just pushing a button...MIDI technology offers another advantage: students' creative experiences are not constrained by *notation-reading limitations*. This allows students to create more freely without the *fear* of having to notate later (my emphasis) (p. 36).

Many have echoed similar sentiments (e.g. Reimer, 1989; Monaghan, 1993; Hoffmann, 1991; Crawford, 1991; Ely, 1992; Willard, 1992; Jordahl, 1988).

It is interesting to note that this apparent shift in perspective is rooted in much the same "hurdle" that characterized the shift in Britain in the 1960's and 70's: Western notation. But I believe these shifts are distinctive in their results. While the British model offers a new way to look at music composition through explored sound and new processes, the largely American take (summarized above) seems different. The move towards composition in the classroom is not rooted in a differing or changing perception of composition so much as in the appearance of a new tool which makes composition easier and more efficient by removing the *immediate* need for notation. This line of thinking sees the technology as a means to composing, as a pathway that did not previously exist. As Reimer (1989) states, "computer technologies are providing all people with the capacity to do something that only the tiniest fraction of people in Western Cultures could do previously--to compose" (p. 28).

With approximately 31 percent of the British music curriculum concerned with composition for the past 20 years (Swanwick, 1994), perhaps there is a disagreement concerning what is meant by the term composition. I think this confusion may stem from that fact that Britain has embraced different ways of considering composition in the classroom and statements such as Reimer's are framed in the more traditional notions of composing (written for standard instruments, transmitted by standard notation).

Overall, I think it prudent to consider these two kinds of perceptions regarding classroom composition, especially when many classrooms are considered. A clear understanding of the teachers' approaches to composition within the traditional/non-traditional paradigm is fundamental, I believe, for the consideration of data in studies such as this one. As we shall see in the data analysis, the presuppositions that the teachers hold regarding composition very much guide their actions and approaches to both teaching composition and engaging in the CIER conference.

Having explored and contextualized some of the issues facing the introduction of new composing technologies in the music classroom, I will now turn to the research in this area. Aside from some anecdotal reporting discussed above (i.e. Beery, 1995) there has been little research concerning technology and the music classroom. Furthermore, while many studies have involved children's composition, they are concerned with attempting to measure and explore creativity, rather than highlighting the composing process itself or the tools that mediate this process. Therefore in reviewing the related research I have focused on two studies that I believe may have some applicability to this study--Clarkson and Pegley's (1991) one year study of a "Technology in Music Program" and Moorhead and Pond's landmark, seven year ethnography on a children's composition classroom in 1941.

Research and Music Technology

Clarkson and Pegley (1991) have provided one of the only systematic examinations of a music classroom employing MIDI, computers and synthesizers as the tools for learning. The Technology in Music Program (TIMP) concentrated on composing, arranging, performing and sound production in a year long course for middle school students. Clarkson and Pegley's main focus was to determine if the overall goals and objectives of the board-wide music curriculum were being met (which they discovered, were) using a combination of formal testing, surveys and qualitative observation. They also discovered the program (in its first year) to be "extraordinarily successful" citing evidence that "it changed music from a subject rated highly by 6% of selected students into a subject to which 80% gave a high rating" and that "there was a 25% increase over the previous year in the number of graduating students requesting music as a high school subject" (p. 66). While Clarkson and Pegley attributed the success of the program largely to the technology, they also noted that allowing students to be "active originators" as well as transmitters and receivers of music in the classroom contributed to the success and satisfaction with the program (p. 67). To be sure, prominent throughout the literature is the idea that composition, or more broadly, creativity, in music classrooms is a worthwhile endeavor. Greenhoe (1972) concluded, after an extensive review of the literature, that of all the activities of music, "composition has the greatest degree of potential novelty and represents the most concentrated effort of the entire personality" (p. 202).

Composition and Creative Thinking

The pioneering studies of Doig (1941) and Moorhead and Pond (1941-1951/1978) which investigated children's composing and creative thinking

differed greatly in method and focus and typified much of the research that followed in this area (Hickey, 1996). Doig's study investigated how children used musical elements such as form, key, and rhythm in their original music compositions. Her research concerned the products of composition and employed objective, quantitative methods to examine these products, often within a cognitive framework. On the other hand, the Moorhead and Pond study was concerned with the process of how children compose and attempted to shed light on this phenomenon through a qualitative, specifically ethnographic, research methodology. While diverse in approach, the two studies came to much the same conclusion--that children enjoy and are capable of composing music. Furthermore, Moorhead and Pond found that children use instruments to create music "as naturally as blocks or paints" and that their compositions were often very free and complex, different from the more conventional and simple music standards applied in education (in Hickey, 1996, p. 7). The Moorhead and Pond study is considered the first to use qualitative research methods in formal music education research (Bresler & Stake, 1992).

Little work was done in the area of student composition again until the 1970's when a surge of studies concerned with the quantitative measure of compositional products and creative thinking occurred (e.g. Gorder, 1980; Vaughn, 1971,1977; Webster, 1977,1983). As well, constructivist, qualitative studies were extant (e.g. Bamberger 1972, 1974) though they were well outnumbered by their quantitative counterparts (Bresler & Stake, 1992). Almost all of these studies used original student composition as a vehicle for measuring and contextualizing creative thinking, often in a cognitive or behavioral psychology framework--a trend which continues. In a study entitled "An Exploration of Children's Musical Compositions" (Wilson & Whales, 1995),

two behavioral psychologists were attempting, as many studies had in the past, to "discover the nature of children's melodic and rhythmic representations of music" (p. 94)--a somewhat elaborate way of saying *to explore their compositions.*

While much has been added to the body of work begun by Doig, a psychologist, in 1941, few studies have followed the path of Moorhead and Pond and pursued a more qualitative and process oriented approach to composition, especially within a classroom setting. There are many reasons why a more quantitative approach in a cognitive or behavioral framework might be significantly more prevalent, including the politics of research and grant allotments, as well as the crudely positivist trend that continues today in social science research (Reason, 1988). The uniqueness of the Moorhead and Pond study could also stem from the fact that Pond was a composer and artist. Perhaps Pond was more interested in an approach he was most comfortable with--one of observation and interpretation. After the study he acknowledged:

> I had no intention of trying to assess statistically, in any way, the comparative musicality of the children whose activities I was to observe, if only because I had no notion, at the beginning, of how that musicality might be manifested--far less any way of how it should be measured (1981, p.1).

As well, these two researchers had access to a free music making environment at the Pillsbury School in Santa Barbara over a period of several years. Finding the proper setting to study composition in North American Schools is difficult enough in itself. Webster (1992) reminds us that "despite the fact that composition represents a major dimension of human interaction with music as art, most music education programs simply offer no meaningful way for students to experience music compositionally" (p. 5).

Summary

Traditionally, composition in Western music has been viewed as an elite practice for the musically gifted and thus remained an obscure part of music education. In the 1960's a movement began in Britain to align teaching practice with developments occurring in modern music. Composing became a more process oriented activity involving sound exploration, improvisation, found objects and invented notation as well as traditional instruments and notation. Music education in the United States remained devoted to traditional performance pedagogies until the 1990's, when the introduction of inexpensive composing technologies awakened U.S. (and Canadian) schools to the possibilities of composition in the classroom.

Research in the area of student composition has often had, as its purpose, to delve into the nature of children's creative thinking. These studies have been almost always conceptualized within a cognitive or behavioural psychology framework and usually employed quantitative methods and testing to assess the products of composition. Few studies probe the process of composing within classroom settings in a constructivist and qualitative framework. Furthermore, only the Clarkson and Pegley study represents any systematic research done concerning classroom composition in a technology setting and no studies have yet probed the possible telecommunications applications possible in such a setting.

In the next chapter I turn to the literature on telecommunications, specifically in educational applications. Classrooms involved in CIER communicate and exchange music via an online conference. Thus along with composition and composing technologies, exploring the literature on telecommunications is crucial for an understanding of the CIER program and for subsequently considering the results in this study.

CHAPTER 2:
Computer Mediated Communication

> *Those who think of the text as the paradigm of all discourse need to face the fact that only the tiniest fraction of languages have ever been written or will ever be. Most have disappeared or are fast disappearing, untouched by textuality. Hardcore textualism is snobbery, often hardly disguised.*
>
> Walter Ong (1987, p. 26)

In this chapter, I will attempt to explore the nature of textual communication via computers and modems by highlighting various empirical and conceptual research related to email, computer conferencing and computer mediated communication within an educational context. The nature of this form of communication is, in most cases, purely textual and thus presents many challenges to conventional face-to-face classroom oriented research.

Textuality

In *Writing as a Technology that Restructures Thought*, Walter Ong (1987) discusses the skepticism and uncertainty that greeted the movement toward writing and literacy in certain cultures. Plato, Ong argues, saw writing as inhuman, artificial, unresponsive and believed it would eventually destroy memory. The same skepticism greeted the production of books, as noted by Hieronimo Squarciafico in 1477: "The abundance of books makes men (sic) less studious" (in Ong, 1982, p. 20). This shift from an oral to a literate culture can be seen in much the same light as the recent shift to a "secondary orality" which often grows "out of high-literacy cultures" (pg. 24). Secondary orality involves receiving information not mediated by text (although mediated by

other technologies) such as radio, television, telephones, etc. Along this line of thought, I will predict a new *secondary literacy* involving textual communication mediated by technologies such as electronic mail, computer conferencing and networks. What seems to separate the boundary between this shift from pen and paper/printing press writing to computer mediated communication is not so much the incertitude that greeted earlier oral/literate shifts but the utter compliance or near "utopian fantasy" (Sardello, 1991) surrounding such advances. Researchers are not probing the new practices so much as questioning the old ones. In the field of education, where telecommunications technologies are experiencing a rapid proliferation (Eastmond, 1995), Ahern and Repman (1994) contemplate that:

> as new technologies become more commonplace in the support of instruction, new questions are being raised concerning the effectiveness of traditional pedagogical methods and learning environments (p. 537).

The notion of "effectiveness" is, I believe, a complex and many-faceted concept. For example, Mason and Kaye's (1990) thought experiment of having one instructor "cater for a student population of 1000" (p. 31) could be seen to demonstrate a more *effective* way of presenting material to students in terms of cost, overhead and convenience. But what aspects are compromised and what presuppositions guide such inquiry or thinking? In presenting the related research in educational applications of telecommunications technologies, I will also explore, critically, the claims such research is making as well as the presuppositions that I believe are guiding such inquiry. Before doing so I will provide a brief history/overview of telecommunications technologies and their uses.

Computer Mediated Communication (CMC)

Recent strides in information and communication technology have given rise to computer mediated communication (CMC). CMC utilizes a combination of word processing and telecommunications via personal computers, modems, telephone lines and computer conferencing systems (Levinson, 1990). Within CMC exists a variety of formats or methods including electronic mail (email), computer conferencing (CC), live "chat" systems, video conferencing etc. Services, such as computer bulletin board systems (BBSes) may provide all of these in one package. Often, researchers use the acronyms CMC and CC interchangeably. For the purposes of this study I will use CMC, except in cases of reported research where CC is specified.

Personal computers store the information to be exchanged in a form that permits the text to be sent, via a modem, through telephone lines. Its destination is a mainframe computer operating system or host computer where the information is sorted and sent (if applicable) to its intended electronic destination. In short, CMC allows users to communicate electronically through a mediated exchange of text or in some cases, video.

Owen (1992) sees the communicative possibilities of telecommunication-based interactions as two distinct kinds, both asynchronous or non real-time by nature. Electronic mail (or chat systems) operate, for the most part, as one-to-one or one-to-many communication, much like the conventional mail system. A computer conference is a system that allows asynchronous communication between members of groups or "many-to-many communication" (Harasim, 1990, pg.43). These groups are connected to a host computer so that participants have access to the group's recorded past.

According to Hiltz and Turoff (1978), the business community was the

first to utilize CMC as a response to the rapidly emerging global community. By using online systems, users could access a wide range of information, exchange ideas in computer conferencing settings or simply communicate, by electronic mail, with people all over the world at a fraction of the cost of conventional systems.

With its ties to business, cost saving measures, and provocative possibilities for education in terms of delivery of materials, CMC has been the focus of much discussion and research in education (Eastmond, 1995). A recent bibliography contains more than 380 references (Burge, 1993). At the same time, "delivering education" to students anywhere in the world for a fraction of the previous cost is fast becoming a lucrative business for educational institutions and their researchers.

The Research

Much of the research in the area of CMC and education, or online education (Harasim, 1989), concerns distance education or the "transmission of educational or instructional programming to geographically dispersed individuals and groups" (in Ahern, p. 537). Many of these studies have investigated the impact of CMC in instructional settings. Other applications of CMC in education such as collaborative writing or music projects, pen pals, expert-in-residence programs etc., while extant, are accorded little scrutiny in academic research (Beckstead, 1992). It is important then, to keep in mind that most of the claims being made by educational researchers in CMC are culled from distance education applications despite that fact that many other, less prolific, uses exist.

CMC, for the most part concerns textually mediated communication, although examples of video conferencing exist. As virtually no research exists

in this area and few have the hardware necessary to engage in such communication (at this time), I will confine this discussion to text based systems.

The textual nature of the medium drives, I believe, much of the research as well as the research claims. Textual communication is without social, verbal and physical cues (Huber, 1990; Sproull & Kiesler 1986; Hiltz, 1986) and leads to "some of the most frequently asserted advantages of CMC--the flattening of hierarchies, the consequential expansion of participation, and the channeling of the messenger onto the message" (Grint, 1989, p. 91).

Leveling Hierarchies

Generally, it is considered that the lack of physical information (race, gender, age, position etc.) inherent in text-based communication causes a blinding to vertical hierarchy in social relationships (e.g. Sproull & Kiesler, 1986; Scott Morton, 1991). Bellman, Tindimubona and Arias (1993) reported that the textual nature of computer conferencing empowered Latin American female students to participate more--students who were inclined to remain silent in class. These are powerful and important claims, especially for women who "are able to express themselves much more easily and fully without being interrupted or ignored" (Harasim in Bellman et al, p. 240). But this parity does not preclude the possibility that new hierarchies might be created by such systems of communication. People with access to personal computers, modems, and internet providers would seem to be a small minority in industrialized countries, let alone the rest of the world. As well, text based communication assumes basic literacy on the part of the intended user--which in turn limits the language used for communication since the vast majority of the world's languages are not written (Ong, 1986). Still, CMC advocates seem

unperturbed by this language question. Mason and Kaye (1989) state: "CMC will promise that writing will once again become a universal form of expression". Such statements not only lack accuracy (writing never was a *universal* form of expression) but also espouse a very false picture of projected *universal* access to CMC. Thorsell (1997) reminds us that "half of all mankind lives 100 kilometers from the nearest telephone" (p. D3).

Saunders (1994) provide one of the only challenges to this pervasive claim of CMC's inherent ability to flatten or disperse social hierarchies. Their findings, based on a group of health care workers engaged in educational course work, indicate that traditional hierarchies persisted (doctors and administrators over nurses) and became even more entrenched over time. Saunders cautions that "the expectation that new technology is associated with organizational change must be tempered by the recognition that existing behaviors often persist despite the introduction of major technological changes" (p. 448). Extrapolating this research to the classroom challenges the findings of Mason and Kaye (1990) who postulate that CC may reduce the role of the teacher as an authority figure. More research needs to be done since "the impact of CC on educational roles remains unclear" (Saunders, et al, 1994, p. 449)

Clearly, human relationships have the chance to be redefined in the purely textual setting of CMC, a mode of communication that may well be "a means of liberation, particularly for those who are often marginalized in American classrooms" (Faigley, 1990, pg. 291). Perhaps, now, an even more important question we need to ask ourselves is what new kinds of hierarchies are being created? Which social structures will dissolve? Which political and social forces will rise and which will lose power? Howard Rheingold (1993) contends that questions like these are "worth asking now, while there is still

time to shape the future of the medium" (p. 63).

Before leaving this discussion of hierarchies it should be pointed out that the presupposition in most of the research discussed is that hierarchies are unfavorable and harmful. While this may well be the case in many situations, is it true for all? Can hierarchies foster positive attributes within a conference setting?

In the Writers in Electronic Residence Program (Owen, 1990), a program that links students in writing classrooms with professional writers, the professional writers served as both incentive and empowerment for the student writers. As one student noted:

> I think it's a good idea to have these renowned writers online just because everybody at that point feels encouraged to write...just to hear somebody that you've studied, that is published, and now you're actually online with them. It's an incentive to write I think (in Beckstead, 1992, p. 66)

The hierarchy of the professional writer/student writer serves as a kind of motivation and/or novelty for the students, much like in the traditional apprenticeship situation (Teles, 1993).

Increased Collaboration

Earlier I noted that the lack of physical and social cues inherent in text-based communication may serve to foster increased participation by encouraging marginalized groups who are less likely to contribute in face-to-face settings. Much of the research concurs with this notion. Kiesler et al (1984) found that students were more likely to converse and seek assistance from their instructors in a CC setting. Others have found dramatic increases in student-to-student interaction (Cazden, 1986; Hertz-Lazarowitz & Shachar, 1990) and that CMC promotes learner contributions (Harasim, 1989; Davie,

1989). Some of these same researchers, however, report that problems such as information overload, loss of visual cues, lack of access to technology, lack of technical competence and poor communication skills can seriously limit and marginalize participation (Harasim, 1987, 1990; Davie, 1989; Mason, 1988). It would seem, then, impossible to make any universal assumptions concerning how both technology and the nature of the interaction affect collaboration among group members in CMC settings. Such findings would appear to be specific to the situation being studied. But what presuppositions are guiding such inquiry? Many of the claims in the above research examples are culled from counting words, sentences and/or replies in the conferences under the assumption that the bigger the numbers, the greater the participation and thus the more successful the conference. It appears, then, that there is a tendency to equate silence with failure and response with success (Mason & Kaye, 1989; Grint, 1989).

In general, successful discussions in CMC are gauged by the number of messages they generate, and those who remain silent are considered lurkers; an often denigrating term and linked to "poor use" (Burge, 1993, p. 54; see also Correll, 1994; Grint, 1989). There are, I believe, different ways of framing the notion of silence. While it may well be a measure of frustration or marginalization, silence can also be viewed as defiance or empowerment. When asked a question in a traditional classroom setting, the student who chooses to remain silent may do so as an act of defiance or protest thus asserting an individual right (which may or may not be punished). In general, a student who chooses not to contribute to a class discussion may do so for a number of reasons including shyness, poor verbal capabilities, lack of preparation, lack of comprehension etc. Generally teachers can be tolerant of such situations. While it is deemed laudable to involve all members of a class

in a group discussion, teachers often accept the fact the some students will verbally participate less than others and a few may choose to remain silent. It would seem that silence in the classroom is not equated with failure to the extent that it is in educational applications of CMC. Harasim (1989), calling this line of thinking into question, asserts that conventional classroom paradigms are not wholly applicable to instances of online education. Still, I think my argument raises some questions concerning silence that remain to be explored in an online setting.

In my own work concerning the Writers In Electronic Residence Program (Beckstead, 1992), I have documented a case where a student chose to remain silent over political/moral issues concerning his writing. While members of the online community repeatedly pleaded with him to answer the accusations leveled against him and rejoin the discussion, he chose not to respond. As a shy, introverted member of a visible minority whose first language was not English, he found, in his silence, a form of power and control, the likes of which he had never experienced before. Perhaps this is illustrated in his response, posted after more than thirty responses to his "Fable", some of them almost hostile:

> To all those out there who are protesting over my humble little fable, especially you V___. "Methink thou dost protest too much". Opinion is something everyone is entitled to and the opinions of Mr. Fox are strictly his own and do not necessarily reflect my views...As to changing things in my fable I would most certainly say "NO" I like my fable the way it is and that's a fact...I 'd like to thank everyone for getting interested in my little fable. We've got a good thing going let's keep it up. (in Beckstead, 1992, p. 108).

Equating silence with failure and/or poor use in text-based communities is a sweeping generalization that needs to be reconsidered and further explored.

Perhaps a good place to start is by speaking with those who choose to remain silent; a situation that occurs little in the field of CMC research (for exceptions see Grint, 1989; Hiltz, 1986). In general, views concerning online education are "barely informed by the expressed perceptions of actual distance students" (Eastmond, 1995, p. 17).

Talking, Writing and Reflection

It is generally reported in the literature that CMC is, by nature, more reflective and thoughtful than synchronous communication such as in face-to-face conversation. (Owen, 1992; Levinson, 1990; Harasim, 1990). Harasim (1993) alleges that "asynchronous text-based conversation facilitates thoughtful consideration and review of messages and careful formulation of responses" (p. 27). The reflective or measured response could be facilitated by a number of factors including the idea that the text is being composed on the computer and hence easily edited before being sent, and that the act of writing itself tends to be more reflective than talking. This talking/writing duality seems obvious enough but can that kind of claim, equating textual communication with reflective response, be made for all CMC situations?

Owen (1996) sees the possibility for reflective response existing as much in the process of how people use online systems as in the nature of the technology itself. In discussing Writers in Electronic Residence, he claims that most of the reflective interaction does not happen online, but as part of the process of downloading student writings, printing them out, discussing them in class, composing a response and finally uploading the response into the conference. This "reflective interaction" is not necessarily a result of the "technological frame" of online communication (p. 162) but of classroom practice. Owen explains that the instantaneous transfer of information that

the technology allows in other situations (especially email) actually encourages more immediate (and less reflective) interaction. However certain features of the technology such as computer conferencing, with its "opportunities for many-to-many communication" can foster more "considered response" (p. 163).

Owen's main point here seems to be that ideas of reflection and measured response are a property of the people involved and depend more on the situation of how the technology is being used rather than on the technology itself. Owen does an important job of contextualizing his arguments within a specific setting and avoids making any sweeping generalizations. His work illustrates the critical fact that "technology cannot automate what is in reality a social encounter based on specific social practices" (Feenberg, 1989, p. 210).

Conclusion

Much of the research I have discussed so far contains what Papert (1987) calls a technocentric bias, where researchers begin to see phenomena "as a property of the computer" and not the individuals interacting with it (p. 23) . Eastman's (1994) call for CMC research focusing more on people was mirrored by Ursula Franklin in pondering *The Real World of Technology* (1990):

> Feminist authors have called for changes in the way in which the social and human impact of technology is evaluated. They have stressed the need to base evaluation on the experience of those who are at the receiving end of technology (p. 30).

Communication, whether in a face-to-face situation or mediated by text and technology is a complex and ultimately human phenomenon. Research needs to focus less on the technology and numerology of CMC and more on the critical questions of how it is impacting and changing the way people using the

technology communicate, how their education is facilitated, and how new social structures emerge and affect others--concerns that will be addressed in this study.

Having discussed key areas of concern for this study and the CIER program, including composition, composing technologies and telecommunications in the first two chapters, I will now describe in detail the program itself, the participants involved and how music is exchanged in a computer conference.

CHAPTER 3:
Composers In Electronic Residence

Man (sic) *should be prouder of having invented the hammer and nail than of having created masterpieces of imitation.*

Hegel

As a classroom music teacher with a background in composition, I have always felt a certain affinity towards Hegel's notion. My work in classrooms with children composing music has left me with the same belief that almost all of the research and academic writing in this area has put forth--that having students create music of their own invention is a worthwhile endeavor and should be a key component in a well rounded music education program. When I was exposed, in 1989, to the wonders of telecommunications in the form of the Writers In Electronic Residence Program, I immediately began to formulate a plan to develop a similar program for the music classroom, which I dubbed Composers In Electronic Residence (Beckstead, 1995). In this chapter, I will trace the development of the program from this beginning to its present form--the subject of this study. I will also introduce some of the technical considerations, such as MIDI, file transfer and conferencing as well as the participants in this study.

Beginnings

In 1989, while working at an inner city school as a beginning teacher, I came in contact with the world of email and telecommunications in the school's recently completed computer lab. The person responsible for the lab, Trevor

Owen, was also in charge of a novel program that was receiving national attention. The Writers in Electronic Residence Program (called Wired Writers at the time) connects English and Language Arts students in Canada with writers, teachers and one another in an exchange of original writing and commentary. The writers, who are published, join students and teachers to read and consider the student works, offer reactions and contribute ideas pertaining to the student writing. The program uses a type of email conferencing system (like an electronic bulletin board) that permits textual exchanges (writing and comments) among the WIER community. Students compose poetry and short fiction on word processors and submit (upload) the material to the conference. The material is retrieved (downloaded) by the writers who offer comments, criticisms and encouragement. The resulting material is downloaded and stored by each participating school so that students have access to all material in the conference (Owen, 1990).

When I turned my thoughts to creating the musical equivalent of WIER (with Owen's help) I needed to decide what the currency of exchange would be. WIER is an exchange of student writing and professional writer/student comments, reduced to its most basic form--text. Music presented more of a challenge. I had to consider questions such as:

- Would participants exchange only text (ideas, comments concerning student compositions) and if so, how is the music itself exchanged?

- If the compositions were recorded and mailed, would the sense of immediacy be lost?

- Could revision ideas be properly exchanged in a purely textual format (i.e. without demonstrating musically)?

- Could both type of exchanges (music and comments) take place within a conferencing format?

It seemed, at the time, that the most useful and powerful scenario was represented by the last question--having both text and music exchanged within the conference. At this juncture, certain concessions had to be made in terms of what form the music would take in order to send it online. It would have been possible to record compositions digitally and send them in one of the emerging digital audio formats such as "AIFF" or "AU". The problem at that time (and one that continues today) is that such files contain massive amounts of information. A ten second digital sample recorded in stereo at a standard high quality sampling rate of 44 KHz will take up over almost 900 KB of space, or almost an entire floppy disk. As well, the transfer rate of such a file would be slow--with the standard 1200 Baud modems of the early nineties, more than an hour. Even today, with faster computers and modems, CIER could not function if the compositions were sent in digital format due to large storage space and long file transfer times.

Musical Instrument Digital Interface

The only possible path for CIER seemed to be via MIDI, a type of communication protocol standard between electronic instruments developed in 1981 (Jacobs & Georghiades, 1991). Before that, many electronic keyboards were available on the market, but none shared a set of common operating procedures. Instruments that employed this new MIDI technology could receive, transmit, and translate performance information in a kind of common language. MIDI consists of two distinct parts, the information (notes, pitch bends, velocity, etc.) sent from the controller (i.e. keyboard) through the MIDI circuits and the five-prong MIDI ports and cables which transmit and receive such information (Lennard, 1993). Computers, employing MIDI interfaces and software, could send and receive such data to and from the controllers and

sound modules. Thus users can score, arrange, edit, audition, and store music to disk that can later be retrieved and played by almost any other MIDI instrument. The data (what gets stored on disk) is merely a set of instructions and does not contain the actual sound generation material as in a digital sample (i.e. a compact disk recording). Therefore MIDI files are comparatively small, often less than 50 kilobytes for a 3 minute song fully orchestrated. The same file in digital format would be approximately 80 megabytes or more than a thousand times larger.

Using the MIDI format in CIER was also appropriate since most classrooms involved in composition at the middle and high school level were using MIDI technology (see Chapter One). Schools need not use the same software either, since software programs that created MIDI files (called sequencers) could save them as "Standard MIDI Files" (SMF) analogous to the "text" file created by word processors. One final compatibility problem was solved by utilizing the General MIDI (GM) standard, introduced in the late 1980's. MIDI files also contain information on what sounds or timbres are designated for each track in a MIDI file. If the banks of sounds and their locations are not similar among keyboards made by different manufacturers, then the MIDI files would not sound the same if played on different systems. In other words, for complete compatibility of MIDI files there must be some agreement on what sounds the keyboard contains and exactly where they are located. The GM standard is a specific sub group of MIDI that standardizes sounds, their locations, and other parameters too numerous to discuss here. If music is created using a GM synthesizer or sound module and stored as a standard MIDI file, it will sound the same on any other system that uses a GM module. Almost all synthesizers aimed at the classroom market have the GM standard (Lehrman, 1992).

Advantages and Disadvantages

For CIER, complete compatibility between systems had some obvious advantages. Music posted in the conference sounded virtually the same on anyone's system, and the ease of working with the MIDI files in terms of editing meant that the professional composers could post MIDI files in response to a student's work. In other words, responses were not confined to the textual domain, but could be accomplished musically, or using a combination of the two. As well, special projects like group compositions could be realized, where different students add to a work until it is complete–a kind of MIDI chain letter (Beckstead, 1996). By utilizing MIDI, SMF and GM protocol, schools did not need the same systems, or even the same computer platform (IBM, Mac, Atari, etc.).

It is important to discuss not only the advantages of such compatibility, but also what kind of channeling or limitations are endemic to such a system. Music inputted on most systems is done via a piano-like keyboard. Alternative controllers exist that covert pitch information to MIDI, such as MIDI guitars and wind instruments, but they are obscure, expensive and seldom used at the classroom level. All music exchanged in CIER has its origin in the keyboard input device whether created in real time (live recording), step entry (one note at a time) or a combination of the two. Exclusive use of the keyboard would seem to put some students (with piano training) at an advantage right from the start, even though the provocative editing features of most sequencers do produce a leveling effect (Beery, 1996). In an article entitled *The MIDI Trap,* James Lehrman (1992) discusses some other MIDI related concerns. He notes that MIDI produced music is "mechanized, quantified and predigested" and many of the complex subtleties of music performed by human means are lost.

There are many more arguments and theories both championing and

questioning the use of composing technologies. Many of these ideas were discussed among CIER participants and thus form a compelling portion of the data. I will therefore revisit some of these points in the analysis and utilize the opinions and views of the CIER members to further contextualize and explore these points, as opposed to going into any more detail at this time. Instead I will turn back to the program itself and discuss CIER's development from the early 90's.

A Brief History of CIER

With the compatibility of differing composing tools such as MIDI, GM and the SMF formats, the idea of exchanging music through small, easy to handle MIDI files over the internet seemed a real possibility. In 1992, I attempted some MIDI file email transmissions between a student in my composition class in Brussels and Trevor Owen in Toronto. At the time, the transmission of text in the form of email messages was quite common but sending other kinds of files such as MIDI or graphics required some intervention. One possibility was to encode the MIDI file so it was transmitted as a text file, then reconvert it at the other end using a program such as UUencode. This was a method I had used to transmit MIDI files to a school in Germany but the process was somewhat laborious and files would often corrupt in the encoding process or information would be lost. A better prospect seemed to lie in more advanced systems where the files would be encoded and decoded automatically using a file attachment process. The user could type a message to a recipient then simply select the command "attach file" and choose the relevant MIDI file. In 1992, both Trevor and I used CompuServe, which had a built in file attachment feature--a process I found much easier and more efficient than the UUencoding.

Using a CompuServe account, with basic email, a few of my students were able to exchange music and ideas with Trevor in Toronto. The "turnaround" time was impressive considering the distance--messages posted in the afternoon would often have a reply and MIDI file waiting in the morning. The disadvantage of this email system was its one-to-one nature. Group discussions and music exchanges were not possible, and it would have been difficult to involve many schools at that point. Trevor suggested following the WIER model and moving to a conferencing system so all participants could have access to all the material in the conference. The next step was to find a system that could support such interaction and then gather some schools together for the project.

Conferencing

The conferencing system chosen was FirstClass, a system that WIER had been having much success with after trying a number of other platforms (Owen, 1996). Toronto's York University provided administrative support and the host server which participants with internet access could log into from anywhere in the world through their local internet provider.

In 1995, having secured support from York, I began searching for schools that were engaging in MIDI composition as part of their music program and which had the necessary internet access. I utilized the World Wide Web to locate such schools as well as various email groups and bulletin boards I was involved with. After several months and many email messages, it appeared that five schools were interested in participating and felt comfortable with the technologies used. At the same time I had found two people interested in functioning as composers, one a professional composer and the other a music researcher interseted in composition. I used a CIER home

page on the World Wide Web to provide a download site for the necessary software needed to connect to the server at York and private email to relay their login and passwords for their respective accounts.

In January of 1996, the teachers of the five schools, the two composers and myself "met" at the conference site. I had provided a message outlining the program and how it would work, as well as instructions on how to post, respond to, upload and download MIDI files and the accompanying text messages (see appendix A). As well, I provided school passwords and logins so that the students could have their own access to the system.

Figure 1 shows the screen that appears when users log into the system. When one enters the CIER conference (folder) by double clicking, a screen like the one in Figure 2 appears.

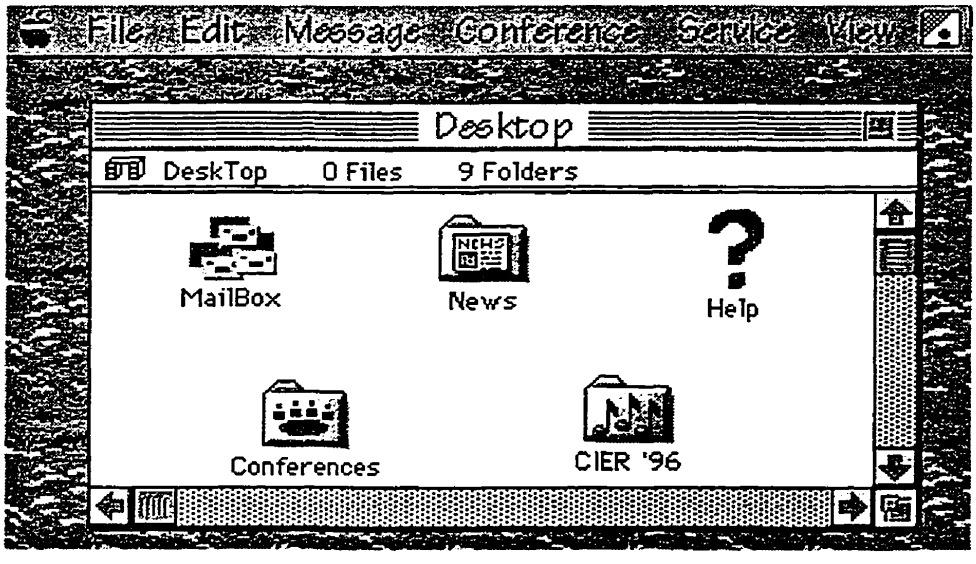


Figure 1: Main screen from FirstClass system

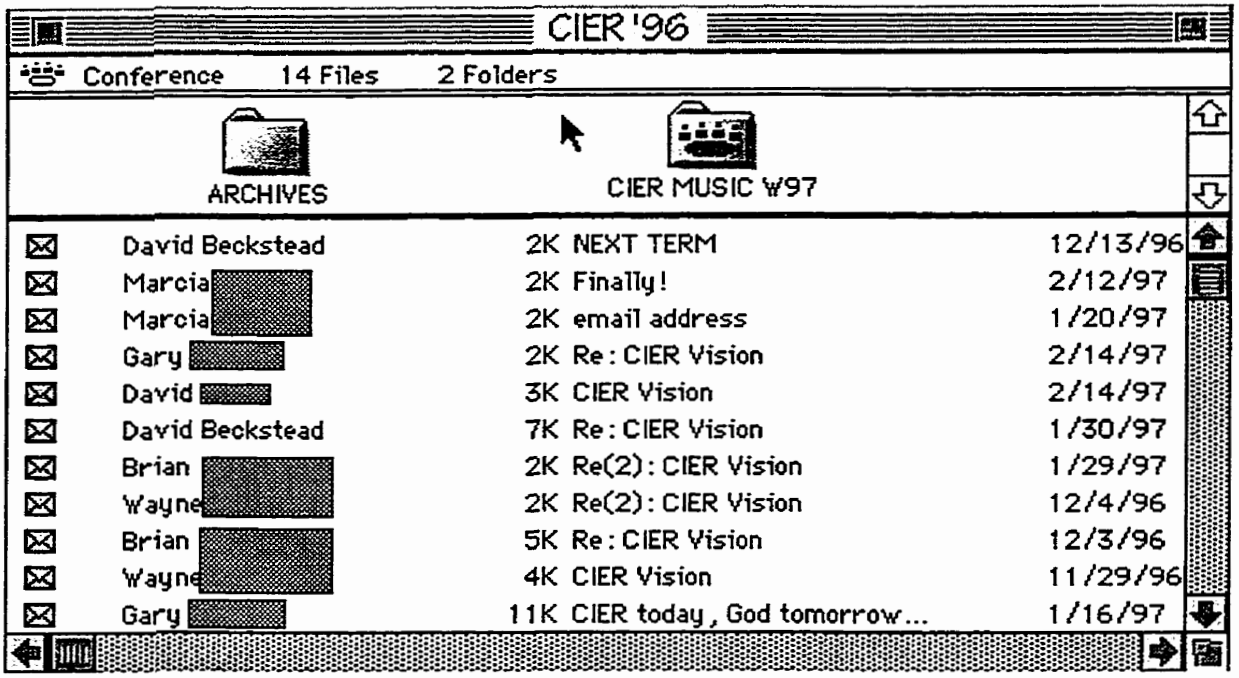


Figure 2: Contents of CIER '96 folder from main screen (figure 1).

The lower portion of the window in Figure 2 is the general message area for discussion pertaining to issues such as technical concerns and project ideas that were not directly related to the student music posted. The folder in the upper right portion (CIER Music W97) is where all the student music is posted and discussed. A view of this screen is pictured in Figure 3. Here, original music is posted as a "new message" with the subject appearing along with the school name. The small rectangle beside the message to the right indicates that a MIDI file is attached to the message. An example is provided in Figure 4. Replies are filed with a "Re:" followed by the subject heading automatically. This way, the messages can be sorted by discussion group so that a new message and all of the replies pertaining to it appear together. Participants could open any message, read the contents, and download the MIDI file by

clicking on the download icon if one is attached.

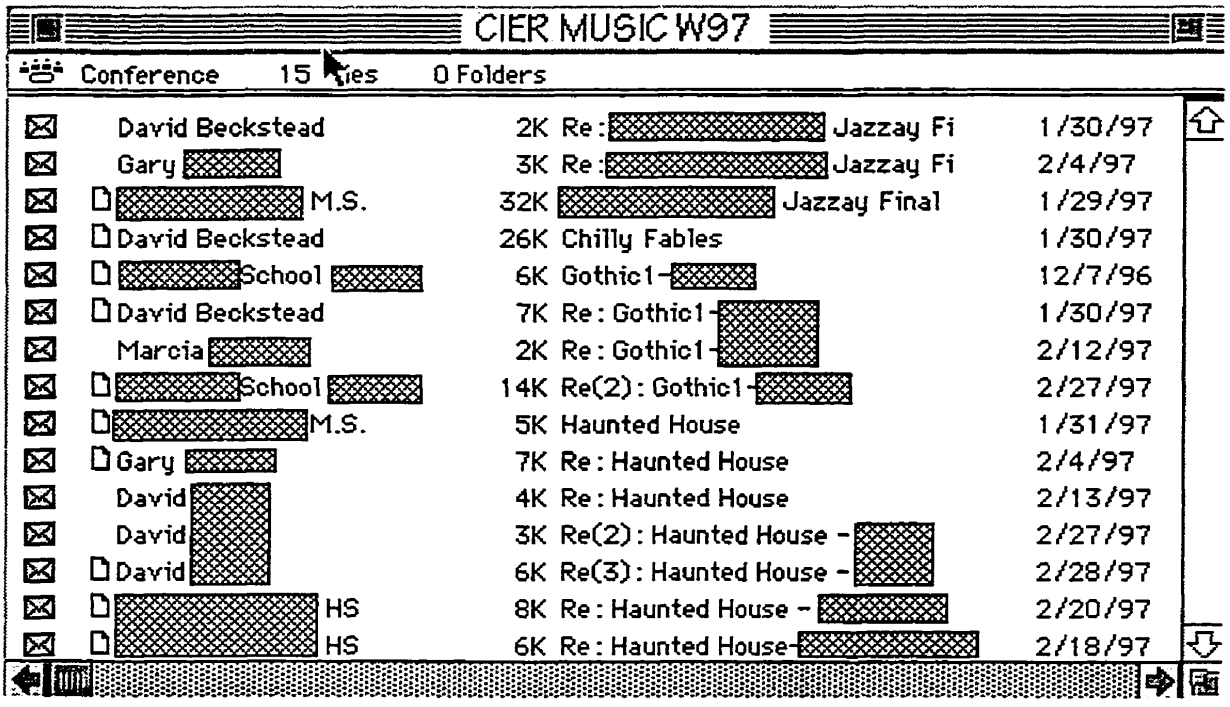


Figure 3: Contents of CIER Music folder from the CIER page (figure 2).

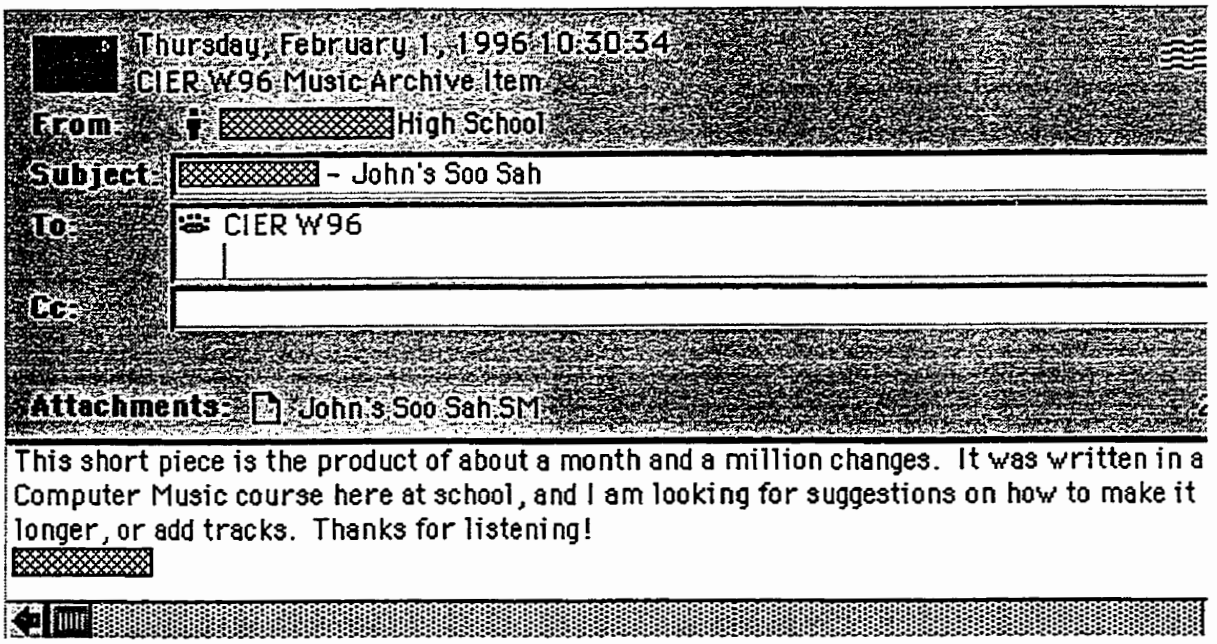


Figure 4: A sample message containing a MIDI file attachment.

The Participants

As stated earlier, five schools, two composers and myself (acting as facilitator and composer) formed the original CIER community that is the subject of this study. By schools, I refer to the representative teacher and her/his students involved with the program. In some cases it was an entire class engaging in CIER during formal class time and in other cases it was a few students working voluntarily after school. Below, I outline the specific scenarios for each school and introduce the teachers and the composers. The teachers and composers consented to having their first names used while schools and any reference to students will use a pseudonym.

Toronto School, one of the first schools to show interest in CIER, is a public elementary school (K-8) located in a suburban area of greater Toronto. *Toronto School* has been a center for educational technology since it opened in

the 80's. The Technology in Music Program involves six learning centres that cover a variety of topics in music and related subjects. The centres include piano literacy, video production, composition, ensemble playing/improvisation, recording and research with internet access. This program was the subject of the Clarkson and Pegley (1991) study discussed in Chapter One. The teacher, Brian, has long been using technology in his music and general classes and has presented at workshops and conferences worldwide. He is also a regular user of communications technologies. Four of Brian's students from his core class participated in the first session and three participated in the second.

United States School is located in a mid-western state in America. The school is actually a regional technology centre where students from the district are bussed in for music classes that include band, choir and composition. The centre offers many technology assisted general music courses including *Music Your Way!* a music composition course for seventh grade. The teacher, Wayne, is the director of the centre and has been teaching band and composition there for 16 years. He is well versed in technology and maintains the music labs and a number of World Wide Web sites. Wayne has also had much experience with telecommunications, both personally and in education. In the first session of CIER, two of Wayne's grade seven students from the *Music Your Way!* course participated. In the second session, groups of four student composers from Wayne's band classes participated.

Europe School is an American Department of Defense School serving the military community on an overseas army base. The school is a test bed for technology insertion programs in the Department of Defense Dependents Schools System. The school offers a full range music program including *Studio Music*, a technology based theory/composition course in grade 11. The teacher, Marcia, who also teaches choir, has been involved in collaborative composition

with schools in Germany, France, Japan, Korea and the United States. Part of her *Studio Music* class participated in CIER in each of the sessions.

Asia School is an American/International overseas school located in a major Asian urban centre. It has an American based curriculum and the language of instruction is English, although 37 nationalities are represented in the student body. The school has an extensive music program that covers performance, guitar studies, composition and general music. There are three composition courses, all of which use technology: *Music Composition* and *Advanced Music Composition* in the high school and the *Music Arts Workshop-Music Composition* program in the middle school. Brent teaches music composition, band, choir and some drama at the middle and high school levels. He is experienced in music technology and telecommunications and created one of the first MIDI collaborations online called *Kid-Link*. Brent's students did not directly engage in CIER but he was active as a "lurker" and contributed to the discussions.

Vancouver School is a public high school located in a Vancouver suburban area. Students at the school work on a program of student self-pacing accomplished through the use of learning guides. The music program consists of four elementary band feeder programs, three high school band classes, jazz band, concert choir, vocal jazz, and music composition. The Music Composition 11 class is the only class within the music program which is taught using the learning guides system. The remainder of the music courses are taught in the traditional manner. The composition course is administered by Ed, who also teaches band. Ed, unlike the other teachers, is new to music technology and just recently began using email. One student from Ed's *Music Composition 11* course participated in the first session and one in the second.

As I mentioned earlier, there were three people acting in the role of

"composer", myself, Gary and Maud. Gary had recently obtained his doctorate in music composition and was working as a composer, writer and poet in Southern Ontario. Much of his work explores the interaction between spoken language and music, mediated in some cases through an interactive computer system. Gary had been active as a "writer" in Writers In Electronic Residence and thus understood the nature of such programs from a pedagogical and technical viewpoint. Maud had recently completed her doctorate in music education where she studied the processes and products of children using technology to compose. Her background consisted mainly in the performance realm and she had little experience as a composer. She is presently on the faculty of a Mid-Eastern college in the Music Education Department. I was in the process of completing my doctorate in arts education and had been actively composing for eight years, after completing a degree in physics and electro-acoustic composition.

CHAPTER 4:
Methodology

They ain't nuttin' until I calls 'em.

> Jocko Conlon, baseball Umpire, when asked the difference between a ball and a strike.

Over the past 20 years there has been a move in social science research away from the "positivist assumption that there exists an objective reality driven by immutable natural laws" where the researcher can "stand outside the arena of the observed, neither influencing it nor being influenced by it" (Guba & Lincoln, 1989, p. 11). Postpositivism, the term often applied to this epistemological break (Hesse, 1980), can be characterized by the refutation of positivism and the "increased visibility of research designs that are interactive, contextualized and humanly compelling because they invite joint participation" in research issues (Lather, 1986, p. 259). More simply put, it involves "research with people, rather than on people" (Reason, 1994, p. 1). In this chapter I will briefly trace the origins that led to this "new paradigm research" (Heron, 1981), followed by an examination of the work of Thomas (1993), Lather (1986, 1991) and Reason (1988, 1994) that informs much of this research. Subsequently, I will explore, in a general fashion, how the methodological foundations of these scholars might play out in research conducted within the purely textual setting of an online computer conference. Finally, I will outline the methodology for this research.

The Postpositivist Paradigm

In a chapter entitled *Postpositivism and the Naturalist Paradigm*, Yvonna Lincoln (1985) outlines three distinct "paradigm eras" (p. 15) in Western science and inquiry; the prepositivist, the positivist, and the postpositivist era. The prepositivist era was defined by the "passive observer" (p, 18) from the time of Aristotle up to (but not including) David Hume (1711-1776). Gradually, around the time of Newton, scientists became active observers whose interactions with the world around them were tethered to the goal of revealing or discovering the natural laws of the earth; in short, their purpose was to discover the *truth* about the world. Throughout the nineteenth century, positivism developed as a philosophical movement as well, but its greatest impact was on the scientific method. The social sciences aligned themselves with the natural sciences with the aim of "the discovery of general laws that serve for explanation and prediction" (Hamilton in Lincoln, 1985, p. 20).

Postpositivism, a recent outgrowth of some of this century's philosophical trends including poststructuralism/postmodernism and deconstruction, has, at its core, "basic tenets (that) are virtually the reverse of positivism" (Lather, 1991, p. 21). This new, contextualized, diverse and shifting (West, 1993) research paradigm calls for approaches which "can change, rather than merely describe the world" (Lather, 1991, p. 64). For Lather (1986), postpositivism simply "assumes the loss of positivism's theoretic hegemony in the face of the sustained and trenchant criticisms of its basic assumptions" (p. 6). Postpositivist inquiry in the human or social sciences is, by nature, a qualitative process--a process that "can no longer be viewed from within a neutral or objective positivist perspective" (Denzin, 1994, p. 302).

Ethnography

A form of participatory ethnography will partially inform this research process concerning the CIER community. Ethnography, very much a cornerstone of qualitative research, is traditionally seen as the study of ongoing events--the "most basic form of social research" (Hammersley & Atkinson, 1995, p. 2) and is most often linked to the field of cultural anthropology (Eisner, 1991). Sally Schumacher and James McMillan (1989) identify two important tenets of ethnographic research:

> Most ethnographic studies are exploratory or discovery oriented research to understand people's views of their world and to develop new theories. Ethnographies frequently identify areas of inquiry which prior research had not considered important or even recognized (p. 383).

The idea of exploration and novelty as key components of ethnography have drawn me to this form of inquiry. CIER is a relatively new concept and programs of its kind (i.e. online educational collectives) have seldom been the subject of research investigations (Beckstead, 1992). Trying to get a sense of the nature of CIER and how the participants negotiate within its space would seem a much more appropriate starting point than, say, examining the use of contrasting texture and counterpoint in the student compositions that are discussed within CIER. Such specific concerns have long been framed within conventional educational and compositional settings. However, using a computer to compose and subsequently seeking a professional composer's advice through a telecommunications conference, serves to confront and reinvent what we presently *think we know* about counterpoint in the context of student composition.

Locating the research methodology within the idea of an ethnography by no means secures an uncluttered path through/with/in the data. As Denzin

(1994), writing on the subject of qualitative enquiry, notes:

> There have never been so many paradigms, strategies of inquiry, or methods of analysis to draw upon. We are in a moment of discovery and rediscovery as new ways of looking, interpreting, arguing, and writing are debated and discussed (p. 302).

Overall, I feel the ethnographic method was well suited to exploring the new and novel community that is CIER. Ethnographies provide a provocative starting point for research concerned with the new and unexplored and help to avoid influence from preconceived notions and theories developed from what the researcher perceives as similar or related environments (in this case the traditional music classroom).

Specifically I have turned to certain poststructural forms of ethnography, especially the work of Lather (1986, 1991), Thomas (1993) and Reason (1988, 1994) who have referred to this form of research as praxis-oriented, critical ethnography and human inquiry, respectively. Hammersley and Atkinson (1995) have noted the "powerful influence" of poststructuralism on ethnography (p. 13). By attending to the supreme role that language assumes in creating and mediating the reporting of experience, scholars such as the ones noted above are questioning the researcher's ability to apprehend or report a *truthful* account of events or phenomenon observed (Britzman, 1995). Poststructural aspects of ethnography, both theoretical and practical, are explored in more detail in the next few sections.

Critical Ethnography

Thomas (1993) notes that traditional and critical ethnography share some attributes such as qualitative interpretation of data, ethnographic methodology and a preference for developing grounded theory. He does,

however, define critical ethnography in terms of its juxtaposition to conventional ethnography:

> Conventional ethnographers generally speak for their subjects, usually to an audience of other researchers. Critical ethnographers, by contrast, accept an added research task of raising their voice to speak to an audience on behalf of their subjects as a means of empowering them by giving more authority to the subject's voice...it attempts to use knowledge for social change. Conventional ethnographers study culture for the purpose of describing it; critical ethnographers do so to change it (p. 4).

Thomas's agenda is quite openly political. He sees "all cultural life" as a "tension between control and resistance" (p. 9) and refers to critical ethnography as "resisting symbolic power" (p. 7), "exploring repressive meanings" (p. 16), "political activism" (p. 17), exploring the "subtle qualities of social control" (p. 20), and having the capacity to "liberate" (p.22). Clearly, Thomas's work draws heavily on Marxist and neo-Marxist ideals. Thomas takes Marx's challenge, "why should we be content to understand the world instead of trying to change it", as fundamental to critical ethnography (which he alternately refers to as participatory or postmodern ethnography). The notion of "change" is what has drawn me to Thomas's ideas. I am interested in not only illuminating the CIER program through an ethnographic study, but also providing some sort of platform for change so that the research participants (teachers who use CIER in their classrooms) can shape and define the conference both during and after this study. Thus it is important to see the teachers and composers not as research subjects, but as co-researchers who actively participate in the research process.

Thomas's methodology also stresses the notion of participation. He is,

however, not explicit in what he means by participation. He frames participatory notions as "action-oriented" calling for an incorporation of "research subjects, to varying degrees, as near equals" (p, 28) yet his treatise on the subject is bereft of detail as to how this is accomplished. He does call for researchers to allow the subjects a role in defining the research questions and becoming active in the process rather than remaining "passive recipients of 'truth' that will be used to formulate policies by, and in the interest of, those external to the setting" (p. 29). In the postmodern spirit, I would like to raise a question concerning Thomas' perception of truth. Does participation somehow create a more pristine, or useful *truth* than those *truths* created in positivist methods? Is an *active recipient* more prone to apprehending the *truth* or does the authority remain with the researcher? The question of truth in ethnography has been much discussed of late and is one that I will explore briefly here.

Britzman (1995), in a paper concerning poststructural ethnography, sees the "ethnographer's ability to produce truth from the experience of being there" as one of the myths of ethnography--myths that are "seductive in the power they bestow". Denzin (1994) also questions the ethnographer's ability to probe and reveal lived experience. He challenges this assumption in a Derridian manner stating that "language and speech do not mirror experience; they create experience, and in the process of creation, constantly transform and defer that which is being described" (p. 296). Along these lines, Atkinson (1992) proposes that society is not a kind of text but societies or segments of societies are academically constructed as text through representation. As Trinh T. Minh-ha stated, "a narration is never a passive reflection of a reality" (1990, p. 328).

While Thomas frames his methodology in a poststructural or

deconstructive fashion (both terms are used as headings) he fails to probe the specific problem that "truth" imposes. Delaney (1991) implores ethnographers to focus on the identification of textual strategies and the structures of telling and belief in wandering "the margins between claims of truth and claims of textuality". Thomas embraces postmodernism's "critical potential" (p. 25) to subvert conventional ways of thinking but fails to follow through on other pressing questions of truth, textuality, and the mediating role of language in the reporting of research--three key areas of postmodern discourse (Sarup, 1989; Appignanesi & Garratt, 1995).

Much postmodern discussion, specifically feminist, has questioned the role of voice in research methodology. I would like to return to an earlier quote of Thomas where he asks critical ethnographers to speak "on behalf" of the participants, giving *authority* to *their* voice. In the highly privileged academic world of research, Orner asks:

> Why must the "oppressed" speak? For whose benefit do we/do they speak? How is speaking received, interpreted, controlled, limited, disciplined and stylized by the speakers, the listeners, the historical moment, the context? What use is made of people's voice after it is heard? (1992, p. 76)

Clifford (1983), attempting a slightly more rigorous and postmodern notion of voice in ethnography (than Thomas), sees the support of voice as creating a sort of polyphony within experimental ethnography, a kind of intercultural dialogic production of texts. However Visweswaran (1994) suggests that "polyphony and multiple voices are not a solution to the vexed problem of power and authority" since it "assumes voices, most likely male ones, and does not confront problems of coming to voice" and being attentive to "silence as a marker of women's agency" (p. 51). In this research, it is my intention to speak, as Thomas proposes, on behalf of the CIER community. I

would like this research to "resonate with the spirit of its subject matter" (Herman, 1990, p. 56) by supporting and mediating the presentation of the participants' voices. However, I must also be acutely aware that this presentation is, in and of itself, a textual construction and represents a particular version of the truth (my own). How then, is the power or authority dispersed more evenly among the research participants and the researcher? How is participation carried out in an equitable and useful way? What is the role of the participant's voice in the presentation of the data? I would have to look beyond Thomas' work to answer such questions and construct a solid, poststructural, methodological foundation for this research.

Lather's (1986) *Praxis*, drawing not only on neo-Marxist ideals but also on feminism and Freirian empowerment, grapples more directly with some of these questions.

Research as Praxis

Lather (1986) cites Morgan's (1983) coining of the term "critical/praxis-oriented research paradigm" as the source of her use of the term *Praxis*. Benson (1983) originally saw this paradigm as "activities that combat dominance" and called for a change to prevalent social formations (p. 338). Thus, early uses of the term seem to point directly to the neo-Marxist perspective adopted by Thomas. Indeed, Lather does see *Praxis* as a transformative practice of empowerment to the researched, but also frames it as a *reciprocal* shaping of theory and practice. She critiques critical/neo-Marxist researchers as attempting to impose meanings, rather than constructing meaning through negotiation, thus calling into the question the notion of participatory research under the critical/neo-Marxist banner. Others have made similar arguments (e.g. Ellsworth, 1989; Luke and Gore, 1992;

Reinharz, 1983). Participation in *Praxis*, or more precisely, reciprocity, can manifest itself in a variety of methodological actions from multiple interviews and data checks (Laslett& Rapoport, 1975), collaborative construction of research tools (Carr-Hill, 1984) to collaborative theorizing (Kushner & Norris, 1981). Much of the theory concerning reciprocity and subject involvement in the research process was developed in the United States by Guba and Lincoln (1981, 1985, 1989) and in Britain by Reason and Rowan (1981). Lather draws much on the work of these two sets of researchers in the area of reciprocity, specifically in the notion of member checks, recycling the data through the subjects, sharing power, peer debriefing and research subjects as co-researchers.

Earlier I looked at how Thomas's work lacked specifics concerning the participatory tenets of critical research. Lather (1991) levels a similar critique at critical ethnography, and further accuses this research faction of trivializing and limiting participant input. The results or inferences of such research are often incomprehensible to the research participants themselves, a "consequence of the nondialectical use of theory" (p. 54). She "captures the attitude" of critical/neo-Marxist researchers in citing a Bullough, Goldstein & Holt study that stated: "We would not expect the teachers interviewed to either agree with or necessarily understand the inferences which were made from their responses" (in Lather, 1991, p. 54). In the most "oft-cited example" of critical ethnography, Willis' *Learning to Labour* (1977), Willis himself said his intent was for promoting social change through the academic use of his research findings to subvert social policy and not necessarily as a vehicle of empowerment for the "lads" (research subjects) (Atkinson, 1992). Lather (1991) posits solutions to the dilemma of participation and nondialectic theory:

> For praxis to be possible, not only must theory illuminate the lived experience of progressive social groups; it must also be

> illuminated by their struggles. Theory adequate to the task of changing the world must be open-ended, non-dogmatic, speaking to and grounded in the circumstances of everyday life. It must, moreover, be premised on a *deep respect for the intellectual and political capabilities of the dispossessed* (my emphasis) (p. 55).

These are indeed challenging notions to research practice, even those framed within a more postpositivist paradigm. Lather herself may even fall short of achieving her own stated ideals. Weiner alleges that Lather, while arguing for "openness and self reflexivity" uses "highly complicated writing styles" that seem to implicitly "deny that possibility to (her) readers" (1994, p. 70).

Lather's work explores a number of issues that Thomas does not address. These include the need for participatory or reciprocal research models, the negotiation of meaning and interpretation among research participants, and the need for language that respects the intellectual and political capabilities of those involved in the research. On this last point, there seems to be some doubt as to whether Lather is capable of following her own advice concerning the presentation of her research. Furthermore, Lather's work, like Thomas' is theoretical in nature and often bereft of specific ideas and methods for conducting such participatory/critical/praxis-oriented research. Thus I have turned to the work of Peter Reason (1988, 1994) who attempts to redress such an imbalance.

Human Inquiry

While Thomas, Lather, and Guba and Lincoln were developing their theories on poststructural research in the United States, Peter Reason and John Rowan were active in Britain exploring "issues of knowledge, validity, critical subjectivity and all that" (Reason, 1988, p. 18). Their work, entitled

Human Inquiry: A Sourcebook of New Paradigm Research (1981) was at the forefront of the epistemological break from the positivist paradigm in social science research. In later work, Reason would turn to more "straightforward practical guidance for the practice of co-operative inquiry" as he felt that:

> we have got, at times, into some deep philosophical waters in trying to understand what we were up to, and in doing so may at times have lost sight of the simple idea of doing research with people, rather than on people (1988, p. 18).

Reason goes on to provide a specific framework for engaging in such research, a framework that I have adopted. I will explore that framework in a general sense here and later in the chapter, will apply it to this study.

Reason's guideline is presented in a number of stages, the first of which is the *Contracting* stage. Here, participants come together to discuss the research process and should come to understand the method and "know what they are letting themselves in for" (1988, p. 23). As well, input from others can help shape the design or structure of the project from the outset. This way, participants will hopefully garner a sense of "commitment, participation and sharing of fate" in the words of Reinharz (1983, p. 171). Gradually, the overall research plan is devised and roles are defined within the group. The *Progress of Inquiry* stage concerns the research process itself and involves a series of logical steps including:

- identifying questions or issues to be researched
- developing a more or less explicit model of practice
- putting this model into practice
- recording what happens
- reflecting on the experience/making sense of the whole venture

Crucial in these final stages is the cycling of data. The researcher is not a conduit through which all information is received, but data must be shared

among the participants and used as a tool of awareness, and as fodder for further discussion and reflection.

Reason notes that "presumably, co-operative inquiry leads to co-operative reporting and so the writing of any report should be a shared business" (p. 38). Thus the *Writing* stage involves the production of text informed by the participants and written with some form of collaboration. In the case of research written for a Master's or Doctoral requirement, Reason acknowledges the ideological clash between the ideals of the institution in terms of original work and the ideals of the co-operative paradigm. Here he sees the student as the primary researcher writing his/her view of the project in some form of consultation with members of the group.

A final stage, in conjunction with the *Writing* stage is what Reason calls *Validity Procedures.* He sees validity, a subject of much poststructural debate, as not only an academic issue, but also "intensely practical" in confronting such questions as "are we in any way deceiving ourselves in our claims and in our practice?" (p. 37). I will look more closely at this important topic later in the chapter when I outline the methodology for this study.

Overall, Reason's work provides some practical solutions to doing new paradigm research while drawing on the theoretical implications put forth by scholars such as Lather and Thomas. Even though there is an implicit assumption in Reason's work that groups meet and interact face-to-face, I believe his ideas (and others I have discussed so far) can be adapted to a textual conferencing environment such as CIER. In the next section I will discuss the application of poststructural inquiry, in a general sense, to the textual environment of a computer conference.

Postpositivist Inquiry in a Textual Environment

The textual environment inherent in online or virtual communities presents an interesting challenge to the new paradigm research. How are the notions of participation, voice, and empowerment reframed in the purely textual and asynchronous medium of computer conferencing? What becomes of the face-to-face interview or discussion group so much a part of qualitative and ethnographic research? Feenberg (1989) makes the following observation with respect to the people inhabiting a computer conference: "a group which exists through an exchange of written texts has the peculiar ability to recall and inspect its entire past. Nothing quite like it is available to the spoken community" (p. 208). For the positivist researcher, the access to a group's entire past, existing in the malleable and codable format of computer text, provides a seductive platform for data analysis. For example, work by Harasim and Walls (1993) examines outcomes of the *Global Authoring Network* in terms of "volume and quality of exchange" (p. 346). The tracking of volume appears in a graph of the number of words exchanged during each of the 16 weeks the network was studied (the total was 125,000, for what it is worth). Such quantitative endeavors would indeed be near impossible in a traditional face-to-face group or community. For such precision to take place, complete surveillance and recording of each member would be necessary. This leads to two important questions: does the nature of conferencing lead to a more quantitative/positivist approach and is it proper to examine and present the entire history of an online community in such reductionist and intrusive fashion? Neither can be answered in the remaining space of this chapter, nor is it the concern of this research but I will try to contextualize each (and the other questions I posed at this beginning of this section) by examining two research papers from a postpositivist perspective. I choose

this particular research due to the critical nature of its subject matter: hierarchies and power in the first case and human relationships in the second case.

In a work entitled *The Persistence of Status Differentials in Computer Conferencing*, Saunders *et al*., (1994) attempt to verify the so-called ability of electronic communication to remove the effects of status and role identity. Their findings, based on a group of health care professionals (doctors, nurses and administrators) indicate that the status quo was maintained in the conference--physicians and administrators were afforded higher status in the computer conference. Their work, similar to that of Harasim and many others, relies on volume distribution of messages for much of their results (counting sentences rather than words in this case). While I do not feel a critique of this research, firmly entrenched in the quantitative/positivist paradigm, is germane to this chapter or research, I would like to explore how the postpositivist researcher might approach such a study.

Earlier I mentioned the ease with which quantitative data can be siphoned from online or computer conferences since "all the interactions are self-transcribed" (Levin *et al.,* 1990, p. 186). I believe certain features of the computer conference serve the postpositivist agenda as well. Reciprocity becomes a much simpler, direct and perhaps more thorough endeavor. Researchers in situations such as Saunders' have communicative access to all participants simultaneously. Initial data analyses could be posted in the conference for comment by those being "researched", research questions could be determined by consensus, and final reports could be verified and discussed through member checks. In short, research participants could be given a "voice" in the shaping and presentation of the data with an ease not previously possible. For Saunders *et al.,* bringing their research into the postpositivist

paradigm would have meant engaging in such activities. Furthermore, their overall goal would have had to shift from merely "describing and interpreting" the situation to helping the participants "change" (Thomas, 1993, p. 7) their situation. The status of the nurses would have been more closely examined and contextualized through their thoughts and input in an attempt to transcend their present predicament, if indeed that was their wish. There is much documented research that looks at status and privilege in the workplace and attempts to help participants understand and better their situation (e.g. Swantz & Vainio-Mattila, 1988; Krim, 1988; Venny-Tiernan et all, 1994; Treleaven, 1994) as well as a general treatise on the subject of working with oppressed groups in a participatory fashion (Whitmore, 1994). I have yet, however, to locate such research that has been carried out in a computer conference setting.

One study stands alone in its attempt to apply both traditional and critical ethnographic methods to an online environment. In an ethnographic study concerning an "electronic bar" called the *Lesbian Cafe*, Correll (1994) made use of the conferencing format to "post a note each week describing my study so that patrons knew they were being observed", clarify note content (member checks) and "conduct semi-structured interviews via private email" (p. 278). Her interaction with the subjects, especially in the area of member checks can be seen as a step toward a more postpositivist approach. In the presentation of the data, Correll also makes use of portions of the dialogue from the actual conference which serves to, in a sense, raise or present the "voice" (p. 278) of some of the research participants. Correll does, however, fall short in a number of postpositive tenets. There is no indication that her findings were posted or shared with the participants for further input or comment. There is no evidence of a transformative agenda, especially in the

area of "bashers" who would often disrupt the conference (and who were, in all cases studied, male). Correll might have approached the problem of "bashers" as a predicament that needed to be solved or dealt with by the members rather than reporting it as part of a typology. Finally, the notion of the face-to-face interview needs to be addressed.

In the interest of "triangulation" of the online interview data, Correll felt it necessary to interview some of the patrons face-to-face. I find it questionable that the data gathered in a textual context among people who have created online personae will be somehow verified or further legitimated through face-to-face interaction. Entering the physical realm, to me, would seem an entirely different context especially given the vast amount of research that attempts to show how people often operate in a different manner in a textual, pseudonymous setting (e.g. Eastmond, 1995; Hiltz, 1990; Levin, *et al.*, 1990; Beckstead, 1992). How then, does such a different context reaffirm or validate the other? How does removing the textual personae through physical contact somehow verify that textual personae? And finally, how do participants, in a highly explicit and unconventional setting, react to the imposition of a face-to-face meeting? Correll gathered eight participants not only for interviews but for a trip to a "real lesbian bar in Atlanta" (p. 278). Correll was interested in comparing the face-to-face interaction with those she had tracked in the computer conference. However one cannot help but wonder what effect these meetings and field trip might have on the participants. It seems more like a scene from tabloid or talk show television than a carefully conceived step in someone's research process. Unfortunately, Correll presents little of this data, noting only that the participants were "ready to leave the bar long before it closed down" (p. 281) and that a flirtatious and gregarious member of the online cafe was "awkward" and "shy" in person (p. 287). I think

it would have been useful to hear from these participants concerning the process of the face-to-face meetings themselves, how they felt and made sense of them in relation to their online experiences, and if they were worthwhile or an imposition. That such a rich data source was ignored remains a mystery to me and perhaps others who have studied/attempted postpositivist research.

The Study

Having explored two studies that involve online groups or virtual communities (Rheingold, 1993) and contextualizing their deficiencies from a new paradigm research perspective, I will now outline the proposed methodology for this study.

The main focus of this study will be on exploring and contextualizing the CIER virtual community through a kind of cooperative human inquiry or participatory ethnography based on the work of Reason (1988) and to a lesser extent, Patti Lather (1986, 1991) and Jim Thomas (1993). Typical of ethnographic investigation, an emergent design will be necessary for creating flexibility in the ongoing research process (Schumacher & McMillan, 1989). Flexibility is an essential part of participatory research as contributions from members of the community both during and after the data collection can and will shape the final narrative representation (Reason, 1988). Thus even the process that I outline below and utilized in this study, is general in nature and respects the fact that research plans are subject to change depending on the notions of the participants and the resulting decisions that are made as a community. I will first describe a system for praxis or co-operative inquiry between/among people spread over three continents. Next I will address two general research issues, validity and triangulation, and attempt to contextualize them from a postpositivist perspective within a textual research

environment. Finally I will explore the ramifications of my own presence in this study as a founder, creative participant and primary researcher in the CIER community.

Cooperative Inquiry

Contracting Stage

As discussed earlier, I am applying Reason's model for cooperative inquiry to the CIER online community for the purpose of this research. In outlining the plan, I will conform to the stages put forth by Reason (1988) and discussed in a previous section.

The *Contracting* stage involved a discussion and clarification of the research process. Participants included the teachers at each of the five schools studied and the two composers as well as myself in the role of composer and facilitator. Before the first session began, I made all participants aware of my research intentions and invited them to record (in the form of field notes if they wished) their experiences with using CIER as part of their classroom routine (see appendix A). At that time, I was not sure how the complete process would play out but instead felt that an initial step was needed in the early stages of the research to get the process started. It was stated that participation in this process was voluntary and if teachers did not want to engage in the research process for whatever reasons, I would respect that decision. In consideration of the teachers' professional experience and individual choice, I purposely did not specify the mode of recording data nor what the nature of those recordings should be. The teachers, I felt, should be comfortable with the method they choose, rather than having me choose a single, consistent one for all teachers (i.e surveys, or rating scales). In the conventional sense, some might see this practice as a threat to validity but

Lather (1991) notes:

> The need to systematize as much as possible the ambiguity of our enterprise does not mean, though, that we must deny the essential indeterminacy of human experiencing (p. 66).

Thus while conventional research tells us that the systematic and consistent are desirable for so-called validity (Reinharz, 1983), poststructural ethnography sees choice for the participants and reduced imposition on the part of the researcher as desirable. In this study I believe more is to be gained from supporting choice rather than consistency of method.

Progress of Inquiry Stage

At the end of the first session, which lasted from mid January to mid June, 1996, I had formed a tentative overall process which I thought would be agreeable to the teachers and composers. I would ask, at the end of each session, for any field notes, surveys etc, gathered during the session by the teachers as well as a written report, or "muse" as they came to be called from the composers and teachers. I communicated these ideas to the group (see Appendix B and C) and it was accepted as the model by which we would pursue and complete the research process. Embedded in this model were the steps recommended by Reason discussed earlier including the developing of a research model, putting it into practice, recording what happens and reflecting upon the experience.

The Writing Stage

Using the contributions from the teachers, the conference messages themselves, and my own field notes and email communications, I wrote up an initial "analysis" of the proceedings and submitted it to the conference for scrutiny by the rest of the participants. The most common form of

participatory or emancipatory research, notes Lather (1986), involves the submission of a preliminary description of the data to the scrutiny of the researched. Both Bullough and Gitlin's (1985) case study of a middle school teacher and Willis' (1977) work with twelve British working class males' transition from school to working life utilize emancipatory techniques in creating a significant role for the researched in the interpretation of the data. The conferencing environment made such cycling (and recycling) of data and analysis a simple process as it could be posted in the main discussion area and read or downloaded at the participants' leisure. Student participants, as well, had access to this data (and all other information posted in the conference).

This procedure was repeated again for the second session which took place from mid September to mid December, 1996. Another preliminary data analysis was submitted to the group after I examined all the data. Finally the entire thesis was made available upon completion to conference participants for final scrutiny.

Validity Procedures

Reason's model also stresses the importance of validity and its reshaping in order to be consistent with the new paradigm research. The Oxford English Dictionary cites validity as "the quality of being well-founded". Clearly, the notion of well-foundedness is contingent upon the research paradigm. Positivist models view validity as "the degree to which scientific explanations match the realities of the world" (McMillan & Schumacher, 1989, p. 159). With postpositivism's rejection of "an objective reality driven by immutable natural laws" (Guba & Lincoln, 1989, p. 11), a reconceptualization of validity becomes a key element in the postpositivist research canon (e.g. Lather, 1986).

Lather (1991b, 1993) and Heron (1981, 1988) have written extensively on the subject of validity in poststructural research. Both see research cycling or member checks (supplying initial and final analyses to participants for scrutiny and input), as the key to establishing validity or "data trustworthiness". Furthermore, Heron stresses the need for balancing reflection and experience within research cycling. Inquiry "supersaturated with experience" or "of minimal action" will result in low validity (p. 48). In this research, I believe the model I have created allows for adequate recycling of data and provides a balance between reflection and experience. Both preliminary and final reports were submitted to participants after each session and the entire research document was made available at the completion of the research. Having two sessions separated by a period of three months allowed for a balance between the experience (engaging in the conference) and the reflection (written reports, post conference discussion and data recycling).

Lather also discusses the need for *catalytic validity* which she describes as the "degree to which the research process reorients, focuses, and energizes participants" (1991b, p. 65). Indeed, one of the main purposes for this research, as stated earlier, is to go beyond the description and interpretation of CIER to provide a platform for change for the participants. The reflective reports submitted after each session would not only provide an interpretive function in the data analysis, but also allow for changes to be made by consensus to the existing structure of the CIER conference or research plan.

Triangulation

Triangulation is another tool for gauging the trustworthiness of data in ethnographic investigations--a method for cross-validation among data sources, collection strategies and theoretical frames (Denzin, 1978). Lather

(1991b) stresses the importance of triangulation in poststructural research, urging researchers to expand "beyond the psychometric definition of multiple measures to include multiple data sources, methods and theoretical schemes" in echo of Denzin's definition. In this research I draw on a number of textual data sources including conference transcripts, research reports from participants, field notes from participants, private email exchanges, chat sessions and my own personal journal. I have decided to eschew the traditional face-to-face interview, instead triangulating with the textual data only. While face-to-face interview data might be useful in gaining some understanding of the difference between textual and personal interaction in CIER, my interest lies only in the CIER community--itself a textual entity. From a practical viewpoint, limited resources did not permit travel and accommodation to/in four different countries. I did have the opportunity to visit the two Canadian schools and speak with some of the students as well as with two CIER teachers. Not doubt these encounters will serve to shape my narrative representation but I feel that the main data sources should be consistent with the conference itself and thus remain in the textual domain.

By drawing on aspects of cooperative inquiry, research as praxis and critical ethnography, my methodology is not informed or developed by a single source. As well, the data presentation includes aspects of quantitative as well as qualitative approaches. New paradigm research does not reject outright the use of quantitative data, but views this source as one of many possible approaches in research that "minimizes the manipulation of the research subjects" and attempts to "limit *a priori* analysis or definitions of variables" (Reinharz, 1981, p. 417).

My Definition, My Imposition

According to Schumacher & McMillan (1989), quantitative research seeks to control for bias and researcher imposition through design and detachment while qualitative research "seeks to take into account subjectivity in data analysis and interpretation" (p. 15) and assumes immersion in the situation being studied. Hammersley and Atkinson (1995) note that "in a sense, all social science researchers are participant observers" and cite this property as blurring the distinction between ethnography and other forms of qualitative inquiry (p. 2). Still, the positivist mind set or what Lather calls "Cartesian anxiety" still informs some, if not many, ethnographic epistemologies. For example, Hammersley and Atkinson, while acknowledging subjectivity and participation, cannot help falling back on such terms as "distancing" and "over-rapport". They see over-rapport as a type of validity-threatening affliction that grabs hold of the researcher when s/he gets "taken over" by the "subjects". It is interesting to note that they cite the study of Willis (1977) as falling prey to this affliction, stating that the work "becomes as much a celebration of them (the subjects) than anything else" and that Willis "appears unable or unwilling to *adequately* distance himself from their accounts" (p. 111, my emphasis). Such irregularities would seem welcome by those proposing to do poststructural/critical ethnography or what Reinharz (1983) calls "alternative or feminist" sociological research. Indeed, many consider the Willis' study to be ground breaking in terms of its approach, empowerment and participatory notions (e.g. Haig-Brown & de Castell, 1991; Lather 1986; Reinharz, 1983; Thomas, 1993). Reinharz sees the view of the importance of a detached relationship with the subjects as "conventional or patriarchical" and proposes that researchers become "involved, [and adopt] a sense of commitment, participation and sharing of fate" (p. 171).

For this study, creating and maintaining the illusion of detachment from the participants would be inconsistent with the notions of participatory ethnography and, in a practical sense, quite nearly impossible given the history of my involvement with CIER. An important consideration here should not be the *possibility* of my involvement with the participants but the *inevitability* of that occurring. To be sure, as the instigator of CIER I have had many communications with the teachers and composers over the last year and in one case I have been communicating electronically with a teacher for over three years. During the actual CIER sessions, I engaged in the role of composer and thus also got to know the participants (and students) through both textual and musical exchanges. In short, I am a participant or member of the CIER community, not an outsider. I view my involvement with the CIER community as beneficial to the research process for two main reasons. First I think my relationship with the participants helped with the cooperative process. Since I am not an outsider, they might have been more inclined to feel less inhibited in shaping and controlling their research contributions. Second, my involvement (or what positivism would refer to as *bias*) served to create a more "insider" view upon which to base the narrative aspects of the ethnography. In short, I hope my bias and involvement with the program served to create a different kind of "truthfulness" that allowed "the story to unwind beautifully" (Minh-ha, 1990, p. 328).

Conclusion

This poststructural study or new paradigm research uses aspects of critical ethnography, praxis and cooperative inquiry to, in short, create a methodology that is interactive, contextualized and humanly compelling (Lather, 1986). Much has been written about the new paradigm research, a

great deal of it pertaining to the philosophical tenets of such a mind set including poststructuralism, postmodernism and deconstruction (e.g. Lather, 1991; Thomas, 1993; Denzin, 1994; Reinharz 1983). In this chapter I have perhaps not confronted or contextualized such "deep philosophical waters" (Reason, 1988, p. 18) to the extent that they are dealt with elsewhere. However, some argue that there is a trend in such research to fetishize form (Clifford, 1986). Margery Wolf (1992) reminds us of the tendency of some postmodern theorists to be more concerned with an ethnography's epistemology than with its content. In this study I had hoped to avoid this trend, instead focusing on the practicalities of engaging in participatory ethnography/cooperative enquiry and respecting the intellectual and political capabilities and interests of the participants. As scholars still struggle to define and agree upon exactly what poststructuralism is (Trachtenberg, 1989), many researchers are forging ahead in the field of new paradigm inquiry, creating grounded theory from cooperative experiences. As Marcus & Fischer note--"in periods when fields are without secure foundations, practice becomes the engine of innovation" (1986, p. 166).

CHAPTER 5:

The First Session

In the remaining three chapters I present the data and analysis from the two CIER sessions studied. Chapter Five provides a detailed presentation of the data from session one, focusing on the program itself, how the participants made sense of their experiences in CIER and recommendations put forth for improving the second session. Chapter Six provides a presentation of the data from session two, with a focus on how changes were implemented and what effect they had, by way of comparison to the first session. Chapter Seven will provide an overall analysis of the data in Chapters Five and Six from my own perspective and in relation to the ideas discussed in the first four chapters. In Chapter Seven, I will finish with some thoughts on attempting/doing cooperative enquiry in the textual environment of a computer conference.

Introduction

The raw data from the first session of CIER is comprised entirely of textual notes and MIDI files. For the presentation of the data in this chapter, I have divided the data into two main parts, discussion during the actual conference leading up to and including the musical exchanges and post discussion that concerned exploring the perceptions of the participants. Within each category is a further subdivision. During the conference, there were two "areas" of exchange. One area was dedicated to communicating the operating procedures to participants as well as housing any technical discussion or concerns while music was being exchanged (see Figure 2, p. 36). I refer to this area as the instructor's forum, a term coined by Wayne, the teacher from

United States School. The other area, a separate folder within the conference, was dedicated purely to student/composer/teacher music exchanges and discussion pertaining to the music (see Figure 3, p. 37). In the post discussion area, two regimes were evident. First there were the reports or muses submitted by each of the participants (composers and teachers). Second, there were the field notes and/or surveys that the participants had collected. As it turned out, one of the composers, herself a music education researcher, posted a survey and invited teachers to use it if they wished (see Appendix D). Two of the teachers, from the schools that provided the majority of the exchanges in the conference, had their participating students fill out the questionnaire and post them in the conference. The surveys provided a fourth area of data as no field notes or other forms of data were submitted, that included:

- Student Composition Forum
- Instructor's Forum
- Teacher/Composer Reports
- Student Questionnaires

The purpose of this chapter is twofold: to present the "story" of that first session as well as present the thoughts and perceptions of the CIER participants concerning the first session, through the four main data sources (listed above). It is important at this point to recall the discussion in Chapter Four concerning voice and truth in ethnography. I am attempting to speak *on behalf of* (Thomas, 1993) the CIER participants by supporting and mediating the presentation of the participants' voices, as well as my own. Yet I will not go so far as to make the claim that I am giving authority to their voices (as Thomas does) and in doing so create or produce *the* truthful account of the events. Denzin (1994) might remind us that the language (or writing) below does not mirror or provide a single truth about the experience of CIER.

Instead, the language itself serves to create the experience by transforming and deferring what is being described. Thus the work here (and in the remaining chapters) represents a particular version of the story or truth--my own. While true cooperative enquiry, as described by Reason (1988) and discussed in Chapter Four, requires cooperative or collaborative writing, the nature of this research dictates that the writing here remains my own. However, that does not prevent me from providing, in the presentation, a significant amount of participant "voice". In exploring and contextualizing CIER and the issues arising in the conference, I rely on large excerpts of text taken from the data sources, mediated and crafted into a kind of story or flow by myself. Initially, however, I will present the data from the student composition forum in a general and quantitative fashion to provide an overview or context for considering the reflective data from the other three sources (listed above).

Before presenting the data, I will review the participants in the study profiled in Chapter Three:

Brian, *Toronto School*
Ed, *Vancouver School*
Wayne, *United States School*
Brent, *Asia School*
Marcia, *Europe School*
Gary, composer
Maud, composer
Dave, composer/facilitator

The Student Composition Forum

There were 79 messages (17,771 words) posted in total, constituting 14 discussion groups that contained 18 original student compositions (some postings contained more than one MIDI file). By discussion group I refer to the original posted MIDI file(s) and the subsequent responses or discussion pertaining to that piece(s) of music. On average, each discussion group contained 6 to 7 messages with the smallest group generating a single message

(the original piece of music) and the largest containing 13 messages. Figure 5 shows a typical discussion group. The original posting appears at the top of the group and the four replies appear with an "Re:" in front of the subject heading.

The participation distribution by school is detailed below in Table 1.

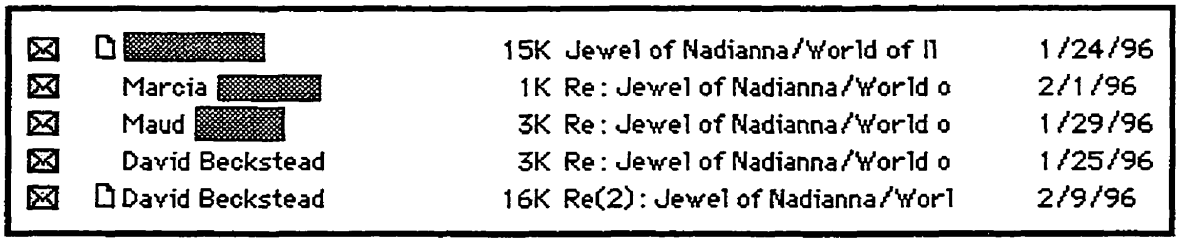


Figure 5: Discussion group in the Composition Forum

School	Discussion groups initiated	total # messages	# MIDI files
Vancouver	1	1	1
Toronto	3	6	6
United States	2	3	2
Europe	7	23	15
Asia	1	1	1

Table 1: Message distribution, by school, in composition forum

Clearly, the distribution differs greatly among schools with *Europe School* contributing the vast majority of the discussion and MIDI files. I will avoid the reductionist trend (discussed in Chapter Two) of some research in online settings that equates success with the number of words, sentences or

exchanges posted in the conference. Later in this chapter I will explore the possible reasons for such a distribution but I caution the reader from assigning any sort of judgment based on message distribution concerning the schools or teachers involved without first reviewing the qualitative data presented later.

Musical Intent

When students posted a piece or pieces of music for discussion, the piece of music itself appeared as a file attachment on a message. The textual part of the message would often state a bit about the music, who composed it, and what her/his/their reason for posting it was. The following is an example from *J* at *Europe School* (see also Figure 4, p. 38):

> *"This short piece is the product of about a month and a million changes. It was written in a Computer Music course here at school, and I am looking for suggestions on how to make it longer, or add tracks. Thanks for listening!"*

From the 14 discussion groups, three areas of intent emerged:

- works in progress seeking advice, revision, etc. (11 groups)
- finished works posted for sharing (2 groups)
- group or connective composition (1 group)

The students' intent of using CIER as a vehicle for discussing and subsequently revising work is evident as most groups fall into this category. The third group, a type of MIDI chain letter or "connective composition" (Brian) from *Toronto School*, intended to create a collaborative composition where all participants would contribute to creating a piece of music with *Toronto School* supplying the initial ideas. Finished works (the second group) were posted from *Asia School* and *E* at *Europe School*. *E* stated in the initial posting, "I feel this is a finished composition but I thought I would post it as an example of how lyrics can help lead a person in composing a work." Messages

such as these were important in clarifying the students' intent for the music. As well, the extra information supplied by the student composers helped the composers in forming a more coherent and appropriate response (as evidenced later in the composer reports).

Musical Content

A variety of styles, influences and interests were evident in the 18 student compositions posted. Abilities ranged from grade seven beginners to senior high school students going on to post-secondary studies in music. Similarities existed in contributions from within a school as in the case of *Toronto School* and *U.S. School*. The *Toronto School* compositions were created as part of a multi media project. In all, six pieces were posted, all relating to an interactive story design. Students from *Toronto School* explained one of the postings:

> *These two pieces were composed by V and T for the DreamQuest Project. DreamQuest is a non-linear, interactive story design we are creating in SuperCard 2.5 software. There are five quests in the project. These two pieces are the opening themes for two quests. Each theme can only be approximately 30 seconds as it is designed to accompany graphics and text display as well.*

U.S. School students were involved in more structured composition projects based on "feelings" and ABA form. *M* and *A* explained in their posting:

> *Hi, we are M and A, seventh graders from U.S. School. This is our first composition and we tried to show the feelings of confusion and excitement. To show confusion, we used notes that were long and wavy, and to show excitement we used short fast notes. We used ternary form to organize our composition. We hope you like it.*

The third school, *Europe School*, which provided the majority of the discussion groups represented a less structured approach to composition. In

this upper level course students seemed free to pursue their own ideas and choice of genres. Contributions from *Europe School* ranged from heavy metal introductions through European Canonic forms to American Rag Time piano.

Responses Within the Discussion Groups

The majority of the responses were from composers. All discussion groups (except one) received at least two responses from different composers and in 11 of the discussion groups, MIDI files demonstrating the discussed ideas were part of the response. Of the 63 responses, 44 were from the composers (65%). Of the remaining responses, 14 were from the student composers responding to the discussion about their pieces and 5 represent responses from other students (3) and other teachers (2). Below is a chart of the message distribution by composer. The transcript of a typical discussion group can be found in Appendix E and Appendix F.

Composer	Discussion groups initiated	total # messages	# MIDI files
Maud	0	14	5
Gary	0	12	2
Dave	0	18	8

Table 2: Message distribution, by composer, in composition forum

On further examination of the discussion groups one can find that the number of messages/responses in a group seems to depend on whether the student(s) who posted the original piece of music joined in the discussion (i.e responded to the responses). If no further communication from the student

who posted a MIDI file occurred within a discussion group, the average number of responses was three (in seven discussion groups). When students did respond to the discussion, the average goes up to just over seven. Clearly students can foster further discussion by joining in the exchanges about their work.

Having students respond to the discussion of their work is a notion that was encouraged at the beginning of the CIER session and further reinforced by responses from composers and other schools. In many cases, responses directed at student works ended with an invitation to join the discussion. Some examples:

- Maud (to *Toronto School*): *Give me some feedback on what you think of my changes.*

- Dave (to *B* from *Europe School*): *Please write back and tell me your thoughts on this...*

- Gary (to *J* from *Europe School*): *Let's hear more!*

The question remains if it is desirable to foster as much discussion as possible. Is a successful discussion group one of many responses, including contributions from the original student composer? In the role of composer I know that I feel somewhat disappointed if I spend a lot of time on a long textual and music response which the student does not acknowledge/question/challenge. But again, one should not equate student non-response with failure--each situation is a particular discussion governed by many different factors including student intent, scheduling, availability, etc. I examine this area later in the chapter. Much was written in the final teacher reports concerning the advice/comments in the discussion groups.

The Instructor's Forum

Wayne: *The instructor's forum was a great vehicle for discussion of theoretical, ethical and philosophical considerations regarding the use of technology to facilitate student learning.*

Outside the music conference, an area existed to post messages to participants concerning technical issues and where queries could be made concerning the overall conference and operating procedures (see Figure 2, p. 36). A total of 68 messages were posted, the greatest number coming from me in the role of facilitator (see Table 3 below).

Composer/Teacher	Discussion groups initiated	total # messages
Maud	0	4
Gary	3	8
Dave	10	25
Marcia (Europe)	5	15
Brian (Toronto)	1	7
Brent (Asia)	2	6
Wayne (U.S.)	2	4
Ed (Vancouver)	1	3

Table 3: Message distribution in instructor's forum

As stated earlier I have called this area the instructor's forum (Wayne's phrase) but should point out that the forum was not a type of virtual staff room where students were not allowed. Students had access to this part of the conference but chose not to join in the discussion, even at the prompting of myself at one point. The FirstClass "message history" function reveals that most messages were not read by the students (on the school accounts) with the exception of *M* from *Vancouver School* who proved to be an avid lurker,

reading all postings but responding to none of them.

The messages appeared to be concerned with two themes--the practical (43 messages) and the ethical (25 messages). The practical messages were prominent early in the conference when the instructors' forum was used as an inservice area. Participants could download messages outlining how the FirstClass conferencing system worked and practice uploading and downloading MIDI files. As the conference progressed, participants posted messages if they were having some technical problems with their equipment, internet connection or FirstClass. For example, Ed at *Vancouver School* was having problems getting their synthesizer to work with the sequencer. I posted a note asking if anyone knew the equipment and Marcia (*Europe*) responded with instructions on how to get it to work. As far as I know, the problem was solved although Ed never responded to that part of the discussion.

The second division, "ethical", arose as the music conference was underway. Gary initiated a discussion concerning the performance of computer music and the role of the "human". The discussion went on for two months with all teachers and composers contributing their ideas and thoughts. Splinter groups arose and more specific areas were discussed in smaller groups. In one case, Gary and Brian discussed the imposition of the "tool" on the craft of music composition over four messages (of a page or more each). These ideas and themes will be considered more specifically in the last section where the teacher reports are discussed/analyzed.

Student Questionnaires

A student questionnaire (see Appendix D), designed by Maud, was left in the instructor's forum area where teachers were free to download it and administer it to their students on a voluntary basis. Both Marcia and Brian

had their CIER students fill out the questionnaire for a total of seven completed forms.

Much of the questionnaire was concerned with the discussion of the pieces--feedback, revision, efficacy of suggestions etc. Again we see the perceived importance of the feedback/discussion in CIER manifested in Maud's questionnaire. Copies of these completed questionnaires were posted by the teachers in the conference. All but one of the students found the composers' advice "helpful" and the other found the advice "more interesting than useful". All the students spoke of the "interaction" or "communication" or advice being the most worthwhile aspect of CIER, further reinforcing the primacy of communication in the CIER community.

Five of the seven students did not offer any suggestions for changes saying they liked it as it was. One student mentioned that she would like to see more student to student response. Indeed, of the 68 responses, only 3 were from students commenting on other students' work. Interestingly, one student mentioned that he would like to see face-to-face meetings with the composers on the net (video conferencing) while another mentioned that these types of meetings are "more trouble than they are worth". Both students were from *Europe School* and had experienced video conferencing before.

Final Reports

Teachers and composers were asked to submit their thoughts/perceptions of the CIER experience in the form of a written report (see Appendix B and Appendix C). Reports were received via email and posted in the message conference. Seven were received--one from each of the teachers at the five participating schools and one from each of the two composers. Responses averaged just over four typed pages or 1730 words. In reviewing all the reports, I have identified five main themes or issues that

occur throughout. They are as follows:

- Advice/Comments
- Conferencing Technology
- Composing Technology
- Participation
- Recommendations

While I again acknowledge my own imposition in putting these ideas together, I have tried to remain as faithful as possible to the original texts and intended meanings (as far as that is possible).

Advice/Comments

> Brian: *In having the opportunity to share their work with a larger audience, including fellow students and professional composers, the general attitude toward their (the students) work changed in that they became more analytical in their thinking about what they were doing. Upon receiving feedback from ...composers, their (the students') understanding about music grew by becoming directly involved with different perspectives. This is a very powerful effect since it serves to enhance their understanding of their work in a manner not possible without CIER.*

The issue of the advice or responses in the reports was a prominent area of discussion. All five teachers noted the efficacy of the "thoughtful commentary" (Wayne) on their students' work. Besides the "legitimizing" factor (Ed) involved in having students discuss their compositions with composers, many spoke of the educational or pedagogical nature of the advice from the composers.

- Marcia: *One of the major strengths of CIER was the interaction of teachers, students, composers, collaborators (whatever title we wish to give our roles). For me it provided validation for what I was teaching. You know how sometimes you feel you're talking but no one's receiving?*

It was fun to have a student come and say, "Look, this is just what we were talking about yesterday!" It was also a way to get that help you need when you are at a loss as to how to help a student over that 'musical hurdle.' It seemed that we always received suggestions when we needed them most!

- Brian: *In a sense, the response became the core for a lesson and the extension of musical concepts in question.*

- Brent: *You (CIER) have really focused on the educational aspects of composition and co-composition.*

Maud spoke more specifically of the educational nature of the advice from composers, noting the contextual aspects when students learn about music through their own material:

Rather than drilling hard, dry, and trivial facts about theory and history, these composers were using the theory language and talking about music history in their dialogues with the students about their compositions. One example is the April 1 Dave Beckstead correspondence to D (Europe School) where he points out the "minor 2nd" in the musical "ostinato" that he created. I also recall Gary talking to one (student)composer about his music which was medieval sounding, and he then mentioned some recordings for this student to check out in order to hear the similarities. This is so much more meaningful for students than the trivial pursuit games we play with them in typical music history / theory courses!

Gary read all the reports before responding (his was the last one posted) and thus was in a position to reflect both on his experiences and the views of others. He sensed the importance being placed on the educational aspects of the exchanges and had a slightly different take, one that he sees outside the realm of typical teacher or educational thinking.

As a "composer" (ie non-educator) my experience was perhaps the opposite of Maud's. I had to emphasize pedagogy, that is not to just think like a composer but as a teacher who had a knowledge of composition (maybe

like I imagine you [Dave] & Maud think). My composer impulses may have had been plunging right in to the music and tearing it apart, totally rethinking it, suggesting it head off in all sorts of different ways. It's all very well suggesting that they change their chorus-verse pop song structure into some convoluted micro-polyphonic homage to Ligeti but, that's obviously only useful if they are even vaguely interested in the idea, if they can respond on some level to the idea and that kind of music.

I think Gary saw much potential for CIER to exist beyond the educational aspects exemplified by comments from the other participants (see above). His position to comment is informed by the fact that he is the only member operating outside the educational establishment--he is neither a teacher, nor trained as one. All his experience is with his art, that of music composition. And this special perspective of the artist is often the most desirable in terms of the idea and efficacy of a Composer in Residence situation. Gary elaborates further:

I was aware of always trying to appeal to the students musically, not just educationally (do this because it is good & it is good for you)...I feel it is part of my role as a composer (as opposed to that of the teachers, who are well able to teach the standard stuff) to offer not just ideas as to how to finish a piece "professionally" but to offer wild ideas, inspiration, to expand the horizons of the students. A composer in residence isn't just there, I feel, to be a teacher with more musical training/experience (with correspondingly less pedagogical training/experience!) but to give the students a chance to interact with a working artist. To hear about what inspires that artist, what they think is cool and exciting, to hear what crazy ideas they might come up with (as opposed to the --supposedly --- institutionally approved ideas of the teachers).

Overall, Gary felt his presence as a composer was not utilized to its full extent and he gives a few recommendations for how this can be remedied. Perhaps he felt a little overwhelmed by the large "educational" presence and

assumed more of a teacher role in his interactions with the student composers, concerning his responses with the "standard stuff".

Finally, Maud provided a model by which to view the CIER interactions. She views the interactions as a unique "three way approach" with "interacting diads going on among the 3 people (groups) (T=teacher, S=student, C=composer)". She explains:

> *In the teacher-student diad (T-S), the teacher is given the advantage of viewing the intimate musical work of the student through his/her compositions. This is a very different view for the teacher who more often only sees the overt performance ability of the student. The teacher and student who interact and work together on a composition learn and grow together musically (again, different than the traditional model of "teacher-as-god-who-knows-all-of-the-right-answers"). This diad (could also be a group of students) continually spirals upward as the interaction and growth continues. An added bonus in the C.I.E.R. model is given when a professional composer can also work with the student. The Composer-student diad (C-S) also influences the T-S diad to create an interlocking triad of professional, teacher, and student all working together.*

Conferencing Technology

> Marcia: *You may note in B's questionnaire that he refers to the video teleconferencing projects as fun but not as productive as CIER. It was interesting to watch the various students react to the different methods and/or problems encountered with CIER and with CU-SeeMe conferencing. I'm certain that part of this falls back to learning styles and response to feedback. A couple of the kids liked seeing who they were working with and being able to converse and 'hash-out' the problems or changes being suggested. Others liked to open their CIER account, read through their 'mail,' try out the suggestions and then report back to the group. I think this says a lot for the manner in which CIER was organized. I didn't have any students who reached a frustration level or felt pressured with CIER but it did seem to raise its 'ugly head' when they*

were live.

While many of the CIER schools found themselves experimenting with teleconferencing for the first time, Marcia and her students at Europe School had long been involved in these types of projects, and in a variety of formats. Her notions then, of the efficacy of the conferencing medium of CIER, that of FirstClass, seem especially poignant. Over the years I too have been involved in a number of these projects and while the premise is always a worthwhile one--exchanging both music and ideas about music--all too often the format of the exchanges would prove to be the defining factor in the success of the program. Simple email exchanges are hard to keep track of and in a conference the size of CIER (over 150 messages in the first session) even a listserve format (similar to a mailing list) would be daunting due to the sheer volume. The FirstClass system archives all messages in a logical and intuitive framework, and more important, is easy to use. The organization of the forum allowed for multiple areas of discussion so that exchanges concerning music could be kept separate from technical discussion or queries.

All CIER participants had no problems learning and utilizing the system even though most had never used the system before. As well, FirstClass provides an easy file attachment function so that MIDI files were downloaded easily and one did not have to encode them as text (as is the case for some email and listserve exchanges). As Brian stated:

> *I believe CIER to be an exemplary use of telecom tools... The CIER infrastructure was solid and consistent. From our point of view, we were able to overcome the dreaded developing software literacy stage quickly and efficiently. This helps to make the technology transparent, and rather than the person being the tool, the computer becomes the tool.*

Still, making the technology transparent does not preclude the tool from

mediating or shaping the experience. If the technology did not shape or transform the process of communication and experience, one could assume that a Composer In Residence situation would not be dissimilar to the Composer in Electronic Residence. Clearly this is not the case and one need look no farther then the exchanges themselves. Distanced, mediated, textual exchanges are very different than face-to-face ones in a number of ways (see literature review, Chapter 2). In the electronic residence, the physical presence is replaced by a textual one. I must preface the presentation of this part of the data with the caveat that it was very much instigated by me. While I tried to encourage open ended reports--a kind of stream of consciousness muse--I did respond to reports from Gary, Brian and Marcia that touched on the subject briefly, attempting to foster further discussion on a topic that was of interest to me.

Some teachers and composers felt that the textual nature of the conference did in fact marginalize the "knowing" of who is at the other end and felt that CIER would benefit from providing biographical and/or pictorial information on members. Maud responded to one of my inquires concerning this textual question with:

> *I believe in our situation--which is to offer the best advice that we can to the student composers--it is most helpful to know WHO or WHAT they are writing for. I even wish I knew the composers more--I want to be able to imagine the person and his / her background with every composition.*

Marcia responded to Maud:

> *I have found in a couple of the other projects we have done here at Europe School that knowing who was at the other end of the line was really fun! It made you feel like there was really a person and not a square screen responding to you. We have many classes being taught by telecommunication and I think learning about the 'other end of the line' is important.*

Brian also concurred with the notion that "text facilitates, but doesn't breed a close connection between two people that have never met before". He recommended increasing the sensory aspect through pictures or some other non textual interaction (perhaps video conferencing). Clearly, the participants felt that the *knowing factor* needed to be increased in CIER. There was, however, another side to this discussion that surfaced in Gary's report(s). While he stated that "the more notion I have of a situation and perspective of the teachers and students the better I am able to respond", Gary did feel that there was another side to this issue, namely that:

> *...one of the pleasures, I feel, of the medium to gradually develop a sense of people and schools from the interactions and texts. I think it's a significant aspect of the conference that the participants are able to create a persona / ostensible perspective / aesthetic virtually, through text, freed from corporeal restraints, and other norms of non-conference social interaction. It is a great strength of Writers in Electronic Residence that students are able to exist (at least to others in the conference) through their textual representation alone.*

Both Gary and I had worked with Writers In Electronic Residence before participating in CIER and we were the only two who tended to see some advantages to the pseudonymous nature of textual communication.

Regardless of the lack of "knowing" that some felt hindered or shaped the interactions, many spoke of the community that developed. It seemed that less knowing about who was at the other end did not preclude a communal atmosphere developing--a kind of camaraderie among/between the members of the CIER forum.

> Brian: *The notion of just how does the "electronic community" fit in is critical. When the tools can be used to create not only a larger community, but a larger intelligence, I think you have done something very important.*

You were able to create not only a "collective" community, but more importantly, a "connective community." While musical intelligence served to provide a common thread, the diversity of perspectives brought by each of our understandings about teaching and learning create a greater breadth of connectivity across ideas. This is the coolest thing about it for me.

As well, Wayne spoke of the group communication in a supportive environment where there is room for people to "grow, develop and learn"--traditional community attributes. The conferencing forum could have played a role here in helping to shape this textual community. It seems, as well as a tribute to the members, an indication that the technology did not stand in the way of a very human outcome--a group of people coming together to discuss a shared interest and forming a kind of community. However, Ed pointed out that access to the community could be a problem from a technical perspective:

The gateway that we were using with the school district was EXTREMELY unreliable to say the least. There was a time when [it] would crash on a DAILY BASIS! This is not dependable enough for this purpose. If that cannot be corrected, I recommend that my site use a phone and separate provider for Internet time

Access is an important consideration in the creation of a community, online or otherwise. I believe that Ed's lack of participation in CIER was not a result of any overt attempts at marginalization in the community. However, the technology itself, both possession of and know-how, needs to be recognized as a limiting factor in participation. Ed was the relative newcomer to both communication and composing technologies among the research participants.

Composition and Technology

- Maud: *As a music educator who wishes desperately that we could get*

more composition activities into our school music classes, the computer comes about as an incredible tool which allows instant sign / sound or sound / sign "gratification". This opens up the possibility for young (and untrained) people to create, change, write, and forever save musical compositions. We've never had this opportunity before...technology is allowing this project to go beyond the constraints ...of (the) notational and theoretical ability of students (via composition software).

- Brent: *...many more teachers understand the importance of composition in music curriculum. Composition is even one of MENCs National Standards for music education.*

The topic of composition was, not surprisingly, prominent in the reports. The participating teachers/schools have chosen to make composition (using technology) a part of their music programs--very much the exception rather than the rule in North American music education (even though, as Brent notes, it is becoming more and more popular). Traditionally, composition has often been viewed as the last step in one's music education with the student first mastering theory and Western notation and usually one or more classical instruments (see Chapter 1). Above, Maud notes how composition software is helping to refigure this outlook.

Within the possibilities presented by sequencing software, teachers can approach composition from different perspectives--as evident among the five schools in this conference alone. Early in the instructor's forum some of these attitudes/approaches became apparent as the teachers and composers began discussing two issues under the umbrella of composition--the question of quantization and the role of human performance in technology assisted composition. Here I will highlight discussion from the instructor's forum as well as the final reports, as I feel these exchanges played a role in shaping the later opinions in the final reports. There was much discussion on these two topics

(taking up about half of the exchanges in the instructor's forum) and much was of a reflective and thought provoking nature.

Quantization was an early topic of concern in the instructor's forum. Quantizing is a function used on sequencers that corrects the timing of notes and other recorded MIDI events (Lennard, 1993). If music is recorded into the sequencer in real time (i.e. playing as opposed to step entry via mouse or keyboard), there will often be timing errors where notes occur slightly (or significantly) before or after the beat or beat division. Quantization would push the note data onto the nearest beat division designated by the user. The resulting music then conforms perfectly to the beat, often sounding mechanical and not as expressive (Lehrman, 1992). The discussion concerning quantization in the instructor's forum arose from a music posting from *Toronto School*. The piece was recorded in real time with the metronome off. The notation (as generated by the computer) had no resemblance to the actual music since the computer's internal metronome was clocking the notation at a speed different than the young composers were playing it. Marcia noticed slight variations in the timing and suggested quantizing the piece (impossible since the notation had no relation to the actual music). I had reworked the entire piece using the metronome and responded with the new MIDI file and a lengthy discourse on quantizing, step entry and real time playing (see Appendix E for the complete discussion from the composition forum). The issue of quantization then appeared in the instructor's forum. Brian, who had been having his students compose in real time, stated:

> *When we quantize music we make things metronomically perfect, yet I can't help but feel that something is lost along the way (maybe "feel"). But at the same time, there are needs which facilitate other people editing the students' MIDI files. Here at Toronto School, I'm going to try having the kids quantize the rhythm tracks and bass line, but leave them free to play "against" the other parts. I know quantizing allows us to print a notated*

score quickly and easily as well as edit the actual MIDI file and this is important too. I'll give it a try.

Brian's practice had been transformed through his and his students' interactions with CIER. The transformative nature can be viewed as an expansion (adding to the student composition experience, in this case experimenting with new ways of recording into a sequencer) or a channeling (giving up human feel for computer precision). Playing "on the beat" and quantizing allows notation to become a currency of exchange which often aids the composers in their discussions. As well, functions such as cutting and pasting, doubling tracks and inserting notes is made much easier when tracks are played on the beat. To best take advantage of the CIER exchanges then, one would be advised to record one's compositions "on the beat". Sensing a dichotomy, I posed the question of "what is lost and what is gained" when quantization is used. I wanted to make sure that both sides of the issue were explored rather than leaving Brian with the impression "do it this way, it's best". Gary provided a thoughtful response:

...one can view, pedagogically, the issue of quantization from two perspectives.

1. Students should learn how to feel (and play accurately) various time feels. They should try to 'find the feel' within (in) their own bodies. Playing both with and without a metronomic guide is useful. In any case, these days, the time feel created through strict mathematical quantization is part of our musical language. So playing against quantized tracks seems to me completely valid and valuable. I think it's ok for a student to tighten something up by quantizing it if they understand and hear the difference, understanding what they're gaining and what they're losing.

2. Students should also use the computer as a music-making tool in order to experiment. They should conceive, abstractly, of ideas to try out. 'What would it be like to use this quantization (different 'grooves' on the sequencer) against this other one. What if one part always played 1/64th

ahead of the 'beat', etc. Their mind can lead them to places their bodies (their rhythmic sense) don't know about. And of course they can experiment 'intuitively' or through more rational reasoning.

Marcia also jumped into the discussion, agreeing with Brian's and Gary's notions of utilizing both sides of the quantization question--both real time and quantized recordings. She related a classroom discussion with her students:

In talking with my students I've run across statements like, "It just doesn't sound the way I want it to sound;" "Now it sounds like a robot is playing it;" etc. We've agreed in all cases and we've also tried to quantize our rhythm and bass lines to provide a tight foundation and then play 'with' that as our base, our pattern, and maintain that 'human' side of the sound. We've talked about the value of quantizing, if possible, for printing out copies for other composing partners or for performers to interpret and the fact that it makes analyzing and discussing another composer's composition a little easier. But we have also bent the other direction for the actual recording or performing (interpreting) side of the music and maintained an unquantized version with the finer 'nuances' wanted by the composer.

The question of the role of performance developed in the forum around the same time as quantization but was inspired through a different situation. A student from *Europe School,* B, had posted a very intricate, four part piano rag. In commenting on the piece I encouraged bringing the work "into the human domain"--that is develop a version that could be performed live (see Appendix F for the complete discussion). B then worked out a version for four hands and we went on to discuss playability and proper scoring. In the instructor's forum, Gary pondered the role of live performance and how one should come to view music created on the computer within this context. He considers both sides of the issue:

I think that it is vital for students to get experience writing for acoustic instruments, and for human players. Also, performing a work in a concert

setting is important (even if the concert is only for one's class)...Of course the students should be encouraged to create music that can only exist by the grace of the computer, but we (and they) should be clear that writing for acoustic instruments and their players is something else. Perhaps the students should be encouraged to think about whether their piece is for computer, for eventual realization on acoustic instruments (or computer & acoustic instruments) or whether it can exist in both versions. It also makes a difference in how the piece is responded to.

Many of the responses to this note gave the reader a sense of where, pedagogically, the teachers were coming from in their programs. Ed gave an account of how he views the technology as making the process of composing more efficient, although the products are still inspired by and created for traditional settings:

I tend to assign particular types of works for students, rather that leave it wholly open to their choice. I do let them have some choice, but I often set the parameters for them. The reason that I do this is that I think that historically this has been the practice.

Marcia, as well, sees a prominent role for the live performance of the music created with composing technologies. In her view, the computer serves as an intermediate tool in the eventual performance of a composed piece:

I'm all for having the students realize that, as far as I'm concerned (and I think 'we' and 'they' would concur), humans will always be the major element involved in music - writing, playing, listening, etc. I think it is an imperative for us to keep the humans in this picture! B has already begun to work with the Piano Rag in the various manners suggested and it is opening up a lot of possibilities, problems, etc. for him.

Brian took a slightly different view, one that questions the central role of the score (and hence traditional performance) in student composition:

The whole issue of using symbolic notation to convey an essentially post symbolic form of communication such as music is an interesting one...I

like to think about musical notation, like our alphabet, as a system which is representative - the sound is the meaning and feeling. It is interesting to think about music as an art form which involves the body at least as much as the mind. This makes it unique compared to other art forms. So I've always tried to approach music from this perspective - especially sequencing.

Brian's classes were involved in creating soundtracks for multi media projects, and the music, once perfected, existed as such, rather than aspiring to a live performance as its ultimate end. This type of composing embodied Gary's notion of a piece being realized for computer.

The above discussion concerning the role of the live performance (and to a lesser extent, the score) served to provide CIER participants with a deeper awareness of the perspectives of the various teachers in their composition (and music) classes. While ideas and approaches varied, there appeared to be little tension or intimidation but more a forum of sharing and considering other perspectives. As Marcia stated in the middle of the above discussion "We're having fun with this--let's keep it up!"

In her final report, Maud brought in a new idea, that of intentionality and the possibility of the "lack of" in computer sequencing:

I do imagine (and have seen) some downside to having kids compose using synthesizers/computers. That is what I would call a lack of intentionality. Students can easily ramble out notes while the software is recording them, and when finished, call it their composition. Here is where we must be very careful about not letting students skip the step of "imagining" the sound of their composition. Or planning it out...Asking students to critique or reflect or describe their compositions, or the steps they took in creating their compositions may also help to guide students toward more intentional music making. I believe this is one of the most interesting problems we may have when offering the easy of computer composing to children. I would like to hear what students have to say about this as well.

Perhaps CIER helps to foster this intentionality. If a composition is uploaded that has unintentional roots, do the discussion and subsequent revision create the sought intentionality? Is intentionality endemic to composition? Maud did invoke Cage in an earlier posting reminding us that the eccentric and brilliant composer had done much to liberate traditional western notions of composition--and these include intentionality.

Participation

All teachers reflected on their relative amounts of participation in the conference and spoke of factors that hindered this participation. I was interested in this aspect of the reports to see if any facet of CIER itself was involved. For example, did schools feel marginalized, due to differing levels and opinions? Did students feel bullied or intimidated? No one reported any problems of this sort and all five teachers mentioned they would like to increase their participation in the next session. Most of the problems were either technical or rooted in the school scheduling. I will review each here.

Brent saw his school's limited participation as a function of their studio set up. Most of the machines are not GM compatible (see Chapter 3) which created some patching problems and a lot of extra work that still might have achieved less than perfect results. He said that they were upgrading to all GM format and thus hoped to be more involved next session. Ed, as we noted earlier had internet problems (dedicated lines, RAM, etc.). Both Brian and Wayne lamented their classroom schedules, continuity being the problem. Brian saw his pupils once in a six day period while Wayne saw them in brief, intense periods where students were not able to "get a composition sent off in time". Wayne also mentioned the GM deficiency as being bothersome. Marcia, not surprisingly, reported no problems. She has a fully equipped GM lab, the

school has long been on the World Wide Web and they even have their own server. Her classes meet all year and are in a composition workshop format. Marcia has participated in many email projects and continues to do so.

It is clear that a few key areas affect participation--GM format (or lack of), good internet access and scheduling. Unfortunately, solutions in the first two areas involve the acquisition of more technology--often expensive and out of reach of typical music budgets.

Recommendations

Given my interest in creating a platform for change in CIER at the outset of this research, I encouraged participants to include any recommendations for changes in the second session that might better accommodate them and, in the case of the teachers, their students.

- Brian: *It would be nice to somehow meet these other people in real life, over a conference call, see a picture of them - whatever. Electronic meetings are fine, but they can really never replace meeting face-to-face and using more of our sensory experience.*

- Gary: *I'd like to see much more music coming from the students. Not necessarily long fully polished compositions, but interesting fragments, experiments, etc. We should trade these back and forth.*

- Marcia: *I think we should keep the open and relaxed atmosphere that we felt at our end because it was certainly conducive to creating.*

- Wayne: *I would like to see a archive folder on the CIER site dedicated to teaching techniques and lesson plans. It might be good to put together a collection "best practices" suggestions for teachers to draw from in regards to teaching the concepts of melody, harmony, rhythm, timbre, dynamics, form, interpretation, contrast, repetition, various melodic and harmonic treatments, and more.*

The recommendations provided by the participants were both diverse and concrete. Wayne and Brian in particular provided a number of specific changes or ideas that they would have liked to see implemented. Marcia, on the other hand, implied that she would like to see things remain as they were and three of the participants supplied no specific recommendations in their reports. Due to the diversity of some of the recommendations, I felt it necessary to try to create (or impose) some kind of plan that would allow CIER to move forward by consensus, while avoiding any conflict in the direction it was moving. The plan was posted in the conference and can be found in Appendix G. Below, I explore this plan or platform for change in four sub-sections. In the next chapter I will explore if and how these changes came to be in the second session.

Enhancing Textual Presence

One aspect inherent in many of the reports was the notion of knowing more about who was at the other end of the messages. The desire for "enhanced knowing" manifested itself in a variety of suggestions including having teachers post lesson plans and having composers post some of their work to having biographies for the student composers. All of these enhancements could be accomplished through a facet of the FirstClass software known as the "resumé" function. Each teacher, school and composer has a separate login, and each of these comes with a resumé where information, file attachments, pictures or even video clips can be posted. Users could simply click on the name of the person or school wherever it appears in the forum and their resumé will appear. Gary had suggestions for what he would like to see on the teacher resumés:

I would like to see at the outset, some statement by the teachers as to what is expected of the students. How their participation is integrated into their classroom work, how they are supervised and under what conditions they participate.

Since each school has one account for students, a single resumé would have to serve all the students participating at that school. This should not have posed a problem since the numbers in the first term were relatively small (one to five students engaged per school). One student could be in charge of creating the resumé that would include something about each student and if desired a picture. Composers could follow suit and include attached works in MIDI or sound file format (space permitting).

Organic Growth

As the facilitator reviewing certain recommendations, I found myself in a bit of a dilemma. How could I accommodate those wishing change and those wishing for things to remain as they were? How could I encourage certain types of projects or practices and still maintain the "relaxed atmosphere"? In coming up with a solution I put forth the idea of organic growth. If teachers or composers had specific ideas for projects or different types of interactions as many indicated in the reports, then I advised them to try them out in the conference. For example, Brian mentioned that he would like to see a kind of "connective composition" where a student or school supplies an initial idea and other CIER participants (composers and schools) add to it to develop a finished group composition. Indeed, *Toronto School* attempted such a composition towards the end of the conference. Unfortunately (as described earlier) no schools had a chance to add to it, and develop a significantly different piece of music. But rather than having me institute a mandate for CIER concerning

group composition, I suggested that the project develop organically from the school site interested in such a project. In other words, Brian and his students would post the initial invitation and music for a group composition and other schools and/or composers join in at their own discretion. If enough people are interested then naturally the idea will take root and form part of the experience of the next CIER session.

In another case, Wayne mentioned he would like to see traditional notated pieces uploaded and discussed and Gary concurred that this would be a good idea. In this case, Wayne could instigate the project with his students and have Gary work directly with them. If other schools were interested then they could have joined in.

By making such a recommendation to the schools and composers I was trying to create both an equitable platform for change and also remind the participants that they had the power to shape the types and ways of interacting within the conference.

Student to Student Interaction

The idea of fostering more student to student interaction was implicit in some of the recommendations and advised by one of the students on the questionnaire. However in putting the idea forth as one of the four main recommendations, I acknowledge myself as the main proponent. Earlier I noted a trend for increased discussion when students got involved in the responding process. Student to student interaction would seem to help foster more in depth discussion and serve as another distinct voice from that of the composer or teacher. As well, I felt that "organic" projects would have a better chance of developing if the students were involved more in the process of interaction.

Utilizing the "Composer"

While the CIER program had three "composers" giving advice and feedback in the first session, I felt that Gary was the most qualified to hold that position for a number of reasons, not the least of which is that he is a professional composer with a Ph.D. in music composition. The general notion of a composer or "expert" in residence seems to be to bring professional working composers together with students who are studying composition. The process is made even more desirable given the fact that few music teachers have had compositional training (Reimer, 1989b; Schafer, 1988; Walker, 1989). Earlier I noted the tendency of the conference to take on a fairly pedagogical nature, which I think was helpful (as many stated in their reports) in making the teachers feel comfortable with the process. However, it seemed apparent from the reports that as a resource, Gary was, to a certain extent, "underused". Earlier I highlighted his desire to try out new and different ideas with the students and take their music in directions they perhaps had not thought possible. His reticence to do this stemmed from the fact that he was less clear "about (his) role vis a vis the teachers' classroom lessons and students' participation" and this caused him to "hold back" somewhat. I perceived that better clarity about the teachers' needs and desires could be accomplished through the utilization of resumés. However, I felt it necessary to reaffirm the notion of a composer in residence and remind the teachers of what a valuable and novel resource we had in Gary.

Implementation

In sifting through the recommendations portion of the reports and presenting four simplified ideas, my intention was to come up with an inclusive

and agreeable set of ideas that could be implemented in the next session. Still, my own interests are evident in the above plan, especially in the advice concerning the last point, that of utilization of the composer. In the next chapter I will examine the data from the second session and will revisit the above recommendations to see if and how they manifested themselves in CIER.

CHAPTER 6:

The Second Session

Although it might seem logical to present the data from the second session according to the typology created in the previous chapter, changes in the research plan do not make such a presentation possible. Recall that in the last chapter I divided the data sources into four main areas--student composition forum, instructor's forum, teacher/composer reports and the student questionnaires. The sharp lines that I was able to draw previously among data sources had blurred somewhat in the second session. Instead of student questionnaires, Brian (*Toronto School*) had his CIER students (a new group as the school year had changed) post their thoughts or muses on CIER in the instructor's forum. Marcia's students (*Europe School*) did not post any final thoughts or questionnaires, although some did join in the instructor's forum on certain discussions (as did Brian's students). The instructor's forum itself became less an area of inservice and technical discussion and took on more of a philosophical and reflective nature. Perhaps for this reason, teachers did not feel the need to post "final reports" (even though I asked them to) but discussed many issues in depth in the instructor's forum both during the session (while the student composition forum was open) and after the session. While positivist research methodology might lament the loss of systemization in the data collection and interpretation process, postpositivist research reminds us of the emergent nature of such a process as well as a need for the participants to have some control and voice in shaping the process itself (see Chapter Four). In choosing to eschew the final reports in favor of a more interactive discussion in the instructor's forum, I believe the participants were tacitly calling for a change to the plan--a change which I have heeded,

rather than attempting to impose the design from the previous session. Thus I will present the data in two parts--the student composition forum first and then the reflective data from the instructor's forum. Throughout I will be reflecting on the differences between the two sessions and how I feel these relate to the recommendations put forth at the end of the first session.

Student Composition Forum

The second session took place from mid September until mid December, 1996 with the same teachers and schools participating. There was, however, a significant change in the students involved as the school year had changed. Only two of Marcia's students (*Europe School*) were participating for the second time. The rest of her pupils, and the students in the other schools, were using CIER for the first time.

In this session there were 116 messages (20,395 words) constituting 19 discussion groups in the student composition forum. This volume represented an increase of 47 percent in the number of messages posted and 36 percent in the number of discussion groups. It should also be kept in mind that this session was roughly two months shorter than the first, indicating a high rate of activity in the CIER student composition forum. Many teachers implied in their previous reports that they were anxious to begin the next session and were comfortable with how the conference operated so perhaps the increased activity is not surprising. Teachers indicated that they would like to become "more involved", specifically Wayne (*U.S. School*), Brent (*Asia School*) and Ed (*Vancouver School*) who had felt restricted by scheduling and access. The participation distribution (and comparison) is detailed below in Table 4 and shows increases or equivalence in all three categories from session one to session two.

School	Discussion groups initiated		total # messages		# MIDI files	
	session 1	2	1	2	1	2
Vancouver	1	1	1	6	1	2
Toronto	3	3	6	18	6	6
United States	2	4	3	7	2	6
Europe	7	9	23	25	15	19
Japan	1	1	1	1	1	1

Table 4: Message distribution in composition forum, sessions one and two.

Collaborative Composition

In the last chapter I identified three types of discussion groups based on the intent of the student composer. These included works in progress seeking advice, finished works posted for discussion and group or connective compositions spanning more than one school. While the majority were of the *works in progress* group (12) as in the first session, a total of five discussion groups appeared concerning connective compositions--a significant increase over the previous session's count of one. The connective compositions proved "successful" in the sense that final or finished products were achieved in four out of the five groups. The lone group composition from the first session never moved beyond the initial MIDI file. These kinds of discussion groups tended to create a lot of discussion--an average of eight messages in each group. As well, these types of projects tended to generate many MIDI files since collaborative composition invites a musical as opposed to textual response. Below are two of the original postings.

- Europe School: *Here is a short noodle I started, but I can not do ANYTHING with it!! A couple ideas are floating - see if you can play with it. It's titled Eyore after everyone's favorite Donkey, maybe someone could add other short pieces portraying their favorite character. It was written in MasterTracks with an MU-50 sound generator - the voice is Oboe. Have fun!*

- Toronto School: *This is an idea, that I was hoping that everyone could help me with. I was wondering if anyone would like to add to this, and we could build a composition together. I think this would be a good way to work together, and I'm looking forward to hearing what we might be able to do.*

How one judges the relative success of these types of interactions is debatable and here I would like to avoid the reductionist trend in some literature (see Chapter Two) to propose a kind of direct correlation between number of responses (or size) and the success of the interaction. In the case of these collaborative compositions one needs to consider the intent or goal of the process. Collaborative projects such as these invite inter-school participation and thus response is obviously one factor indicating success or usefulness. However, it is evident from the messages above that some sort of musical buildup of a work in hopes of a final product is the goal. One could then also equate the amount and kind of musical response that is posted in such a discussion group with success. Finally, it seems evident that if a final product is to be generated, then the students forming the discussion group must also take on a kind of facilitating role. For example, students at *Toronto School* posted a "Composition Starter" that received three musical responses or additions. After receiving the third, one of the students responded with, "I really liked what you (Gary) did with my composition...I'll post it [her new

version] as soon as I can." However a newer version of the piece was never posted, nor was their responses to the two other musical postings. One might conclude that this collaborative composition was a failure as it did not come to a logical conclusion (a finished work). Conclusions such as these could be premature or presumptuous for although we do not see evidence of closure or utilization of the musical responses at the conference level, we must remind ourselves of the activity at the local level, or in the classroom. Brian explains what occurred when his student received Gary's response to her collaborative idea:

> *Well, needless to say the look on S's face was one of amazement after hearing Gary's wonderful reworking of her initial idea. "That's COOL." Not only that, the way in which he provided the written response was very inspiring. S immediately began to share the work with other students in the class. Maybe I can talk Gary into coming out to Toronto School sometime seeing as we're so close? Thanks Gary - what an impact!*

At the local level, the textual interaction seemed to have had the desired effect, that of fostering discussion and reflection on a piece of music and inspiring further refinement or work. While all this was not evident at the conference level, Brian's comments seem to indicate a successful or worthwhile engagement at the local level.

When doing research in textual or virtual communities I believe it is important to keep local setting in mind if attempting to make judgments concerning the efficacy of textual interactions. The teachers in the CIER program have the added experience of seeing the local as well as the textual response. This heightened or triangulated viewpoint was one of my reasons for actively engaging the teachers so closely in this research. I would hope other researchers in such domains might do the same.

Before leaving this discussion I would like to examine one collective

composition that, textually, appeared to have a logical and musical conclusion. A group of brass students at *U.S. School* posted the following idea for a collaborative composition:

> *Here is a composition that we are starting in class and we wondered if anyone would like to join in. We are trying to paint a musical picture of a zoo. We think rondo form would work well to organize our piece. We have started by composing "birds" and hope to add fish, sloths, and lions to our piece. If you would like to add on to this composition that would be great. We can have as many sections as there is interest in creating. You could either add on to our piece or create a separate animal sequence.*

The complete discussion can be found in Appendix H. What emerged from this example was, for me, from a textual or online perspective, a successful and well executed collaborative composition. The original posting gave a specific scenario and provided imagery for subsequent ideas to be added. Once contributions and ideas had been posted by other students and composers, they were gathered together by the students at *U.S. School* and shaped into a final piece. The piece was posted, complete with a detailed analysis of the work, a list of those contributing to the piece and a "thank-you" to all who had participated. Such closure I believe, provided those who had participated with some form of recognition for their time and work, as well as a final piece of music. In the textual environment of a computer conference it seems worthwhile for students posting such projects to adopt and maintain a facilitation role like these students did. By responding periodically to the discussion and posting a final version with a "wrap-up" note, the students at *U.S. School* seemed to have achieved their goal--at the conference level. However, one must not assume that lack of a textual conclusion in the conference means a failed process. *Toronto School* provided a good example of a situation that may have appeared to lack success in the conference but

provided a stimulating and exciting scenario at the local level of the classroom. As Gary stated in one of his postings, "I also know that sometimes comments are actually encouraging, interesting or useful to students even though they don't comment or correspond."

Musical Content

The musical content was as diverse as in the first session, perhaps more so since the *Toronto School* students were not composing music as part of a single multi media project. They appeared to be involved in a less structured composition format, much like *Europe School.* Students from *Toronto School* described their compositions in two different discussion groups:

- *This is a piece I've composed. I thought of the melody in grade 5!!! and continued to compose other parts for it from then on.*

- *Finally I am able to put some music out in CIER. It's just something I've worked on for a few days. Just a small idea I thought you guys could maybe work with.*

As well, Wayne's utilization of CIER for his students had changed. Instead of the tightly focused and structured compositions from beginner grade seven students, Wayne had groups of more experienced band students posting their compositions. He stated that, in the last session, participation was limited "because of time constraints of our course curriculum" and the students "were unable to get a composition off in time". After the first session Wayne had decided that CIER was best utilized with musically "experienced" students with which he had "more contact time". Wayne's students were participating in group fashion as opposed to individually or in pairs as was the norm for the rest of the student participants in the other schools:

Hi we are the 8th grade Brass class at U.S. School. (A, baritone, H,

trumpet, Z, trombone, B, baritone, J, trumpet, A, trumpet, A, trombone, Z, trumpet, M, trumpet, B trombone, and M, trumpet)
We are creating a piece called "The Band Practice." The form has 6 parts: A) Warm-up B) Call to Attention C) Warm-up Scale D) Break between pieces E) Band Selection, and F) Bell at end of class.
We have spent two class sessions working on this and it is far from finished but if anyone has comments or would like to join in please feel free to. Thanks.

Responses Within Discussion Groups

As in the last session, the average discussion group was around six messages (one posting with five responses). However the majority of the responses did not come from the composers as in the first session. Of the 91 responses, 40 were from the composers and 40 were from students either responding to comments on their own work (22) or responding to other students' work (18). Here we see a dramatic increase in student response over the last session especially in the student to student exchanges which totaled five in the last session. The remainder of the responses (11) were from other teachers--Marcia, a teaching assistant of hers, and Wayne. Below is a chart of the message distribution by composer comparing the first and second sessions.

Composer	Discussion groups initiated		total # messages		# MIDI files	
session	1	2	1	2	1	2
Maud	0	0	14	6	5	4
Gary	0	2	12	21	2	10
Dave	0	0	18	15	8	8

Table 5: Message distribution, by composer, in composition forum

In the last chapter I discussed a trend in the message data indicating that if a student(s) joined into the discussion concerning her/his work, then responses increased dramatically in the discussion group. The same trend was evident in this session. Eight of the 19 discussion groups were not followed up by the student composers. The average number of responses here was just over two but when students responded to the discussion that number jumped to almost eight.

Besides responses from students, the musical or MIDI response also seemed to play a role in message distribution. From Table 5, one can actually detect a drop in the number of responses from the composers, yet overall activity in the conference increased 47 percent. This increase can be attributed to student response but what incited such activity? One reason could be the increase in musical responses from the composers. In the first session, 34 percent of composer responses were musical as well as textual (i.e. contained a MIDI file). In the second session that percentage was just over 52 percent. Perhaps students are more likely to respond, or further involve themselves in the discussion if a musical exchange from the composer has taken place. In December, 1996, I was able to visit one of the CIER classrooms and watch the students access the conference. It was clear from their behavior that they were looking for music, much more than just textual responses. I watched as they quickly glanced through two or three "text only" messages concerning their latest posting. Then, noticing a MIDI file attached to a response from Gary they excitedly read the note, downloaded the MIDI file and sat mesmerized as their music, altered by Gary, filled their headphones. It seemed the earlier textual messages were forgotten.

The idea of fostering and increasing discussion in CIER might seem like an admirable goal. I have already noted how composers often invite further

discussion in their responses to the students. As well, the collaborative compositions, by their nature, depend upon response and follow-up in the discussion groups. An increase in the number of messages does not, however, indicate that the second session was more efficacious, successful and/or useful. As I discussed in Chapter Two, virtual education collectives such as CIER are complex entities engaging in complex interactions (Rheingold, 1993). Reducing such a rich and diverse entity to message/word counting as the focus for determining accomplishment trivializes not only the findings, but the people involved as well. In the next chapter I reflect more on the notion of participation in a general fashion, drawing on research from other online communities as well as my own experiences with CIER.

In presenting the numerical data I have tried to give an overview of the second session as well as provide a suitable starting point for comparison. However I would not like to confine the discussion to such quantitative endeavors. For me, as an active participant in both CIER sessions, there was a difference in the second session that went beyond the mere increase in activity. I believe a number of factors came together to heighten or intensify the CIER experience. Video conferencing entered the CIER experience as another way to communicate and exchange music. *Toronto School, Europe School* and *U.S. School* were involved in a few video conference sessions between students involved in CIER. Composers, teachers and most schools created online resumes detailing information about themselves and their interests in music. Some were able to provide a picture as well. Both the video conferencing and resumes grew out of the need expressed by the participants to get know each other "better" or in different ways beyond text and music. Exchanges within the composition forum reflected this new awareness. Messages began to take on a decidedly personal ambience as opposed to being

focused solely on the musical exchange, as seen in this response from *Toronto School:*

> *Hello Europe School,*
> *If I remember right - there were 3 tracks. Why do you ask? Anyway - do you feel like setting up a chatting conference any time soon? We promised N that we would CHAT a few weeks ago - but we haven't any free time. Let's set up a conference sometime!*
> *Talk to you later.*

In the first session, Brian spoke of "electronic knowing" and how members of the CIER community had to "fill in the spaces" on who the participants were since the text provided little in the way of "seeing the person, touching the person, hearing the sound of their voice, watching their facial expressions, etc." The video conferences between participating schools and the creation of resumes helped members to fill in the spaces of who they were communicating with, perhaps creating a kind of heightened electronic knowing. The textual communication exhibited some changes as well. Besides the familiar or more collegial approach to communication in CIER discussed above, the textual presentation itself also began to change. The conferencing system used by CIER contains a fairly advanced word processing editor not available in most email systems. Users could vary the type and size of font as well as applying colour to the text. In the first session there were virtually no examples of users taking advantage of these functions but in the second session, many messages utilized the editor in different ways to create more personalized and artistic communications. Below are two consecutive messages from a collaborative composition discussion group. Besides the font and size variation, there are many colours in each note that cannot be shown here. The colour variations appear as different shadings of grey in the text.

- Europe School:

  D- *I love it!!!* *TIGGER is soooo awesome! I love how he kind of stumbles into the piece, bumbles around, then gets with the program. I think next will be Piglet - I think a very trembly flute... We'll see. Thanks for a great big smile!*

- Toronto School:

  Hello!!!
  We just heard "Eyore+Tigger+Piglet" and we just had to add in POOH!! We thought everything sounds simple and cute. We hope you add in something new like "Rabbit". Who can forget him! This song can turn out to be very

  big!

  Talk to ya later!!!

The examples above illustrate how members used the editing features in an attempt to better convey emotion or ideas. The use of the colour red for the word "LOVE" in the first note or a large size applied to the word "big!" in the second message are just two of many such examples. Sherry Correll (1995) reported a similar phenomenon in her ethnography of an electronic bar. She found that different moods were created in messages by manipulating words and symbols such as the use of "<wink>" and "<smile>" to convey emotion. Such direct inferences never appeared in the CIER conference, but were conveyed by more subtle means (colour, size) as seen above. Use of the editing features to create more personalized or evocative responses was not confined to the student composition forum either, as evidenced in Marcia's message

below that appeared in the instructor's forum:

> You can see that I followed (Brian's) directions and have experimented with colour and with ❄❑■▼▲ (oops! FONTS) and with **size!** This could really get wild and crazy!

Overall, I felt there was a different, more familiar or collegial atmosphere in the second session. Members were interested in enhancing their "electronic knowing" through the use of colourful and artistic messages, resumes and video conferencing. Many of the perceived benefits of computer conferencing discussed in Chapter Two such as reducing hierarchies and increased participation has much to do with the leveling effect of text only communication in terms of social and physical cues. In the CIER however, participants seemed more interested in transcending the cloak of anonymity created by textual communication, rather than using it to their advantage. I will look more closely at this situation in the next section as the topic of video conferencing and its effect on CIER's text-only community was a topic of much debate. First, however, I will briefly present the quantitative data from the instructors' forum in the second session.

The Instructor's Forum

Similar to the student composition forum, the instructor's forum experienced a significant increase in activity. A total of 121 messages were logged from mid September to mid December while the student composition forum was active. A further 31 messages were posted after the session, most reflecting on the conference and what new directions CIER should go. Below is a chart (Table 6) detailing the message distribution in the instructor's forum from both sessions.

Composer/Teacher	Discussion groups initiated		total # messages	
session	1	2	1	2
Maud	0	2	4	4
Gary	3	7	8	18
Dave	10	5	25	28
Marcia (Europe)	5	7	15	20
Brian (Toronto)	1	15	7	33
Brent (Asia)	2	2	6	4
Wayne (U.S.)	2	5	4	20
Ed (Vancouver)	1	1	3	1

Table 6: Message distribution in Instructor's Forum

In the last chapter I noted a trend for the messages in the instructor's forum for the first session to be of either a practical nature (seeking advice, technical concerns, etc.) or of a more philosophical or reflective nature. The majority of the messages in this session were of a reflective nature, mostly likely due to the fact that the participants had mastered the technology and were familiar with the workings of CIER. Fewer messages were posted in the second session concerning technical issues and procedures. A surprising trend was the large increase in messages in this forum--almost twice what was posted in the earlier session. Dramatic increases were evident in the postings of Gary, Wayne and Brian. One significant decrease was present in the number of discussions groups that I had initiated (ten in the first session, five in the second). My role as facilitator had diminished significantly with the increasing awareness of the participants of how the conference worked and perhaps how they could have a voice in changing it. The possible reasons for the increase in discussion, as well as the nature of these discussions and how they impacted the CIER experience will be discussed in the remainder of this

chapter.

Video Conferencing

As mentioned earlier, video conferencing became part of the experience of CIER during the second session. The appearance of this form of communication occurred without any influence or guidance from me. In fact, I did not even have the necessary hardware to participate in the video sessions. For me, such a change in the way CIER members communicated typified the "organic growth" approach that I had advocated at the end of the first session. There was no mandate for such an interaction to take place. I even found it difficult to trace the actual source or instigator of the idea. At the time of this writing, I emailed participants to see if they recalled how video conferencing began and both Brian and Marcia, collaborators in the first CIER video conference, did not recall exactly what or who got things in motion. Upon reexamining the archived messages, it appeared that the students at Brian's school (*Toronto*) began by using the "chat" function in the FirstClass system:

> *Dear Vancouver School,*
> *We were wondering if you you would be interested in arranging a private chat. We would like to talk with another school about composing. Maybe we can find a time soon. If you are interested, please let us know as soon as possible!*

When users log in to the system, they can get a list of who is online and invite one (or many) to a real time chat session. Although Vancouver School did not respond to the note, Brian's students managed at least one chat session with Marcia at *Europe School*. She reflects on the experience in a posting:

> *It was a lot of fun chatting with Toronto School last week and I hope that we'll be able to make our chat times a working, fun session next week. We are going to be online on Tuesday, October 15, from 0830 to 1000 Ontario*

time. That will be from 1:30 PM to 3:00 PM European Time here at Europe School. If any of the rest of you can be online with us, we can get acquainted.

Marcia then went on to post technical information concerning her school's CU-SeeMe video software and how other schools could link to their reflector site for a video conference. Thus it appears that the video conferencing grew out of the chat sessions that had been occurring between *Europe School* and *Toronto School*. These developments fit into the "organic growth" metaphor I have been using. Both Marcia and the students at *Toronto School* invited participation with their suggestions of alternative ways of communicating. In Marcia's case the instructor's forum became a powerful tool for sharing technical information. She posted a number of messages guiding participants through the process of obtaining the software (and hardware if they wished) as well as connecting to the school for the actual sessions. Once a few sessions had taken place, the instructor's forum became an area where the participants reflected on the experience of this new form of communication. Brian began this discussion, an excerpt of which is below:

A number of things occurred to me during the Toronto/Europe video conferencing session which I thought I would throw out.
1) Interaction - the nature of the interaction is substantially different than text, no big surprise - both are useful and important. The range of sensory perception is obviously far greater than with text postings resulting in a greater sense of "getting to know" the other person. The feedback is immediate. I think this does a tremendous amount for motivation.
2) Medium - ...The pace of interaction was far more intensive than text-based conferences and meaning could much more readily be established. The scale involved a far greater range of sensory perception - you can hear the person's voice and see their facial expressions. The pattern shifted from literate (visual) to oral (spoken) which serves to orient our perceptual awareness quite differently. Without trying to "force find" them, I observed

these effects quite clearly in the session with Europe.
3) Community - our relationship to time is substantially altered in the video conferencing arena. Physical location is overcome - it was an amazing feeling having Europe "right there" in the classroom. I would even venture to say that a sense of community was being developed...

Brian raised a number of issues concerning the efficacy of video conferencing and how this interaction differed from their previous textual ones. He eruditely summed up the implications of video conferencing in CIER at the end of the message:

Writing has the benefit of allowing us to reflect on our understanding - this is a good thing. But video conferencing does not allow for this reflection process to occur - and this is a good thing too. It's not a case of which one is better than the other as the two mediums are substantially different in their effect (pace, scale, pattern), but instead more of an indication of what skills we may need to address in order to make the meaning we communicate through this medium more effective. I'm not prophecizing the doom of text-based communication at all - it will continue to flourish and expand - but I am saying that we need to start thinking more about the effects of different kinds of technology and how we can add to our communication repertoire for the benefit of all.

Both myself and Gary were somewhat more skeptical of the benefits of video conferencing and at the time, appeared to think that it threatened our well-functioning textual community:

- Dave*: I do have issue with point two. I tend to find the reflective and measured nature of asynchronous communication (i.e. conferencing) rather more intense that say chat or video sessions just like I find getting in a car accident far more intense than watching one on TV. I guess, when we are caught in the novelty of a video conference, the experience becomes intense. But is the intensity based on the over stimulation / novelty or the INTENSITY of the communication? Now I think video conferencing definitely adds a new and vital aspect to our*

communication canon here but I have doubts that it goes, in a sense, further than text. They, I believe, reinforce each other on their own terms, in two entirely different mediums.

- Gary: *I think that the video-conferencing is a excellent way for the students to get to know each other, to quickly gain a sense of "community," and a way of immediately sharing their enthusiasm and energy. It would also, I think, allow the non-student types lurking here to better understand / know the students. A human extension of the resumes. I agree with Dave that I don't think that video-conferencing is a substitute for the text / MIDI file based interaction. the opportunity to consider a response and to construct a response, or a textual persona away from the interpersonal / social restrictions or markers that some teacher / student relations are bound by.*

- The interesting thing about the above three exchanges is that everyone appears to be saying the same thing, with different levels of enthusiasm. Both Gary and I concurred with Brian's notion that video enhanced the overall experience of communication in ways that could not be accomplished by text. However, the tone of my message was somewhat dismissive and perhaps a little flippant in my use of the car accident analogy. In retrospect, I believe I was reacting to a sense that the video aspect would eclipse the textual communication. I recall, from consulting my field journal, that reading a posting from Brian's students gave me the impression that the novelty of video conferencing was replacing any impetus to engage in reflective textual response concerning composition. The message, from *Toronto school*, was as follows:

If I remember right - there were 3 tracks. Why do you ask? Anyway - do you feel like setting up a chatting conference any time soon?

Reading the message now I realize that my fears of marginalizing the

textual aspect of CIER are no more reinforced by this message than they were by Brian's earlier posting. What I think I was missing from the video conferencing experience (besides participating) was being able to see how the students responded. Brian spoke in glowing terms of how excited and "shocked" his students were at experiencing such interaction. I had seen the same sort of excitement when I observed them listening to Gary's musical response and reading his message. Brian had the unique experience of seeing both the effects of the textual aspects of CIER and the new video medium on his students and in his own classroom practice. Interestingly, both Gary and I, who had responded with caution, had not been able to participate in the sessions, perhaps making us a little suspicious of this new medium to which we did not have access.

The wary responses from Gary and especially me, quite justifiedly, produced a contentious reply from Brian (an excerpt):

> *... I re-read the original post and didn't see anything that suggested we replace text/MIDI file interaction with video-conferencing....There seems to be a dismissive attitude here as well "when we are caught in the novelty of a video conference, the experience becomes intense. But is the intensity based on the over stimulation/novelty or the INTENSITY of the communication? [Dave]." The text interaction in this conference is just as much a novelty as the video conference. If we as people cannot learn to communicate better face-to-face and we need to be separated by our symbols all the time, then what's really left. Frankly, I find the comments in this thread more reactionary than exploratory...*

Brian, in my view, is quite correct on all counts. After reading this note I had to ask myself what the difference was between the student excitement I had seen over receiving a MIDI file from a composer and the novelty of participating in a video conferencing session to discuss and exchange music with students half way around the world. Just because an interaction is novel

does not mean it is ineffective or trite.

Most poignant in Brian's response was the idea that "the development of perspectives on ideas is more important than trying to impose limitations on them." I was saddened by the fact that Brian might have perceived that I was attempting to limit the process of video engagement (which I may have been doing inadvertently). The idea of organic growth that I had proposed at the beginning of the session was based on the "development" and engagement of ideas rather than the "limitation" of them. Had I been espousing one notion and then acting in an entirely different manner when I did not agree with the ideas being developed? As founder and facilitator of the conference, I was confronted with my own power and control which I had been trying to disperse through cooperative methods. In the final chapter I will examine more closely the tension between my roles as facilitator and member of this *cooperative* online community.

The video discussion ended with some clarification of views. Marcia joined the discussion in an attempt to quell any fears she perceived Gary and I were having over video conferencing. Below are excerpts of the final three messages that appeared in the discussion group:

- Marcia: *Hey, gang! Please don't think that any of us are advocating video-conferencing as a replacement for this fine text/MIDI exchange medium that we have set up. This still ranks as the way to go but every now and then, getting together with the composer or collaborator and working 'live' can produce that immediate reinforcement of an idea to send one back to the 'machine' and to work!*

- Gary: *I didn't mean to imply that there was some plot to replace text interaction with video-conferencing. And I do take your points, Marcia, especially regarding planning, reinforcement, and "checking-in". Obviously any mode of interaction with students is a good thing and when handled thoughtfully can be very fruitful.*

- Dave: *Hi jeez didn't mean to be the close-minded neo-luddite implied by my last missive.*

It appears that the tension felt earlier in the discussion has dissolved somewhat as members clarified their positions and, in my own case, admitted a hasty reaction in an earlier response.

Overall, the video conferencing exchanges represent, in my opinion, an exemplary use of the instructor's forum. An idea that began in the student composition forum was posted in the instructor's forum inviting participation. Once interest was shown, detailed technical advice was made available so that all members would have the opportunity to participate if they had the necessary hardware. Finally, discussion ensued reflecting on the benefits as well as pitfalls concerning this new form of communication. Tension and conflict were evident in this part of the exchanges but some consensus or clarification of ideas seemed to be reached by the conclusion of the exchanges. The instructor's forum had functioned on both a practical/technical plane and a reflective/philosophical one, allowing members to, I believe, more fully explore this technology and its impact in the CIER community. While it seems evident that the actual video sessions provided an enriched and exciting addition to CIER program for both students and teachers, I would also argue that the subsequent discussion very much enriched or enhanced the teachers' and composers' understanding of this medium in the context of its use in CIER.

Other Initiatives

Gary began a discussion with a rather innocuous question asking "how all of you out there in CIERberspace compose". The prompt received 12 replies and along with the video conferencing and closing discussions,

dominated the instructor's forum. While some of the responses dealt directly with the question (as in responses from Dave, Marcia and students from Europe School) more than half were concerned with pedagogical rather than personal reflections. Wayne's early response detailed how he facilitates composition in the classroom prompting a number of responses along a pedagogical plane. Many factors here could contribute to one viewing this discussion group as successful or of value to the community. Many responded to the posting including students who had previously not participated in the forum and Brent from *Asia School* who had, up to that point, not participated in any of the discussions. The subject matter dealt directly with the main activity in CIER, composition, and the responses were detailed and thought provoking. However, as I read through the complete transcription of the discussion group I cannot help but sense a dissociation or separateness of the individual responses. While Maud and Brian did pose specific questions or comments based on the responses they read, most responses existed as separate entities. It seemed less like a discussion group and more like reading several one-way conversations. I thought that this disjointedness was especially poignant given the two threads of the discussion--students writing about how they compose and teachers writing about how they teach students to compose--seemed that they should be connected. I feel that there should have been some dialogue or acknowledgement connecting the two threads and attempting to further probe the tensions between teaching and learning and how and/or to what degree CIER plays a role in this. Brian had mentioned in one of his postings that there was at times a lack of "depth" or focus and that sometimes the questions posed did not encourage responses of substance. I do not feel that what I perceive as a lack of depth in the above discussion group is a result of Gary's question. On the contrary, responses to the question were of

a provocative nature to a rather straightforward question but, I thought the discussion needed further reflection and synthesis. That this synthesis did not occur could be cause for concern or at least cause one to question the relative success of this interaction. Brian posited a solution to such "closed discussions":

> *But what of the patterns of thought across these closed discussions - you see - from another point of view this could be viewed as a closed environment. I'm thinking of some way of mapping ideas across messages to see if there are lines of thought developing - an interface to help with this.*

All new project ideas did not come to fruition as did the video conferencing initiative. Near the end of the conference Wayne posted an idea for a "Contemporary Soundscape Project" that would pair students "electronically" to develop a soundscape composition. The project involved a fairly prescribed approach--Wayne would lead the students "through a dozen or so very specific and easy compositional activities" which he explained in a subsequent posting. However Wayne decided to cancel the project before it got started as he felt participants might view the project "with trepidation because it involves jumping in sight unseen". Instead he proposed a discourse on a number of elements of music such as rhythm and timbre in an attempt to create a "best practices resource pool" leading to an "online compositional curriculum". Other participants had, at different times, mused about creating more focused activities and projects as well.

Up to this point (after the second session) CIER had no real pedagogical plan or blueprint. The original design I had implemented purposefully left out any references to how CIER should be used in the classroom. Instead, I hoped that teachers, using CIER as a kind of resource, would develop their own projects and curriculum that fit their particular local situations (scheduling, level of expertise, equipment, etc.). Specific projects were instigated by inviting

participation from other schools and clarifying ideas in the instructor's forum. However, there still seemed to be a need or urge by some of the participants to further prescribe interactions in CIER. The added structure, they felt, would ensure more focused and successful exchanges as witnessed in "The Zoo" collaborative project initiated by Wayne and *U.S. School*.

For myself, both at the time and in retrospect, I had some serious concerns for further prescribing or focusing CIER into specific compositional activities. After the first session I had instead proposed the organic growth principle, allowing projects to develop through invitation and subsequent interest. While certain projects did develop along this vein (video conferencing, collaborative compositions, etc.) participants still seemed to feel that a more solid structure or focus was needed in CIER. I remained skeptical however, as evident in a response to Wayne's suggestions:

> *I think I (and perhaps others) need to know more about this "online compositional curriculum" and how they are "strong tools for CIER". This could be an exciting step for CIER and certainly points in the direction that you and Gary spoke of last session (the idea of common projects with focused goals). I do have some concerns which I will voice in the "CIER Vision" discussion since they seem more applicable to that...I think we needs lots of input on this from all members.*

The "CIER Vision" discussion I alluded to above was part of a series of discussions focused on how CIER could evolve in future sessions. Evident in these discussions as well, is the question of curriculum or increased prescription in the CIER program discussed in the next section.

Deadlines and Visions

In late November, 1996, I began a discussion group with a message calling for a "deadline" of submitted material so that all of the music postings

could receive a response from the composers. As well, I reflected on how much CIER had grown since the first session and asked participants to suggest any ways we could begin to manage the growth and find a funding source as the operating grant from Industry Canada had run out.

Prompt responses were received suggesting a number of ways to raise funds, from school user fees to arts grants and corporate sponsorship. Reflecting on the important nature of this discussion, it was again compelling to be able to involve all participants in the discussions with such ease. Decisions made, especially the monetary ones, could have a profound effect on participation. Marcia expressed her concern:

> *I'm concerned about some schools not having access to quick monies in order to pay the $100 fee per semester or session. I'm looking at splitting the fee up among kids participating, paying it myself, holding a bake sale, etc. How would some of you approach this fee?*

Although 100 dollars might not seem like a lot of money for a program such as CIER where students have access to professional composers, I thought the sudden imposition of fees on participating schools might compromise the communal and cooperative nature that I felt existed in CIER. The teachers had worked hard to master the technologies involved and spent many hours creating and responding to discussions in the instructor's forum that were crucial to CIER's ongoing progress. Gary offered to look into alternative funding sources as he felt his position as a working "artist" might present more opportunity for support from art councils. At the time of this writing, Gary did in fact secure funding and support from a Canadian institution dedicated to the arts.

Besides the funding question, the discussion group also veered toward exploring how CIER could be improved for the next session (held in September, 1997). Wayne posted a message under the heading of "CIER Vision" asking

participants to comment on a number of questions he posed. While I structured my response based on Wayne's questions, no one else decided to conform to the question/answer format. At this point in the discussion, it is probably worth pointing out who was engaged in the process and who was not. Both Brent (Asia) and Ed (Vancouver) had participated little in the forums. One of Ed's students was working in CIER and none of Brent's students were engaged at the time due to internet access difficulties. Maud, one of the composers, had participated little in the second session, while an assistant teacher of Marcia's (D.M.) had joined in a composer role. Marcia herself, while active earlier, did not join any of the post-composition discussions even though I had prompted her via personal email. That left myself, Gary (now very active in the composer role) and teachers Wayne and Brian along with D.M. who seemed eager to contribute to the forum.

Restructuring

While the first session ended in a number of recommendations (outlined at the end of chapter 5) there seemed to be only one theme evident in the recommendations this time around--structure. With the increased "physical" presence from resumes and interactive chat and video sessions, along with the growth of Gary's role as a facilitator of special projects and ideas evident in the second session, thoughts now turned to structuring CIER to best take advantage of such improvements. Gary was first to respond in a general fashion to Wayne's call for a "vision":

> *I think that it would be a good idea to have a separate area for composer--teacher discussion, where we can talk about the program, about pedagogical ideas or issues or post other related items aimed at those who aren't students. Along with this I think that there should be a separate area for student discussions of music, an area where students can talk to each other about musical issues, and where teachers / composers can also*

join in. I'd imagine that some of the stuff that is posted for the 'educators' in the discussion section of CIER probably scares the students away from the area, and probably discourages them from posting their comments and ideas.

Gary appeared concerned that the students were not participating in the general discussions in the instructor's form and thus were confined to more specific discussions in the composition forum. It was my original intent intent to avoid creating a virtual "staff" room where only the adults could exchange ideas. I tried to encourage students to participate more in the general discussions of the instructor's forum (a moniker only used in the writing of this research and not in CIER). I did not want to deny access to any areas which I thought might set up the beginnings of a hierarchical structure within the design or architecture of CIER (I assumed these structures existed locally in the classroom). But as Gary insightfully points out, the nature of the discussions might appear too esoteric for the interests of the students. In fact even Wayne stated that, at times, the discussion was "over [his] head". This leads me to believe that while a design barrier did not exist to separate the general discussion forum (i.e. denying access on the school accounts to a specific forum), perhaps students felt denied vis a vis the topics being discussed and the language being used. As well, the notion of a virtual staff room might not present a barrier to students, but would just help to filter or separate discussion into areas of specific interest. Returning to the physical analogy--what students in school would rather be in the staff room instead of *hanging* with their friends in the hallways or outside?

As facilitator of CIER I had special technical privileges in FirstClass that allowed me to create certain spaces or structures within CIER (as separate conference folders). Until then, I had been avoiding further compartmentalizing the forums beyond the general discussion area and the

student composition forum--especially if it fragmented use. However, it was evident from these final discussions that many were eager to see separate, specific-use spaces created in CIER:

- Wayne: *I would like to see an archive folder on the CIER site dedicated to teaching techniques and lesson plans....Communications between compositional colleagues will be done through a "Contemporary Soundscape" conference set up in the active CIER folder and by email. All directions and handouts will be posted there for reference....*

- T at *Toronto School*: *The solution to that problem* (too many messages in forums*) is for each member (or school) to have their own special folder which appears in the first section of CIER. Then you can put the letter in the composers folder. If it's for all composers, just send the message to all the folders...I feel we would get a lot more accomplished in private chats if there could be separate chat rooms. Maybe one for computers, CIER, and other subjects.*

- Brian*: I would like to see the composers have a section, or forum, to themselves in which they would initiate projects and discussions. ...There's no sense of structure at all - not that one structure will do - just that there isn't any structure for us to direct our thinking into. ...We need to be able to define space in the conferencing areas - a dream room, a tech talk room, a main seminar room, a student to student room, a composer's initiative room, a curriculum room, a poetry room... and so on. As people develop ideas we may even generate rooms that are more content oriented, like an African rhythm room, or a Thematic Ideation Room...*

Brian's thinking, while including structural changes in the CIER form, had even questioned the usefulness of the FirstClass system, seeing it as more of an inhibitor to expansion and evolution:

Our first problem, I think, First Class software - in many ways limits interactivity. This software carries with it effects that prevent us from

moving on.

I had always assumed that part of the success of CIER was the ease of use of the conferencing system and its ability to remain transparent, rather than a focus or impediment. Brian's ideas led me to think that it is impossible for any technology to be transparent--that there will always be channeling effects when some technology mediates human communication. The "limitation of interactivity" seems obvious enough in a system dedicated to asynchronous communication. Brian's comments recall the earlier video conferencing discussion and the need to experiment with alternative modes of communication.

I felt the need to respond to Brian and ask him to further clarify how to move beyond the FirstClass system. I had long been keeping track of web-based conferencing systems and Multiple User Domains (MUD's) but found them them to be inferior to the FirstClass system. Brian's response was a recommendation to "keep FirstClass going but try exploring different uses of it". This advice seems to be more directly in line with the other comments explored above, advice calling for an attempt to create or explore new avenues in CIER, possibly through a restructuring of the forums and creation of "new spaces".

Members involved in this final discussion seemed concerned with the "open-ended" nature of CIER and proposed structural changes that might better facilitate more focused and successful projects. As Gary notes:

> *I will admit to being a bit disappointed that some of the ideas I initiated weren't really followed up on. But that may be due to my ideas and/or the way it goes. ...No one is compelled. But the more feedback I get the better.....It'd be good if students brought up specific issues -- for example, asking me a few questions before they begin a composition, asking me about what things they might like to try. (Perhaps the separate Music*

Discussion section would encourage this).

The recommendations for CIER also included a provision for structuring interactive video and chat sessions. Marcia, in an earlier posting concerning video conferencing, felt that "[their] first visits [i.e. video sessions] are always a novelty but the next should have a planned structure to talk about a piece, ask questions, etc." Brian, as well as his students at Toronto School felt that the sessions could be fitted into the existing CIER structure along with other modes of interactive communication:

- S at Toronto School: *If possible, maybe we could use software that would allow us to talk or type to other members so we can create compositions together.*

- T at Toronto School: *I feel we would get a lot more accomplished in private chats if there could be separate chat rooms. Maybe one for computers, CIER, and other subjects...I would really find CIER more interesting if we could include CU-SeeMe into FirstClass Mail and we could work on music together and just tell each other our comments. Especially, our facial expressions (when we first hear the song) also tell a lot about what we think about the song.*

- Brian: *...maybe CIER could also begin experimenting with more real-time initiatives as well as continuing to explore and take advantage of the asynchronous mode. IRC is one possibility, and so is video conferencing...I really believe that we should strive to incorporate video conferencing as a formalized component of CIER - it's not the be all and end all -but it does offer new potential....What I'm seeking here is that we simply incorporate the widest range of interface systems into CIER so that we may more fully explore the potential they have on enhancing musical creativity.*

Taking advantage of such interactive and real-time (or synchronous) forms of communication within the existing FirstClass system would be

difficult. At the time of this writing, developers at FirstClass were working on a web based system that could incorporate existing technologies such as chat rooms and video sessions within the conference forums. At the time, it was necessary to restructure CIER based on the capabilities of the present version of FirstClass. This involved creating "spaces" in CIER through the use of separate folders. As there was no direct interface to video conferencing through FirstClass, I created a separate folder where video and chat sessions could be arranged and discussed. As well I created a "Special Projects" folder for focused projects like collaborative compositions. Separate instructor and student folders have also been created and the usual composition area has been renamed (officially) the "Student Composition Forum". Below is a screen shot of the new CIER environment that was used in the fall of 1997.

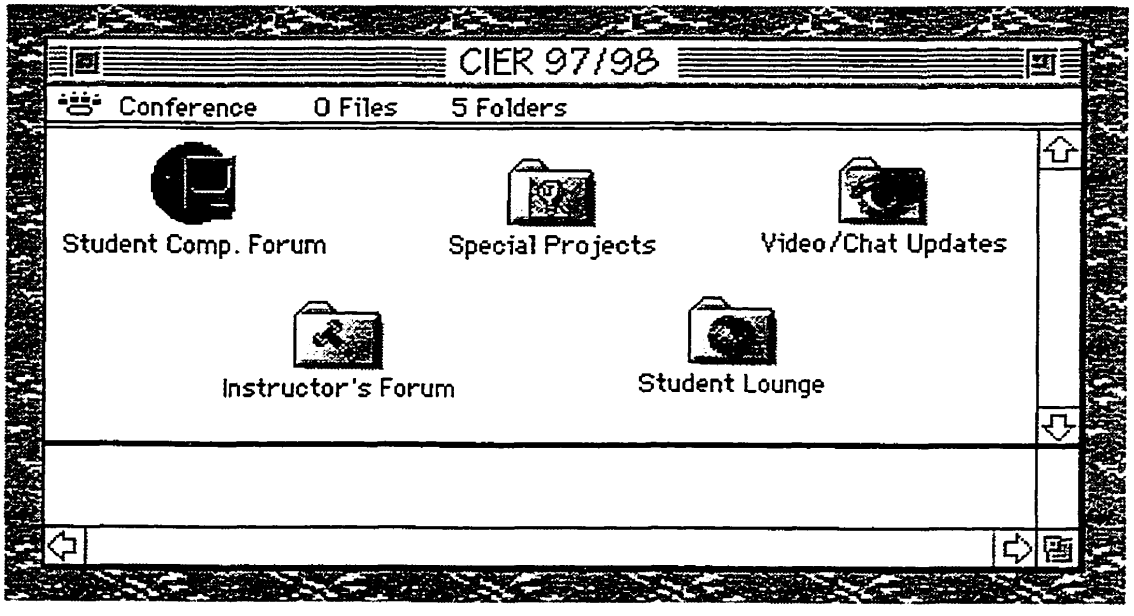


Figure 6: New CIER environment

In addressing the proposed changes for CIER, I posted (as in the first session) a synopsis of the members' recommendations, detailed the new structure, and invited participants to look at the new conference to see if they had any concerns or further ideas (see Appendix I). At the time of this writing, Wayne, Marcia, Gary and Brian had indicated that they were pleased with the new arrangement and felt it would improve the process of interaction in CIER. My concerns about fragmenting the conference too much or displacing focus from the student composition forum were not shared by the others:

- Wayne: *I like all of the proposals you have put forth ...The best part of CIER in my opinion is the ease with which a student or teacher can fit in, use what they want, put back what they can and learn from everyone. I do not see the complexity of process changing much with the additions you propose. Things will be just a little more organized.*

- Gary: *Generally, I think your suggestions are excellent - the idea of more subsections to the conference is a good one - more places to look for new stuff.*

- Marcia: *After tearing my hair in wild despair trying to get everything to work on the 'web based' stuff, FirstClass is marvelous. Things may improve in a while but for ease of use, little or no frustration, etc. you can't beat FirstClass. The idea of the various forums sounds good and I'd be willing to moderate one of them.*

Marcia's comments indicate that she, unlike Brian, was content with the FirstClass system as a conferencing environment. The decision to remain with this system, using a more diverse, multi-folder approach seemed like a logical choice given the reactions of the teachers involved.

Summary

Besides posting the proposed restructuring plan, a copy of this chapter

was also posted in the conference, in keeping with the research plan developed at the beginning of the first session. Making both chapters available allowed participants to see how their views and conference interactions were being used to develop the narrative presentation of the two CIER sessions studied. While FirstClass archive records show that all the research participants downloaded the chapters posted, few provided any direct feedback on the contents and none questioned or objected to any aspect of the material presented. For me to somehow mandate the reading of these chapters and creating subsequent discussion seemed at odds with the nature of this research. All research undertaken by the teachers was defined, at the beginning of this research, as a voluntary process with me providing the material and assistance but with the final actions resting with the research participants. Thus it was difficult to systematize aspects of the research, like having teachers distribute and collect student questionnaires or providing written reports on predetermined topics. Such mandating of research activities on my part, I felt, would undermine the less hierarchical and collegial atmosphere I was trying to create through cooperative inquiry. Systemization, as Lather (1991) reminds us, must not come at the expense of disregarding the indeterminacy of human experience and interaction, especially in joint or participatory research ventures.

In the next chapter, I will more thoroughly explore the tension between engaging in systematic research and maintaining a cooperative atmosphere. I will also explore, in a more reflective and theoretical manner, some of the issues raised both in the previous two data presentation chapters and in the literature reviews of Chapters One and Two.

CHAPTER 7

The Mediating Technologies of Composition, Communication and Research

"Is CIER something we do to people or something that people do?"

Brian, CIER teacher

The Baden-Powel trail traces a circuitous route from Deep Cove to Squamish on Vancouver's North Shore. Squatting among the ruins, now almost gone, of a turn of the century logging village along the trail, it seemed inconceivable that a highly industrialized city of more than a million people lay just two kilometers to the south. Yet as we stood in the hulk of what was once a small sawmill pointing out such incongruities, a friend hushed us with a wave of his hand.

"Listen."

Silence momentarily enveloped us but then a distinct mechanical hum became apparent--the infinite and multitudinous sounds of the city collapsing into a single low frequency whine.

While one could assume that many industrialized cities may possess such a composite aural blueprint, I was surprised to hear the same sound one night from my bedroom located in the city itself. Now anyone who has paused to contemplate these city hums realizes that they are almost impossible to detect from within the city--there are just far too many individual sounds

competing for frequency space. Yet I was hearing it distinctly one night. I went into the living room to investigate and found the area bathed in a wash of eerie, pale blue light.

I had left my computer on.

On the surface it seems like an apt metaphor, poised as we are at the close of the mechanical age. As computers move beyond being mere tools to becoming arenas of social experience (Stone, 1995), one need barely leave one's computer to socialize, shop, travel, work, go to school and relax--the bustling city being forsaken for the bustling cyberspace of online connectivity. Still, to focus on the computer as central to this interaction, or indeed, seeing the properties and phenomena of such interactions as properties of the technology is in error. In Chapter Two I made reference to the above tendency as technocentricity--a term coined by Seymor Papert (1987) where individuals begin to see things as the property of the computer and not those interacting with it. Papert urged researchers to view computer facilitated interaction as an essentially human endeavor.

For example, if the introduction of a word processor to an English writing classroom seems to precipitate an increase in revision, one must keep in mind that the act of revision itself is a human action, not a property of word processing software and computers. In short, computers do not increase revision--humans, in a complex interaction with a mediating technology (computer and software) tend to increase the revising of their written work under certain conditions. Extending the argument to online communication--computers do not communicate to each other, members do. In an online communication setting, then, the computer can be seen as mediating the human communication just as the telephone mediates phone communication and physical proximity and visual cues mediate face-to-face communication.

Technologies have long mediated human activity. Language, paper making techniques, the printing press, the ball point pen and the telephone are a few of many technologies that have mediated the way people communicate. By the same token, the tempered scale, the piano, the magnetic tape recorder, vacuum tubes and computers have mediated the process of Western music composition over the years. Framing technology as a mediating factor rather than in a technocentric fashion is consistent with the nature of qualitative research and more specifically, ethnography and cooperative inquiry--the study of human interaction.

In attempting to construct a framework with which to explore my own reflective and theoretical implications of the CIER experience, I will return to the delineations made in the background chapters. The experience of CIER seems to consist of a musical/composition component, an online or *virtual community* component, and a cooperative research component. All three, more or less, contribute to and shape the overall interaction in CIER--both the processes and products of such an engagement. Inherent in each of these components is the mediating aspect of technology--technologies of composition, of online communication and of research. While the technology/composition and technology/online communication associations may seem obvious, the third, defining a research methodology as a technology, may require some context. We have come to associate technology, it seems, with electricity and computers and mechanical inventions that help make our everyday lives easier (or more complex). Yet technologies, more fundamentally, seem to be linked to tools that help us to accomplish things. Viewed this way, one can see why Ong (1987) saw language as a technology that structures thought. By the same token, then, research could be seen as a technology, or tool for accomplishing a systematic investigation or evaluation of phenomena. In this

study I utilized the technology of cooperative inquiry and the presence of this tool, just like the presence of synthesizers and computers and modems, serves to mediate the CIER experience.

In the following three sections, dealing with composition, online communication and cooperative research, I explore and contextualize many issues broached both in the early chapters (1 - 4), and the previous two data presentation chapters (5,6). Throughout, is the common thread of recognizing and confronting the ways in which technologies mediate the human experiences relevant to this study. At the end of each section I provide some recommendations and questions for further research in that area.

Composing Technologies and the Music Classroom

My day to day engagement with CIER, for the most part, was in the capacity of a composer. Most of my time was spent listening to, altering and discussing the compositions of the student composers. Certainly for me the most exciting part of participation in CIER has been the musical engagement with the young composers. However, as I write this final chapter I realize that the music composition component has been only one of many foci in this study. As composition is an important part of the CIER experience (arguably the most important part), I would like to return to it here and examine student composition with MIDI technology in a little more detail. I will present the argument in two main parts. First, I will explore how MIDI technology and classroom practice impact student composition. Next, I will reflect on some general ideas concerning student composition and some of the factors that I feel support or impede the production of interesting original music at the student level with reference to CIER.

Efficient and Transformative Uses of Composing Technologies

Much of the discussion in the CIER instructors' forum involved educational philosophies of the participant teachers. There was a certain camaraderie fostered by the fact that few music teachers view composition as a central and necessary practice while fewer still employ it in the classroom. (e.g. Webster, 1992; Reimer, 1989b). Teachers who had developed compositional programs with MIDI technology probably did so through their own initiative. Furthermore, little in the way of curriculum exists. These factors, I believe, led to a rich and enthusiastic discussion on the merits and difficulties of composition programs involving technology. Being a participant in these discussions as well as closely scrutinizing the transcripts have led me to believe that compositional programs involving new technologies are implemented with a basic belief system. This belief system seems to be responsible for an efficient rather than transformative use of technology by teachers in their composition classrooms. I will begin this part of the discussion by exploring the origin of the terms efficient and transformative.

Sara Kiesler (1992) sees the potential impacts of technologies in two terms: amplicative and transformative. Amplicative impact shows the same kinds of activities being done but with increased efficiency. Transformative impact "shows a qualitative change in how people think, act and react" (Burge, 1993, p. 36). Along these lines Mark Poster (1989) posits that some people see computers as a means to "only increase human efficiency" and as a continuation of the substitution of the machine for human labour (p. 124). Computer software sequencers attached to multi-timbral synthesizers via MIDI, the reader may recall, allow students to record their ideas from the synthesizer's keyboard into the computer's memory as digital data that is then infinitely manipulable and convertible to standard notation. From the

efficiency standpoint, a student could compose a string quartet by inputting one part, or even one note, at a time. Repeated playing by the system (at the push of a button) allows for constant aural scrutiny and revision, without the need for gathering the required musicians. Parts could then be transposed to correct clefs and scores printed out with much greater ease than before. Thus the overall process of producing the string quartet has been made more efficient since the student could have only rudimentary knowledge of notation and string performance practice. This efficiency model is exemplified in an earlier quoted passage from Ed, the *Vancouver School* teacher:

> *In my Music Comp. 11 classes, I tend to assign particular types of works for students, rather that leave it wholly open to their choice. I do let them have some choice, but I often set the parameters for them. The reason that I do this is that I think that historically this has been the practice. Composers are often asked to compose a piece for a certain setting or group of musicians, so I tend to do likewise. In the parameters that I set, I often ask them to compose for a group of specified musicians, and then when the piece is "complete", I ask the composer to assemble a group of musicians from my band program and have them play it. They are then asked for input as to how this composition is suited to their instrument(s). The purpose of this is to learn the process of composing for specified instruments.*

In this case the technology is used in an efficient manner, reinforcing traditional compositional practices where the music is transmitted by the score from the *composer* to the *performers* playing traditional (band) instruments. Ed's methods very much embody what I explored in Chapter One as a traditional pedagogical approach, recognizing the Western notated score as the ultimate transmitter of the work.

I am certainly not arguing that this efficient view is erroneous or of little educational value. But I would like to clarify that this approach, while employing the same tools, is radically different than what I have framed in Chapter One as the progressive, process oriented approach. This approach required a rethinking of composition as a notated artifact and embraced the notion of sound "blocks" or fragments as the basic building elements of a musical composition. The notated score gave way to invented notations and cassette recordings. In short the practice of student composition had been transformed. For me, two questions arise. How can/will the introduction of new composing technologies such as MIDI help transform composition pedagogy? Are there areas where composition and musical practice can be transformed rather than just made more efficient when these tools are employed? Before relating these questions to the CIER data, I will first explore them in a historical fashion.

John Cage (1961) posed such questions when discussing the Theremin instrument in the 1950's. The Theremin, one of the first electronic instruments (Machlis, 1970), was a type of sound controller that converted a person's three dimensional hand gestures into voltage controlled oscillations that were then converted to sound. Cage lamented the fact that the Theremin was quickly adopted by performance specialists who performed Italian Arias with them, usually backed by traditional orchestra. Thus the transformative possibilities of this instrument were never realized (aside from the work of Edgar Varese, largely ignored at the time anyway) and the Theremin quickly faded into obscurity.

Brian Eno, a British electro-acoustic composer made a similar argument for the synthesizer. Early analog synthesis created a new genre of sound creation for electro-acoustic music in the 1960's, however the evolving

technology was put to use in the form of mimicking acoustic sounds and traditional instruments rather than further exploring new possibilities (in Lehrman, 1992). The synthesizer, in short, has evolved into a tool of *efficiency* rather than a tool of transformation.

This technology can, on the other hand, be put to uses that were previously inconceivable in human terms. Computer editors can generate passages so fast (or so slow) or of such micro-tonal divisions that no human could possibly reproduce them on an acoustic instrument. Sound generators can allow for the creation of sounds never before heard or even imagined. Sensors, MIDI controllers and samplers can turn a three dimensional space into a virtual soundscape orchestra controlled by the gestures of one person standing at the centre. Computers, through subroutines written by composers, can compose or co-compose music, often referred to as algorithmic composition (Landy, 1994). In short, it appears that Varese's 1931 *transformative* prophecy of electronics freeing music from the tempered scale and the limitations of musical instruments has come to be in the field of electro-acoustic and computer music. But can these same transformations occur with the simpler, inexpensive tools being used by the music classroom?

I believe that the equipment being adopted by schools precludes many, but not all, of the transformative aspects of composition and is constructed to be an efficient tool in the production of traditional acoustic music. I have already explored how the less sophisticated synthesizers (i.e. ones that schools can afford) have little sound editing capabilities for the exploration of sound, how most of their programmed sounds attempt to mimic acoustic instruments, and the fact that the keyboard input device is based on an equal tempered scale (the Western piano, less 2 octaves). As well, the devices that store and edit the music, computer sequencers connected to the synthesizers via MIDI,

record the music as discrete events. In other words MIDI translates a complex musical process into a discrete musical product and while the resolution of MIDI is quite admirable (it can measure events in terms of milliseconds), human ears can detect such subtleties across a discrete domain (Moore, 1988). MIDI measures note-on and note-off data (i.e. when notes are pushed) and converts these times into grid or standard notation. Hence it is, for the most part, a note oriented *efficiency* tool (Landy, 1994).

A typical criticism is that MIDI produced music is "mechanized, quantified and predigested and could never replace real musicians" (Lehrman, 1992). This would seem to violate Poster's earlier cited definition of efficiency leading to the substitution of the machine for human labour. If these simpler technologies are efficient, then they are so within a limited realm. I think Ed from *Vancouver School* had the right idea in using the technology as an intermediate step in composing, the final one involving human players. It would seem a sad state of affairs when the student has composed a traditional work for acoustic instruments and takes the computer's "performance" as a valid rendering of the piece. While a triggered note of a violin in a synthesizer is always the same "note", Moore (1988) reminds us that the experienced performer "is able to make a single note sound urgent or relaxed, eager or reluctant, hesitant or self assured, perhaps happy, sad, elegant, lonely, joyous, regal, questioning, etc." (p. 20). Gary, in the instructor's forum, raised the issue as to "*whether the music that the students produce should be considered in its optimum form as played by sequencers.*" If students were composing with traditional settings in mind then it seems rather obvious that the answer is no. Jaron Lanier (1996) argues:

> I would point out that musical notes didn't really exist before computers. They used to be nothing but interpretations of what musicians did. But digital technology can't make a sound unless

> it is programmed, and programs can't exist without freezing a theory into fact. A note in a computer isn't an interpretation, it's a real thing that was someone's idea of what a musician should do. This is the exact origin of the bland or nerdy feeling that permeates a lot of art on computers. We are looking at our own ideas, as they were fixed in programs, instead of confronting mysterious Nature (p. 1).

In raising an issue of obvious importance to the other teachers, many responded to Gary's questions regarding the role of the human in such compositional endeavors. It seemed that many of the responses were framed within an efficiency model--that is, MIDI tools being used to compose for traditional human settings. Marcia from *Europe School* stated:

> *I'm all for having the students realize that, as far as I'm concerned (and I think 'we' and 'they' would concur), humans will always be the major element involved in music--writing, playing, listening, etc...I think it is imperative for us to keep humans in the picture.*

I have used this quote because of the fact that it (taken from the context of the entire message) can be interpreted in more than one way. For example, one cannot necessarily assume that Marcia is espousing a traditional approach. Computer music contains many human facets including the programming itself, the listening, and, as is often the case, accompanying humans in the performance who manipulate variables and/or interact with the computer generated music in a number of ways. For me, the human element is not lost, but just redirected to other avenues in the transformative model. However, Marcia was clearly espousing a traditional viewpoint given the context of the entire message--humans performing music that was composed with the help of a computer. She mentions two works that her students had uploaded and how both were related to live performance at the school in

traditional settings.

Again, I must assert that I am not questioning the efficacy and value of such uses of MIDI technology. Marcia's students were, for the most part, well trained in traditional acoustic instruments and some were going to major in music in college. The fact that they were experiencing a part of music that "few" (Reimer, 1989b) could in the past is perhaps adequate in itself. But I am wondering why teachers such as Ed and Marcia (and many I have encountered elsewhere) relate MIDI composition as an efficient step in traditional composition/performance but feel the music should be brought into the human, acoustical realm for performance. Music composed by and for the computer still maintains a number of human aspects, even at the performance level and I feel that computer music does not, by its nature, deny the human element.

Having studied electro-acoustic and computer music composition I have never viewed the genre as denying the human element. In almost all of my courses, interaction and performance were stressed and our concerts would often involve as much (and in some cases more) human activity and participation than many of the traditional, acoustic music presentations I attended. While such interactive computer music often requires more advanced hardware and software (MAX, CSound, etc.), possibilities, although limited, still exist with MIDI (Moore, 1988). Few teachers in the conference (and as a whole) seemed to be aware of such possibility vis-a-vis certain transformative uses of MIDI technology.

Perhaps another consideration should be why music cannot just exist to be performed by the computer? What is the logic behind the loss of the human performer being equated with the loss of the human element in the music? Gary, also trained in traditional and electro-acoustic composition urged teachers to encourage their students *"to create music that can only exist by the*

grace of the computer" as well as music for traditional settings. One must keep in mind that such music is created by humans and can be listened to, appreciated and discussed by humans as well.

The whole idea of the nature of MIDI and computer composition and the possibilities that exist lead me to a rather important idea concerning the CIER process--the interaction between teachers and composers. It seems that music teachers are, for the most part, trained in traditional performance methods with the score as the central transmitter of music (Walker, 1989, Reimer, 1989b). All CIER teachers, with the exception of Brian, fell into this category. Such training might then produce a certain paradigmatic thinking that steers pedagogical practice towards having students compose in traditional ways for traditional instruments and producing scores of proper Western notation. Alternately, a professional (or trained) composer such as Gary would have experienced and utilized the transformative possibilities inherent in such technologies and encouraged experimentation. Gary elaborated in a report:

> *I feel it is part of my role as a composer (as opposed to that of teachers who are well able to teach the standard stuff) to offer not just ideas as to how to finish a piece professionally but to offer wild ideas, inspiration; to expand the horizons of the students. A composer in residence is not just there, I feel, to be a teacher with more musical training/experience but to give students a chance to interact with a working artist.*

Indeed, in a subsequent session of CIER Gary instigated a composition project called the *One Note Samba* where students were confined to using one note. After a few versions were posted, he offered a version of his own. Wayne from *U.S. School* relates what happened in his classes when they listened to Gary's version:

When we first listened to it we didn't understand it , and in general it struck us as just plain weird!! Then the second time we listened to it we made some environmental changes. We turned off the lights and sat right in between the two speakers. Then we were able to pick out the different dynamics, timbre changes, speaker panning and articulations. That made the piece more interesting and a little weirder!!

Confronting such transformative uses of MIDI technology in classes and through subsequent discussion in the conference may provide teachers with new perspectives and ideas and help transform their practice. Brian seemed to be the only teacher who recognized the influence of the composer's presence on teacher practice. Maud, as reported in Chapter Five, made specific reference to the teacher/student diad and the composer/student diad, commenting on the effects of the interactions. She did not, however, explore or recognize the composer/teacher diad. The effects of such interactions could provide a fecund area for further study.

In summary, I have tried to show how the bifurcation into efficient and transformative uses of technology can be projected generally onto MIDI technology and more specifically, onto the interactions in CIER. In general, MIDI tools seem to inherently support a traditional, note-oriented, acoustical instrument paradigm and while transformative possibilities are limited, the technology can be used in transformative ways, as seen (and heard) in Gary's *One Note Samba*. The teachers in CIER generally subscribed to an efficient use of MIDI technology and most of the material in the conference was intended for acoustic instruments with human performers. Gary, in the composer role and having experienced many novel uses of the technology, provided the teachers with more transformative ideas while still functioning and supporting traditional uses. This bridging of two methods or cultures

seems to be a provocative property of CIER and composer in residence programs in general. Perhaps Brian put it more succinctly: *"What better way to overcome the foolish reductionalism of music education than to have real composers (i.e. artists) provide new perspectives for us."*

The questions posed at the beginning of this chapter lead me back to the idea of technocentricity. I had mistakenly framed one of the questions in terms of how the technology can help transform practice. As I have seen in CIER, the technology itself can do nothing, but with an environment of human ideas and alternatives offered in a constructive and collegial environment, possibilities exist for a critical look at one's practice and the possibility of transformation. I believe that the CIER conference provided for just such an environment.

The Compositions

Before I reflect, in a general way, on the music I have been listening to, dissecting, discussing and evaluating over the past few years as a CIER composer, it is important to clarify the purpose of such reflection and my own biases that inform it.

There should be some discussion as to what, in my opinion, constitutes an interesting and compelling composition. It should be noted that my biases towards transformative uses of MIDI technology do not play a role in this decision. Most of the compositions were of a traditional nature anyway. The transformative/efficiency model helped me to focus my comments (see Appendix E and F), not to make judgments on the efficacy of the piece. In general I consider three areas in evaluating the compositions as a composer-member of the CIER community: (a) intentionality; (b) innovation/novelty and; (c) traditional attributes such as form, development, repetition, melody

and rhythm.

Intentionality involves what I perceived as the deliberateness of the work from beginning to end. MIDI and computer sequencing software privilege many musical actions such as repetition, transposition and chaos (inputting notes and sounds randomly with little attention to the overall appropriateness in the work). Non-intentionality, or aleatoric music, has been well explored by many Western Art composers such as John Cage and is considered a valid concept in music composition (Machlis, 1970). However, if a student was not articulating or contextualizing their methods in the accompanying message then I tended to assume the lack of intentionality was more a product of the use of the technology (and perhaps lack of compositional skill) rather than a deliberate (intentional) exploration of non-intentionality.

Innovation and novelty are two concepts often linked to such qualitites as creativity, originality and imaginativeness, all closely related ideas (Egan, 1992). While I hesitate to embark upon what would no doubt be a lengthy and unwieldy exploration of such concepts, I will resort to Barrow's definition of imaginativeness as "unusual and effective" (in Egan, 1992, p. 1) if for no other reason than its elegant brevity. Here, the "unusual" or innovative component should not be seen as a sufficient condition of an interesting piece of music, in my mind. The innovative aspects, along with other factors such as intentionality and those of a more traditional nature discussed in the next paragraph combine, in different ways and amounts, to form an interesting or "effective" piece of music for me.

Finally, having had portions of my music training grounded in Western techniques and biases, it would be naive to think that some of the more traditional measures of interesting music would not creep into my repertoire. Such things as melody and its development, rhythm and its variation as well

as use of repetition and overall cohesiveness are typical considerations when I judge or evaluate a work in CIER. However I am always willing to forgo such measures (to some degree) in favour of the previous two guidelines. Gary's *One Note Samba* is an excellent example of a work with no melodic development and/or interest, however, it is a piece I find most interesting due to its novelty, intentionality, and rhythmic interest, to name a few reasons.

I feel it is also important to make clear that I am in no way attempting in this research to judge the efficacy of the compositions as a researcher nor espouse the conditions upon which student composition is best instituted. Indeed I would hope that the presentation of the data in the previous two chapters would imply that many diverse approaches and differing philosophies can lead to a fertile and productive composition environment for students. However, I do harbor a few of my own ideas regarding the use of the technology and the conditions that help mediate good compositional products. I would like to offer them here for the interest of practitioners and researchers involved in student composition. Many opinions have been provided from the participants and now, having logged many hundreds of hours dealing with student MIDI composition, I would like to offer a few of my own--five, to be precise.

1. The local context of the music classroom had as much of an effect on the resulting style and construction of the original student work as the mediating role of the technology itself.

In Chapter Five, I commented briefly on how classroom procedures seem to dictate the kinds of compositions the students were producing. Using MIDI technology to compose in the classroom does not necessarily channel processes to create similar products across distinct classrooms. While channeling does exist with MIDI tools as discussed in the last section (as is the

case with any tool used to compose like the piano or Gamelan orchestra), classroom procedures seem to have an equally compelling role in the general kinds of compositions produced by the students. Many of the classrooms were involved in specific composing projects and thus were creating music with certain guidelines in mind. In the case of Brian's classroom, the music in the first session was composed for a multi media project and had definite time restrictions. In Wayne's class, ternary form was being investigated during the first session. In Marcia's class such patterns were not as evident due to less structure than in some of the other classrooms. Most of her students did, however, stay within a traditional acoustic realm involving concert instruments and standard notation rather than utilizing the more computerized sounds and techniques found in most modern computer music. Marcia herself, while well versed in the technology, was a classically trained performer which perhaps had something to do with the direction her students took. Still, this did not prevent one student from producing an ethereal and atypical synthesized introduction for what he was shaping into a heavy rock piece.

In an earlier online conference with a school in Germany (Beckstead, 1996), I was surprised to find all the compositions of a European "Techno" nature. Naturally MIDI technology favours such a repetitive genre of music but I have yet to encounter a similar styled composition in the CIER conferences. The question of the effect of classroom structure on produced work is further discussed in the next point.

2. Students who were given a minimum of parameters and guidelines produced the most interesting compositions.

I do not mean to imply universally, by this statement, that students

compose best when they are left completely alone--much more research would be needed to even broach such a claim, including what constitutes an interesting composition. But I am more disposed to thinking that way with each passing year that I am involved as a member of the CIER community and as a teacher of music composition in general. It is also worth noting that someone has done a significant amount of research with young children in this area--the seven year ethnographic study by Moorhead and Pond (1978) discussed in Chapter One. Pond was to believe precisely what I am cautiously espousing:

> My concern became to find out how this predilection of the children for rhythmic originality could be preserved and transmitted into their later years. I wanted, too, to try to determine what pedagogical practices were likely to destroy it...Children do not come into this world as rhythmic cripples, it is we who make them so (1981, p. 8).

Pond found, in children's compositions, a complexity and richness that he saw as being progressively suppressed through over simplified, banal pedagogical practices. Brian's earlier notion of the "*foolish reductionalism*" of music education ties into this argument as well. I think it valid that the composition teacher confront the effect that the imposition of rhythmic and harmonic structure will have on a student's creative energies. Constructional procedures, as Pond points out, seem to be innate to young composers. Perhaps it is then worthwhile to contextualize such procedures in the context of the student compositions rather than imposing it, *a priori*, in lessons and compositional assignments. Maud remarked that one provocative aspect of CIER was the "*teaching of music history and theory through the* (student) *compositions.*" This idea could be extended to include form, melodic development, rhythmic variation, etc.

Having said that, it is also worth noting that some of the least interesting compositions I listened to sprang from just such circumstances--a lack of structure or guidance. It would seem appropriate to apply the necessary amount of structure to the individual student so that they can best utilize the tools and her/his creative energies to their fullest potential in creating music. Providing a structureless framework to the student who requires structure might indeed be as destructive as applying a set of rigid guidelines to the creative and self-motivated student composer.

3. Connective compositions yielded little in the way of interesting music.

Compositions where students from different schools contributed fragments to a piece until it was complete were prominent in the second session (see Chapter Six for a complete discussion, as well as Appendix H). While these projects had a number of benefits including increased communication and student to student collaboration, I found the final products to be of much less interest than many of the individual compositions even though the same students were involved in both processes. The result of a connective composition could be seen as novel or provocative in the context of the process, much like a group of writers each consecutively contributing a page to a mystery novel until its completion. However the final product of such a collaborative procedure, when judged within the context of other individual works, may seem disjointed, esoteric, unfocused or overly simplified. I do not offer this observation as a critique of the *process* of connective composition--dialogue from students and teachers in the conference certainly seem to indicate that they were a beneficial and thought-provoking exercise.

4. Students who were eloquent and prolific in the discussions of their work often created the most interesting compositions.

Before writing this section, I revisited the student compositions from both sessions and chose, for me, the top three pieces based on the criteria described above. Not surprisingly, all pieces yielded large discussion groups of between 7 and 11 messages. Furthermore, these discussion groups had been monitored and followed up by the student composers as evidenced in their numerous replies to composer advice and comments. It seems that students who were creating compelling compositions were closely involved in the CIER process.

Not knowing the students on a personal level nor being able to experience the local interaction, it is difficult to discuss such things as enthusiasm or dedication, as I think these qualities are poorly transmitted via online interaction. However, in my work with Writers In Electronic Residence (Beckstead, 1992), I had close contact with the student writers on a local as well as conference level. The students who were prolific in the conference did so, it seemed, from a love of writing and an interest in perfecting their craft. In the conference setting they would ask more pointed questions, follow up advice, and question the professional writers' views. All this made for lively and extensive online dialogue, at the root of which often lay a solid, creative piece of writing. I believe the same parallel existed in Composers in Electronic Residence.

5. Keyboard/Piano ability and/or technical facility with the composing technology was not linked to compositional prowess.

As discussed in many places throughout this work, the technology used certainly mediates the action of composing in the context of MIDI composition.

However, intimate knowledge of the mediating tool does not seem to equate with compositional prowess and vice versa. In fact, I have noticed instances when the opposite is true in my own classes--students with no previous piano knowledge get straight to the business of composing and are not "hampered" by previous learning. Tom Waits, a prolific and original composer/songwriter has often spoken of his need to compose on alien (to him) instruments. He says that when he sits down at the piano, his hands always go to the same places--certain chords, riffs and snatches of melody that seem ingrained. Moving to a new instrument, there is no previous imprint, the mind can explore freely and unencumbered the most basic of compositional building blocks--sounds. It does take a creative and adventurous spirit to put these sounds together into a composition. From my online discussions, I would judge my favorite compositions came from students possessing just such qualities (as far as I could tell from textual interaction). As Brian stated, *"what would Beethoven do if he had a synthesizer...can't see him getting his shorts in a knot over computer features."*

Further Research

As mentioned at the end of the section dealing with efficient and transformative uses of MIDI technology, I feel that the impact of composer/teacher interaction could be a fertile area of investigation. I have already explored some of the gulfs that exist between "real life" composers and traditionally (classically) trained music teachers who are for the most part, performance specialists. Future research could focus on how and to what extent (if at all) teaching practice is transformed through exposure to composers in an environment such as CIER. Of course the opposite could be investigated at the same time--how the composers are effected by their

interactions in a structured and pedagogical online environment.

Having discussed the music compositions themselves in a general fashion, I have not strayed into a comprehensive study of the products, as it was never my intention in this study nor would it be consistent with the goals and tenets of cooperative/postpositivist inquiry. This, of course, does not preclude the carrying out of such research. Indeed, having a series of discrete musical products conveniently archived and easily scrutinized might be considered intriguing to the positivist researcher. Compositions could be dissected in any way, such as the application of melodic and rhythmic staging techniques developed by Wilson and Whales (1995) or in a more qualitative fashion as realized by Hickey (1996). Researchers could also focus specifically on revision. Initial, intermediate and final versions of student works crafted within CIER could be analyzed to determine revision strategies and/or efficacy of the advice from composers. One limiting factor is the lack of access to real-time process. By that, I mean that the pieces posted in the conference represented a series of discrete musical products and while there will be evidence of development or change, the actual process governing those changes will be absent. Subsequent research could also then focus on classroom processes which require extended presence in a composition classroom using CIER. Thus the space between the discrete products could be filled in by observing the process through which the products were developed. Maud Hickey (1996) investigated the compositional capabilities of young children by having them compose on custom MIDI software. However her analysis included a qualitative component of the children's processes realized through her systematic observation and discussion on/with her young composing subjects.

Finally, I have speculated much on the channeling effects that occur

when composition is mediated by MIDI and related technologies. Perhaps here lies an area for further study as well--a comparative study involving different composition environments. Studies investigating composition tend to focus on singular environments in the pursuit of validity in the positivist sense--keeping certain factors constant so that truthful and objective conclusions may be made about others. What these studies often ignore is the mediating effects of the tools used to compose, from Pond's (1981) Gamelan-like pitched percussion instruments to Hickey's (1996) MIDI keyboards and custom software. Studying two or more environments simultaneously might help illuminate the mediating aspects of composition tools when young people use them to create music.

I will now turn to the second area of reflection involving conferencing technologies and how they mediate human interaction in virtual communities.

Conferencing Technologies and the Virtual Community

In much of the literature concerning online communication, the idea of the *virtual community* and its inevitable formation when people come together in electronic conferences is prominent. The actual term seems to have originated with Howard Rheingold who defines them as "computer-mediated social groups" (1993, p. 1). He cites the original source of the idea as Licklider and Taylor who wrote, in 1968, of virtual communities that:

> In most fields they will consist of geographically separated members, sometimes grouped in small clusters and sometimes working individually. They will be communities not of common location, but of common interest (in Rheingold, 1993, p. 24).

When I first came across the idea of a virtual community, I was skeptical and viewed the term with some misgivings, attributing it to yet more

computer related hyperbole. In carrying out this research I have been able to view the idea of the virtual community both from a theoretical perspective and an epistemological one. I would like to explore, briefly, the idea of virtual community from both perspectives as its prevalence in the literature and pervasive use would warrant such scrutiny.

Most definitions of community, in a general sense, seem to involve not physical presence, but the idea of effective communication. Strauss contends that:

> A group constituted around a common symbolic structure is a cultural area of its own, the limits of which are set neither by territory nor formal membership but by the limits of effective communication (in Stone, 1995, p. 2).

Both Strauss and Licklider and Taylor recognize the fact that territory is not a condition of membership in a community--that is, community need not be based upon the idea of geographical proximity. Indeed, if communication is the most basic tenet of a community, then geographic proximity is not even a sufficient condition. I think of my own experiences living in suburban subdivisions or inner city apartment complexes and how little I knew about the people living right beside me. Licklider and Taylor also acknowledge that members could work individually or in *small groups*. I believe that this is an important and often overlooked distinction. Much of the literature reviewed in Chapter Two assumes an individualist paradigm. For example, the distance education model frames the student member as a person who works individually, at a distance. Other socially oriented groups such as Correl's Lesbian Cafe (1995) also frame the virtual community as individuals inhabiting virtual spaces. From such frames of reference, ideas such as the members' ability to distort their own social presence become nearly

paradigmatic. Turkle asserts that when logging onto a computer conference, "we join virtual communities that exist only among people communicating on computer networks" (1995, p. 19). For educational virtual communities such as CIER and Writers in Electronic Residence (WIER), where classrooms function as small groups, many of which constitute the online conference, such claims do not wholly apply. A comprehensive definition of the virtual community must take into account local interaction among physically connected members as in CIER or WIER.

From my own experiences with CIER, on a personal level, I felt like I was a member of a true community. The common interests we shared with music pedagogy as well as our own uniqueness at advancing a rare, misunderstood and often exoticised aspect of music education helped bind us in a common cause. As CIER composer Gary stated, "*what makes this kind of conference work is building up a rapport, a common understanding, some kind of culture...*" Brian, the teacher at *Toronto School,* went further by noting that not only was a "*collective community*" created "*but a connective community*". Both Brian and Gary's comments are very much rooted in Strauss' notion that the communicative aspects define the community and bind or "connect" it together.

Communication within a community is mediated and structured by both the interface used and the nature of the interactions which, in CIER's case, are textual and musical. Having explored the music aspect earlier in the chapter, I would like to focus on how the textual aspect of online communication mediated the interactions among members. This part of the discussion will refer to sections discussed in Chapter Two, exploring "some of the most frequently asserted advantages of computer conferencing" in the context of CIER including the "flattening of hierarchies, expansion of participation, and

the channeling of the messenger onto the message." (Grint, 1989, p. 1).

Textual Communication and its Associated Phenomena

As discussed in Chapter Two, the above advantages are for the most part a result of the textual nature of communication. Many assert that the lack of physical presence seems to foster more participation and reduce hierarchical influence in communication (e.g. Sproull & Kiesler, 1986; Harasim, 1990). While this research was not directly concerned with such questions or claims, I feel it is important to reflect on these claims in the context of CIER both because these claims are so pervasive, and because such assertions do not, in some cases, apply in CIER.

Textual communication is, by nature, pseudonymous. Besides the gender and cultural information a name may imply (albeit falsely in some cases), participants in a textual conference can "step through the screen into virtual communities (and) reconstruct (their) identities" (Turkle, 1995, p. 177). Even the name could be a pseudonym, further aiding the reconstruction of identity. There is the case of the male doctor adopting a disabled female persona in a conference that lasted for years. After going through a number of online relationships with men and providing support and advice to other (sic) disabled people, his identity was eventually discovered leading to the destruction of the conference (Stone, 1996).

In earlier research with Writers in Electronic Residence (Beckstead, 1992), the use of pseudonyms was extensive among the student writers. Many students I spoke with felt more comfortable letting their writing speak for them. As one student said in an interview, "I think that's the greatest thing about the program that (the professional writers) do not have to know you, your writing describes pretty much who you are" (Beckstead, 1992, p. 32).

Many of the student writers used pseudonyms, often involving the implication of gender and racial transitions.

In initiating the CIER virtual community, I brought with me the biases described above. I was sure that students would adopt pseudonyms and recreate identity. Initially then, I put no structure in place that provided information about the students, teachers and composers to see what might evolve. As described in Chapter Five, the participants, including teachers, composers and students showed absolutely no interest in identity transition. As a whole they seemed to feel that the more you knew about the person, the better the interactions would be in the conference. Gary was the sole exception, encouraging participants to see the advantages of the pseudonymous nature of online communication. He, like myself, had also been involved with WIER.

Originally, I thought that local classroom situations may have played a role in the rejection of identity transition. Perhaps students who interacted face-to-face in the classroom and who read each others' messages were less inclined to forge a new or transitional identity. Yet WIER was similar to CIER in the local classroom aspect. In fact, WIER students seemed to thrive on the duality. One student was a physically small and shy person who spoke little in class yet enjoyed a certain fame in the conference for his outspoken stories and poems (Beckstead, 1992). As well, many students who were new Canadians adopted Anglo pseudonyms.

I think one of the reasons for the difference between CIER and WIER's use of identity transition might lie in the focus of the conferences themselves. Music and writing, while often viewed within creative or compositional frameworks, are vastly different in the way the ideas are conveyed. It seems to me that, despite the claims of deconstruction, poems are at times able to

convey clear and personal messages. Music, on the other hand, is really, as Brian stated, *"a post symbolic form of communication"* not to be confused with language and writing. While Ricard Strauss claimed to be able to evoke clear and undisputed images and objects in his symphonies (a spoon was his favorite example), I more attributed these assertions to a dogmatic and egocentric personality rather than viewing them as a general and realizable claim. Granted, music can convey specific emotions and ideas, culturally bound as they are. My point here is that the production of a poem or short story seems much more personal than a piece of music. Given the social pressures and stresses present in high school age writers, the students might be more inclined to channel their messages away from their own identity, especially if the material is of a personal or delicate nature.

Overall my experience with CIER and WIER indicate that the distortion of social presence will occur, to some degree (whether intentional or not) in most online textual environments. Yet its presence will obviously inform the interactions to different extents depending on the conferences themselves. CIER and WIER are examples of two closely related communities that use textual identity and "knowing" in vastly different ways. An important question arising from such an issue in these mentor/student online educational environments is how does "knowing" mediate textual interactions and how, in Strauss' words (the earlier cited researcher, not Ricard), can communication become most "effective" through knowledge of the physical beings behind the text? In CIER, given that the exchanges revolved around music, the consensus seemed to be that the more you know about the person and the conditions upon which the music was created, the more effectively you will be able to respond. In short, knowing about members beyond their textual codings and musical products would seem to increase the effectiveness of the

communication.

The Myth of Leveling Hierarchies

With textual communication's lack of social and physical cues comes the assertion that a leveling of traditional hierarchies takes place (e.g. Sproull and Kiesler, 1986; Scott Morton, 1991). Other research in different settings claims just the opposite (e.g. Saunders *et al*, 1994). Outside the realm of positivist research exists a third and more conceptual claim, namely that the people who engage in CMC might be inclined to challenge traditional hierarchies, but will also create new ones (e.g. Rheingold, 1993b; Postman, 1993). Finally the entire exploration needs to be tempered with the notion, offered in Chapter Two, that hierarchies are not inherently evil nor an impediment to successful human interaction.

Within CIER, the notion of hierarchies was not something that was specifically discussed or debated. The topic was mentioned by Gary, but in an untypically contradictory fashion. On one hand he found the conference "*much less hierarchical*" in nature but also noted that he expected a "*less hierarchical feel to the conference, between the students and the composers.*" He found the students overly respectful and hesitant to "*jump in and state their own opinions*". Personally I found just the opposite. When engaged in lengthy discussions with some of the more prolific students, I often found a determination and fortitude in adhering to their opinions that I seldom witness in my face-to-face composition environments with students (both as a teacher and composer-in-residence).

The sheer subjectivity of an idea as complex and, at times subtle, as hierarchies would seem to preclude any definitive statements on the matter. Yet its importance should not be overlooked and online members should ask

themselves precisely the question that Rheingold poses: what new social structures emerge and how do they affect the old ones? Rosanne Stone (1995) attempts a response:

> Entry to the world of virtual community requires high level skills with English language and a high level of technical proficiency, but this annoying fact usually passes unremarked. Many researchers, some quite naively, tend to see cyberspace as a space of possibility precisely because it can give the illusion of a level playing field (p. 181).

Projecting Stone's provocative and insightful comments onto my own experiences in CIER leads to an interesting dilemma. While the prolific students I spoke of may have experienced a leveling effect in their textual discussions with me, were other students hampered by the hierarchy of language use, textual communication, computer time, and familiarity with FirstClass? In earlier commenting on the leveling effect between some of the more prolific students and myself, I failed to account for what should be an integral part of the hierarchy question--what new ones were being created? Can it be said in general that hierarchies will always exist in social relationships governed by communication? And furthermore, are the mediating technologies partially responsible for the shifting and reconfiguring of these hierarchies? It seems to me that this is exactly what Stone (1995) and Rheingold (1993b) are asserting.

As I ponder these questions it seems not enough to declare that I perceived less hierarchical interactions with some of the students but to admit that others were no doubt being created. At the time of this writing, I am engaged in CIER in a "teacher capacity"--my composition students regularly participate in the conference. Often, we listen and discuss comments and music sent from other composers and schools. Most of my students are

animated and eloquent concerning the material they receive in these face-to-face discussions, but many "freeze up" when faced with typing a response. Some are intimidated by the size of the conference and the number of people who will have access to their message while others are uncomfortable with writing in English as it is their second (and in one case fifth) language.

Overall the idea of hierarchies and how they are perceived is a complex notion that requires much more consideration as well as a recognition of the fact that new social structures will always emerge when old ones are challenged or reconfigured.

Another concept often associated with the discussion of online communities, and more broadly in poststructural discourse, is the idea of power and how it manifests itself. Yet despite its prevalence in literature, it remains for many an illusive and often misunderstood term (Strianti, 1993). I do not wish to deal with the notion of power directly, but more through a concrete manifestation of it that I have seen in online communities--the application, maintenance and reconfiguration of structure within a conference.

Structure

The idea of power is also confronted in cooperative inquiry and much consideration is given to developing ways of dispersing it more evenly among a cooperative research community (e.g Reason, 1994, Venney-Tiernan et al, 1994). I will deal more directly with the cooperative inquiry aspect in the next section but here I will focus on my role as facilitator of CIER and how I felt power and structure manifested themselves in relation to this role. It is worth clarifying that I do not feel, as the facilitator of CIER, that I could make people in the conference do anything that they did not want to do. However, I could certainly effect or have power over how they do it, depending on what

structures are embraced or rejected.

In setting up the conference I was cognizant of how structures can be viewed as a kind of power or control. It was my intent, initially, to create an open-ended environment where I hoped the structure would evolve naturally through consensus. Throughout the first session there are many examples of me trying to divert or disperse calls for certain kinds of structures such as the creation of standard postings or the imposition of specific online curricula. It seems I had failed to take note of an important idea, one articulated by Brian. He stated, in a private email message that *"this 'open-ended' approach is often a disguise for a more subversive kind of control--and that is, pretending there is no control"*.

Brian seemed, at times, frustrated by the lack of structure and questioned the value of an open-ended approach at one point stating *"let's make some clear statements about curriculum and instruction in CIER...I don't want to sound like I'm opposing the open-ended approach, but we seem to be using it to the exclusion of others"*. Other members voiced similar concerns and, as seen in the data presentation of Chapter Six, I advocated an organic growth model. In retrospect it seemed more of a "just let's wait and see what emerges" than a structured guide or model. While many new projects and ideas germinated in the second session without being mandated (video conferencing, connective compositions, etc.) there were further calls for development of structures, guidelines and curricula. My solution was to create a newer environment in the CIER conference involving separate spaces or folders where ideas might be better focused (see the end of Chapter Six and Appendix I). While I had viewed the organic growth model as an effective and power dispersing achievement, others may have viewed it as a rather mediocre response to some serious calls for action. As Brian stated *"there is nothing wrong with exerting influence,*

providing direction, exploring structures and so on". But given Brian's earlier comments, was I exerting influence by denying structure? Was I providing direction by avoiding specific models and prescribing an organic growth model? It seems we have come full circle in the argument and I hesitate to trace another lap. Perhaps a brief tangent might be of some use here.

The *Newtonbrook / Northview Initiative* was a program involving two schools exchanging student writing and critique. The program was structured so that the students faced a series of controlled and carefully orchestrated interactions: works were posted in two stages; each student was responsible for two responses; students must demonstrate critical thought; vague responses would be penalized; etc. (Michelizza & Molenaar, 1997). To me such a situation leaves students little power in structuring their experiences. In short, power seems completely held by the teachers and, as quoted at the beginning of this chapter, this program seems more like something that is done to the students rather than something they do--a situation that permeates much of education. Imposing tight structures to realize certain educational goals can be viewed as a situation where power is closely held by the designer(s)/facilitator(s) of the online environment. There were instances in CIER where more structured environments produced, what I have hesitatingly referred to in Chapter Six, as successful outcomes. The case of *The Zoo* connective composition involved a structured environment crucial to the success/completion of a connective composition. All other attempts up until that point had failed due to, in Brian's words, *"a lack of facilitation"*. Perhaps, like hierarchies, there are occasions where power must remain with a few rather than dispersed, to create more effective experiences and palpable products. The differences between *The Zoo* situation in CIER and the *Newtonbrook / Northview Initiative*, however, are worth noting. Participation in

The Zoo was optional for students from other schools and, for the most part, the exercise was directed by students at *U.S. School.*

In retrospect, I now see the contradiction of my own attempts at trying to disperse power through the development of organic structures and the maintaining of an open ended approach, the imposition of which are subtle forms of power in themselves. Turkle (1995) notes that it may be "possible to create an illusion of decentralized participation even when power remains closely held" (p. 178). Was the collegial atmosphere in CIER I identified many times earlier in this work an illusion? This, and other questions posed earlier in this section are troubling, and more importantly worthy of considering in subsequent research under a variety of approaches. I believe they both need not and should not be answered here for as Stone states:

> The most troubling stories are precisely those that are difficult to analyze--stories that are situated in the boundaries between categories and that must be analyzed in multiple ways before their meanings are understood (p. 83).

Further Research

I believe the notion of hierarchies, power and structure occupy Stone's descriptive representation of "troubling stories". While there will be no unequivocal answers concerning these stories, this does not preclude further contemplation and focus in research. As I have stated, much theoretical discourse is dedicated to such areas and thus I think it appropriate that these issues are tackled from an epistemological approach. Further qualitative and ethnographic studies could grapple with the kind of questions that Postman (1993) and Rheingold (1993b) have emphasized. Here is a reframing of some of their questions in relation to this study and to online educational communities in general. I have provided brief "answers" which serve the purpose of

encapsulating the above discussion. No doubt, these questions need further attention from multiple perspectives:

1. What problems is the use of online technology attempting to overcome and what new problems will be created?

CIER classrooms seemed interested in coming together to share, exchange and discuss student MIDI composition. It was an opportunity to form a community of educators that would likely not exist physically due to the rarity of composing classrooms. However tensions would develop over the structuring of the conference and some members would encounter problems that would limit participation. Others would feel intimidated by the discussion forums. As one person stated they were, at times, "*over (his) head*". This person also noted that these forums provided an "*opportunity for (his) own growth*", thus mirroring the question's dualistic nature--problems will be overcome and new ones will be created.

2. *What groups tend to be marginalized in online environments and how can they overcome this?*

In CIER, marginalization could manifest itself in the form of limits to participation due to technical difficulties, access and cost to/of online providers and scheduling. All these factors were evident in the CIER community and will no doubt persist both in CIER and many virtual communities (if not all) like it. Providing a forum where members can get technical support seemed to alleviate some of the difficulties. Rather than just connecting and discussing music, members were urged to discuss their technical concerns in a separate form in hopes that solutions could be provided.

Another side to marginalization is the subtle favouring of certain online

paradigms such as language and writing. Having access only to the transcripts, musical products and teacher/composers, I find it difficult to comment directly on this within the context of this research. However, in echo of Stone (1995), I would urge researchers to halt the naive practice of viewing virtual communities as "level playing fields."

3. *How are hierarchies perceived and reconfigured?*

As this question was not dealt with directly, it is difficult to comment upon how, exactly, hierarchies were perceived. I have explored how writing skills and access to the internet might reconfigure traditional classroom hierarchies among students. But this exploration is based, for the most part, on speculation rather than more direct evidence and member discussion.

4. *In what ways can power be dispersed and how will this help/impede the functioning of the community?*

On a personal level I am convinced that employing an organic or bottom-up approach will help disperse power thus allowing members to take a more active role in shaping the activities and structure of the community. However, the solution is much more complex than simply instituting a less structured and evolving forum. In CIER, many participants felt impaired or frustrated at such an approach and requested more structure and leadership. In short, power dispersion could also have negative effects concerning the functioning and interactions of members in a virtual community.

I will now turn to the third and final area of reflection involving cooperative inquiry as a research technology.

The Technologies of Research: Cooperative Inquiry

I would like to begin this section by discussing an issue that "arises time and time again in inquiry projects," the tensions between "facilitator initiative and group ownership" or more broadly, power and its dispersion within the research community being investigated (Reason, 1994, p. 191).

The question of structure was discussed within the context of the online community and I believe it is of importance here when discussing my role as facilitator and its effect on the inquiry process. My own views on structure have been articulated in the previous section and these biases should be kept in mind when considering this portion of the report.

With respect to the musical aspect, I accepted the fact that a certain amount of structure was necessary to the development of a composition but I could often be found as a dissenting voice against the application of too much structure in the composition process. This stance is mirrored in my attempts at facilitating the conference itself and the application of the so-called organic growth model. I hold the same view in relation to the process of cooperative inquiry. One difference here seems to be that my calls for a "loose" approach to the structuring of the research methodology met with no opposition. Given the preoccupation, at times, with participants' ideas pertaining to more structure in the CIER process itself, I am wondering if the disinterest stemmed from a satisfaction with the process or a certain apathy for it. Reason (1994) has asserted that often there is a tension between structure and lack of structure in this form of inquiry. This can stem from the need to "recognize and accept emergent chaos" (p. 188). If the participants are to have a role in shaping the actual research process then it follows that the plan will have to be less structured, adaptable and flexible. In this research, the flexibility was evident in the changes to the research plan between the first and second

sessions when a four stage data gathering processed morphed into two stages with the shift in use from the instructors form to a more reflective environment.

With little discussion and/or direct input on the inquiry process itself from the participants, I wonder if I had erred in some fashion at articulating the nature of the research. While I believe I was able to disperse my inherent power as facilitator of the conference by providing for emergent structures based on consensus, perhaps I was less successful at the research level. Reason (1994) points out that activities such as summarizing, data cycling, and identifying research agendas are important in relation to group involvement in cooperative inquiry. These activities were carried out in the online setting--reports were made available at various stages, introductory postings detailed the research process and subsequent notes reported changes to that process. Here, perhaps, an impediment to cooperative inquiry in an online environment exists. With the large amount of textual data and student composition, perhaps many teachers were forced to prioritize their focus. For me that focus involved the students' work, technical discussion and reflecting on pedagogical practice. Indeed, these foci provided for rich and diverse data. Little time was left, then, for reading and critiquing the set of postings relating to the research itself. And while I would provide brief summaries and guidelines for the documents posted (some chapters were over 40 pages in length), little discussion involved the research process itself.

While information overload may present one factor in the lack of input in the inquiry process, it would be naive to see this as the only cause. As facilitator of the process and one having the most to gain from it (a Ph.D. perhaps), other questions arise. Did I do a poor job of articulating the flexibility of the inquiry procedure? Did members perceive the research as "untouchable"

or "ivory towerish"? Did I, in pursuit of the degree, inadvertently marginalize other contributions or implicitly deny them? Did the participants, aware of my awaited "prize" at the conclusion of the research, gradually harbour some antipathy toward the process? I think these are important questions, especially when one attempts cooperative inquiry as part of a degree requirement.

The lack of direct input I perceived in structuring the inquiry process itself does not, I believe indicate a failure in the procedure. At the beginning of Chapter Six I explored a tacit call for structural changes, indicating the lack of formal reporting/data gathering at the local level within the conference. I took these cues to mean that participants were more comfortable with a less formalized research approach--one based more on reflection. As well, I believe this research was successful in relation to another important aspect of cooperative inquiry, an aspect that drew me to this form of research in the first place.

Reason (1988, 1994) notes that "orthodox" research tends to take away and make sense of the data elsewhere, beyond the reach or input of the researched. Ideally, in cooperative inquiry, information gathered should be linked with direct action. Given the changes in the CIER program, both after the first session and after the second session I believe this research did accomplish direct action/change vis-a-vis the participants' informed opinions and beliefs. CIER, at the time of this writing, is a different conference than the one that began at the start of this research. And these changes were a result of the participants' input. In short, I believe there exists a group ownership of the program due to the power the participants had in shaping the conference. While I admit that at times it was difficult to build consensus on exactly what changes would take place, final models presented at the beginning

and end of the second session were both met with approval from all participants.

Further Research: The Cultural Divide

The term "participants" itself leads me to another point of reflection--that of exactly who the participants were in this study and more important, why. In Chapter Four I presented the participants as five teachers and three composers (myself included in the second category). In pondering this choice (i.e. the omission of the students) I am led to an earlier cited quote by Ursula Franklin (1990), namely that research involving technology should focus on those at the receiving end of it. The teachers and composers obviously can be fit into this category, but what of the students? The inquiry process here depended on the contributions of teachers and composers. Furthermore the teachers would act as researchers at their local sites building, I hoped, their students concerns and requests into their own agendas. I do not want to examine in detail here whether this did or did not happen (I believe it did, albeit better at some local sites than others) but question and explore how the students could become more involved in such a process.

The main concern in involving students in a cooperative online inquiry process could well be the notion, espoused by Reason (1994), that a cultural divide between group members and facilitators could impede cooperative inquiry technique. Whitmore (1994), in her work with disadvantaged, expectant mothers, found that overcoming the cultural divide between herself, and her coresearchers was an important challenge in her work. Would students experience the same kind of gulf? Would their interactions with facilitators/researchers, a group described by Whitmore, herself included, as "tight assed folks who don't have much fun," (p. 191) be impaired by difference?

Many social science researchers have probably asked themselves the same kinds of questions--how will my/our differences affect the interaction with the participants/subjects?

Another consideration in involving the students as coresearchers is a problem I discussed earlier--the lack of engagement of the coresearchers in examining and critiquing the data and writing presented. I do not think that people should engage seriously in cooperative inquiry simply because it is good for them--obviously there should be some type of tangible reward or incentive for the completion of the research. For me, that reward manifests itself in the form of a graduate degree. For teachers, it could involve credit for courses towards an advanced degree, published papers in journals or recognition by administration in the form of advancement or remuneration. For students, the rewards could involve extra credit in music or English writing classes, a separate school credit for technical writing, and/or recognition from the school community. Putting all coresearchers on a more equal plane in terms of the benefits of the completion of the research could solve the problem of lack of input and/or research apathy that was encountered during the course of this research.

The difficulty, for me, in engaging in research towards a degree is that technically, the writing duties cannot be shared. This lack of dispersion of the writing duties could have also contributed to the apathy towards this aspect of the inquiry process. While such restrictions should not discourage graduate or academic research for garnering degrees (cooperative inquiry still, for me, held some compelling and worthy aspects for human research), such research should, more often, take place outside the realm of graduate research to best realize its truly cooperative benefits.

Pomo Cadenza

Throughout this chapter I have provided a number of recommendations for areas of further study. Earlier I noted how much conceptual writing exists on such things as power and hierarchies in online environments yet little epistemological research is attempting to tackle such ideas in any depth. This however should not preclude more theoretical work concerning online environments. In fact, I consider one area, while perhaps the most troubling and difficult to deal with, a priority in further contemplation of virtual communities.

It seems to me that, in recognition of Ong (1987), language is the ultimate tool that structures and mediates textual experiences such as those found in CIER. Even how student composition is perceived, judged, evaluated and made sense of is mediated by language. During a rather heated discussion concerning video conferencing (see Chapter Six) Brian stated, *"I don't think we spend nearly enough time discussing how we create meaning from text."* Indeed, in the hundreds of pages of data transcripts from this research that I have scrutinized time and time again, Brian's was the only comment recognizing the ultimate mediator in the CIER community. That the mediation of language and writing is so ubiquitous in online interactions as to become almost transparent indicates an urgent need to begin to explore just how meaning is intended, created, transferred and interpreted in textual communities.

The language question is a cornerstone of postmodern/poststructural discourse (Appignanesi & Garratt, 1995). While I have appropriated a number of poststructural tenets in constructing this study, I have devoted little time to one of its most prevalent theoretical concerns. Perhaps I have sided with Turkle (1995) who asserts that "postmodern theory is dramatic, lived postmodernism is banal, domestic" (p. 104). Having been more concerned with

the lived experience of CIER, I have probably not strayed into the more deep philosophical questions that such theory poses, especially in the area of language and interpretation. Language is undoubtedly the ultimate mediating technology of CIER. Unfortunately as I have found, and perhaps those reading this research can attest, it can be a clumsy tool at times. To bastardize Hegel, I much prefer the precision of a well balanced hammer.

Appendix A:

Initial Message to CIER Teachers/Composers, January, 1996.

Naturally, I have a research interest in this program as it will be serving as part of the material for my Ph.D dissertation. While conference transcripts and MIDI files are obviously going to provide a rich source of data it is necessary that I do not rely solely on these conference transmissions. One of the reasons is that I am very interested in classroom practice, and more specifically on how your students engage and react to CIER. Rather than me send out a lot of surveys or questionnaires, or coming on site to do interviews, I am much more interested in bringing the teachers into the research process. I would like to create a sort of participatory model where all people involved, students, teachers, composers, and me, contribute to the research process. Now I know you have already done so much to be involved in this project and for that I am grateful. So this request is purely voluntary--please do not feel you have to participate! If research interests you and you are perhaps wondering what your students are making of all this then you might like to join in.

I would suggest the following very flexible agenda:

-keep some sort of notebook or journal close by to record ideas, concerns, and any observations concerning you, your students and CIER. For example, when a student receives feedback for the first time what was their reaction? Did they want to respond? Did they encourage others? And so on.

-think about the classroom practice you are using to engage in CIER and jot the main ideas down. Do you use student moderators? Are hard copies of messages stored? Do you use a quota system or is it voluntary? Was a marking system assigned? etc, etc.

I think these two points will be the most important to consider later on when we reflect on what has occurred.

At the end of the first session I will supply you with a variety of ideas for gauging your students' responses. These will include surveys, writing tasks, questionnaires, open ended stuff and more. I would ask that you look over the ideas and choose one (or more) to use OR use a device of your own creation OR do not chose to do this assessment. The idea here is that I will present you with many choices and you are free to choose as you like.

Finally, I would suggest that you create a summary of ideas, thoughts, improvements, concerns, etc. that might help us better shape the next conference. (this could be in the form of an email note at the end of the conference).

For now, I would ask you to just consider the above ideas and maybe think about taking some "field notes" as the conference gets under way. Later on we could discuss and define the data gathering methods according to your wishes and concerns.

I REALLY do not want to make any more work for you, but please consider the ideas above and get back to me if you have anything to add or any questions.

The composers have also been asked to contribute their ideas in a similar manner.

And absolutely NO material will be published without your consent--this includes messages in the conference AND your students' work.

see you in the conference!

Appendix B:

Second Message to CIER Teachers Concerning Reports, April, 1996.

Hi Marcia, Ed, Brian, Wayne and Brent:

Let me apologize in advance for the form letter here to the "CIER teachers" group but it is important that everyone gets the same message. Please read it (you might want to print it--it's a little long winded) and respond as soon as you can.

It appears we have come to an end of this CIER session. The conference will remain open for you to connect and peruse the contents at any time. I know Wayne was presenting at a conference and planned to hook up during the presentation--a great idea! The final project initiated by Brian's students will remain and if you, or any of your students, would like to contribute, it's not too late.

In January I wrote to all of you in an attempt to make my research intentions clear. At that time I mentioned the creation of a sort of participatory research where all of you would (at your choice) contribute to whatever degree you felt you could, or wanted to. Now that we have finished the first session I would like to offer some tentative advice as to how we could proceed. I hope you will be able to participate--even if your interactions with CIER have been minimal. Finally I am well aware of how busy you all are. I was hoping that by starting in late April, we would have time to pull it off before the school year ends. Hopefully you will have a "lull" in May!

I see the next part as a two stage process--gathering your own thoughts on the program and those of your students who were involved. (By the way, I will be doing this with the composers as well) Lets start with the students:

It seems that certain students from each site were actively involved with the process -- you know who they are. I would like to somehow collect their perceptions of CIER and I am leaving that up to you. Obviously travel for me (poor student, partner is expecting) is impossible and you know your students much better than I do. Here are some suggestions for collecting their thoughts. Feel free to choose one, many, one of your own, or none at all. Now off the top of my head:

-a survey type questionnaire (I will supply one if you like)

-a written response in the form of 'what you liked, what you didn't like"

-A more focused written response. You might want it to focus on some of these recommended areas or those of your own devise:

how does working with a composer affect their work, their experience?
what did they think of interacting in the conferencing environment?
do they see a usefulness to the exchanges or is it just novelty?
did they feel comfortable or were they afraid to submit work?

was the advice good/bad/fair/understandable etc.
lots of things come up here as I think, I'll stop now assuming you can fill in the rest.

-one-to-one discussions with the cassette recorder rolling. Take about 15 minutes or half an hour, go to a quiet place and talk to the student about CIER. You might want to have some material handy from the conference or be "hooked up" when you talk

-the above with more than one student (group conference) which could also be video taped.
(in the above two cases I will do all the transcribing for you and mail back the transcript).

Just some ideas here. Now, we move on to your contributions:

If you have taken any notes etc. concerning the process so far keep them handy. And you could submit them to me as well, if you like--its up to you.
Now I am hoping to get some form of written response from all of you. A stream of consciousness, anecdotal muse, snapshots of things you remember or situations that come to mind, etc. As I am hoping to better accommodate you and your students in the next session it would be great if you could include some aspect of "how things could be improved".
Finally, I am interested in a few specific areas. You could consider them and include them in your "muse" if desired. I'll phrase them as questions

-what practices did you employ in your classroom in regards to CIER? For example did you have it as an after school project, as part of the course, etc? Did the students connect and interact or did you facilitate those endeavors?
-would you change your practice next time around, and in what way, in regard to CIER. What would be an ideal classroom situation for you an CIER?
- Did the technology get in the way, confuse things or make things easier?
-What is your overall perception of this program, how it works and where it is going in the future?

Lots of stuff here folks. If you like and desire a format, take the above questions and cut and paste them into a document and put your responses under each one.
This summer I will write up an initial data analysis and send it to you for comment/critique etc.

Sorry I have rambled on once again. Please carefully consider the above information and try to get back to me as soon as possible and tell me if you can follow through with any or all of this. Please feel free to back out if necessary. I will understand. It's nice to sit around all day an type these messages but it wasn't too long ago that I was in the thick of things (i.e. the classroom). I remember how busy and crazy things can get, especially at the end of the year.

Thanks for all your work and help in starting and keeping this thing going.

Appendix C:

Message To CIER Composers Concerning Reports, April, 1996.

This note is for the "composers" clan (weird little clique that we are). I think I mentioned something about research and stuff before we started and I would like to, at this time, go over a few ideas I have for collecting your thoughts on your experiences with CIER.

In the spirit of the way we communicate in CIER I was hoping for a written response as opposed to a question and answer session or an interview. There are many ways to go about this. I am a kind of stream of consciousness writer (I use the term writer loosely)--sit down and spit it out. It might work for you. Perhaps going over some of the conferences exchanges, listening to the development of a few pieces, or standing on your head for three days might be an appropriate thing to do before you start.

If you require a more focused format, you could, over the next few days, jot down things in the form of questions "what was the role of technology here in shaping the interactions?" or "was there a pattern to my responses?" or "how could we make it 'better'?" etc, etc, etc. Then you could write a response to each of them.

In a previous letter, Maud had mentioned that:

"something that has REALLY struck me in my involvement of this project is the thinking that I have had to go through as composer/educator! It forced me to go to my "composer" side as a musician . . . . something that most music educators are NEVER forced to do ---- rather, composing is too often thought of as something "THEY" (meaning special people) do. yet it SHOULD be viewed as an integral part of every child (and teacher's) musical education. because of it's status and "mysteriousness", i think teachers are really afraid of trying it. They don't feel they know how to teach it, must less CRITIQUE it! which brings me back to me. I FORCED myself into the position of DOING it. and so i feel like i have "reflection" material to share with music educators about MY transformation (whereas, as researchers, our focus has been the children's transformation or experiences in this project)"

- -

Some food for thought perhaps? Gary, how do you make sense of this? It seems that you (Gary) are approaching this CIER thing from a very different angle. Maud and I are educators, you are a composer (if we must label here). What do you make of this whole education thing? Did you detect a difference in the way we interacted that you might attribute to our teaching culture? Just rambling now I'll stop.
If you would like a more focused agenda for this "report" please write me back and I'll send some sort of template with a bunch of questions on it.

Thanks for all your help and work in the first session. I really think it would have fell flat without you two responding to the students.

Thanks again.

Appendix D:

Composers in Electronic Residence Student Questionnaire

Name (Optional):
Age:
School:
Dates that you were part of the CIER network:
from / / to / /

(If you need more space, simply continue writing your answers on the back of this sheet or on another sheet of paper).

1. Describe the composition(s) that you worked on during the time you were involved with the "Composers in Electronic Residence" network.

2. Did you find the composers' critique and feedback helpful for the improvement of your composition? Why or why not?

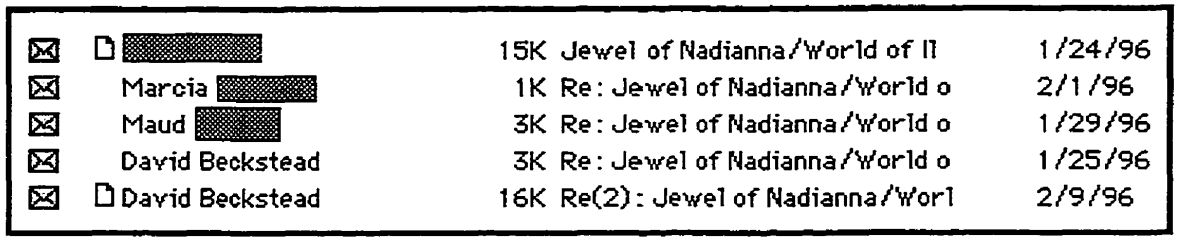
3. Were your compositions changed or altered in any way by composers? If so, describe to what extent a composer changed your composition.

4. Did you find it helpful in the instances where the composer(s) altered or changed part of your composition(s)? Why or why not?

5. What was the most worthwhile aspect of CIER for you?

6. What changes would you make to make CIER better for student composers in the future?

Appendix E: Discussion Group From Composition Forum



[redacted]	15K	Jewel of Nadianna/World of Il	1/24/96
Marcia [redacted]	1K	Re: Jewel of Nadianna/World o	2/1/96
Maud [redacted]	3K	Re: Jewel of Nadianna/World o	1/29/96
David Beckstead	3K	Re: Jewel of Nadianna/World o	1/25/96
David Beckstead	16K	Re(2): Jewel of Nadianna/Worl	2/9/96

Original message from *Toronto School*: 1/24/96:

These two pieces were composed by V and T for the DreamQuest Project. DreamQuest is a non-linear, interactive story design we are creating in SuperCard 2.5 software. There are five quests in the project. These two pieces are the opening themes for two quests. Each theme can only be approximately 30 seconds as it is designed to accompany graphics and text display as well.

Jewel of Nadianna: We have been trying to create music that creates the feeling of traveling or searching. The purpose of the story is to go on a quest to find a mystical jewel.

World of Illusions: We are trying to create the effect of "illusions" in the music. It started out as "happy" music, but we have been trying to make it more mysterious and unsettling. The quest is about a world where what is seen isn't necessarily what is real.

We would really appreciate any advice or comments to help improve our work.

V and T

First Response from Dave, 1/25/96:

Hello, V and T (great names by the way).

I just downloaded your two MIDI files and played them. I would like to respond to each one separately here--in text. This weekend I hope to boot them up in my MIDI system and play around a little bit--perhaps give you some musical ideas or options. Both files, I must add, were very enjoyable and from your note, I think they both evoke exactly what you were trying to show.

Jewel of Nadianna:

Strange but this reminded me of those Harrison Ford movies--what was the character, the guy who was afraid of snakes? Anyway, when I listened to it I immediately got

images from the movie.
I was most struck by the "lushness" of the sounds. How you built up all the tracks and sounds to create a very "rich" texture. I liked the bass line in track three--it provided a bit of what we call counterpoint. Its when a line or idea contrasts the main melody and it adds interest to the piece. I might try to bring that line out a little bit (i.e. make it louder or try another instrument). Another thing you could try is using this counter line in the second half of the piece instead of the first. That way, the music builds up a little bit from beginning to end.

World Of Illusions:

Wow, this piece has a very strong melody. I might be inclined to think of it as catchy though I'm sure there is a better word. It's the kind of melody that can stay in your head for a while after you hear it.
I really liked the line that came in on track 5 (echoes).
I get a more "majestic" or even a little "sad" or nostalgic feeling from this piece. Its probably due to what I think I hear as a minor scale. Generally if you want sad you use a minor scale. Another trick is to use "descending lines" that is notes going mostly down. There are aspects of your piece that contain this and I think that is why I am getting a more sad than happy feeling.
Perhaps you are more on track than you thought you were?

Anyway, I'll try to get some musical responses back to you, that show some of the things I am trying (not to successfully) to describe.

Thanks--it was great listening to your work.

Second Response from Maud, 1/29/96:

Hi V and T!
I had a great time listening to your files this weekend, and must say that it is difficult to give suggestions. . . . but I'll give it a try!

The projects that you are working on sound fascinating - and the music for both is very appropriate. Let's look at one at a time:

Jewel of Nadianna - Very nice use of minor mode to create the feeling of mystery! I also enjoyed hearing the addition of the vibraphone voice halfway through for variety, without getting in the way of the "traveling" feeling that you present. I think the biggest suggestion that I can give is for you to work at steadying the rhythmic pulse-to ENHANCE the feeling of travel. I do not know what equipment you use, but if possible, when laying the rhythmic (percussion) track(s), perhaps you could quantize the notes to make it perfect in time. If this is not possible with the equipment you use, then perhaps you can record one good measure of the rhythm and loop it over and over or cut and paste it over and over - so that the rhythm does not sway from a steadiness at all. Is this possible? (What software/hardware did you use to create your music?)
Finally, a subtle suggestion, is to play with the dynamics (again - only if this is possible

with the equipment you are using). Since this is an opening theme - perhaps you could use a gradual fade away to end with the steady pulse going over and over but fading every so slightly away.

You said:
>World of Illusions: We are trying to create the effect of "illusions" in the music. It started out as "happy" music, >but we have been trying to make it more mysterious and unsettling. The quest is about a world where what is seen >isn't necessarily what is real.

Again - an excellent piece of music!! Very unsettling use of major/minor indeed!
My comments for this are very similar to the first - one of the first needs I feel is to quantize or loop the rhythm/percussion layer so that the beat does not waver.
Do you want to start out happy? Then start very major and end minor. Perhaps you could add a sudden "unexplained" gap of silence in the middle of your piece - and come back in a different mode or dynamic level or voices.
(By the way, the description of The World of Illusions project reminds me of the brand new movie: "City of Lost Children"-It would be fun for you to watch such a movie and just listen to the soundtrack to see how the composers aided the illusions in the movie)

Well - I hope that my comments are helpful. Take them all or use none of them!! It is simply enjoyable sharing this dialogue and listening to your music.

Maud

Third Response from Marcia, 2/1/96:

I enjoyed listening to your two pieces and reading about their purpose. Why don't you try to tighten up the drum tracks with the "Quantize" option in your sequencing program. I think it would make your songs easier to listen to and follow the melodic lines. Keep up the good work.

Marcia

Fourth Response from Dave, 1/9/96:

Hello again, V and T.

Sorry I haven't got to a musical response (i.e. a MIDI file) but I have just read all the replies concerning your piece and I would like to raise, for discussion, a couple of issues that come out.

Both Maud (our composer) and Marcia (teacher) speak about "steadying the rhythmic pulse" and "quantizing drum patterns". I think both these ideas are related in a subtle way and perhaps need more exploring.

First off, when I listened to the two pieces, I too noticed a bit of a "loose" feel. Most

people are not used to this since MIDI files are often quantized. This means that all the notes, wherever they landed in the piece, are pushed onto exact beat divisions. Its kind of hard to explain so above I have attached two MIDI files. One you might recognize as the one you sent me in the fall. The other is the one I sent back. The difference (mainly) is that one is quantized and so is "more on the beat" (the one I sent back).

Anyway, you might want to listen to the two files and see if you can hear how quantizing makes a difference in MIDI files. Then get back to the rest of this note (cause it's going to be a little technical).
- - - - - -

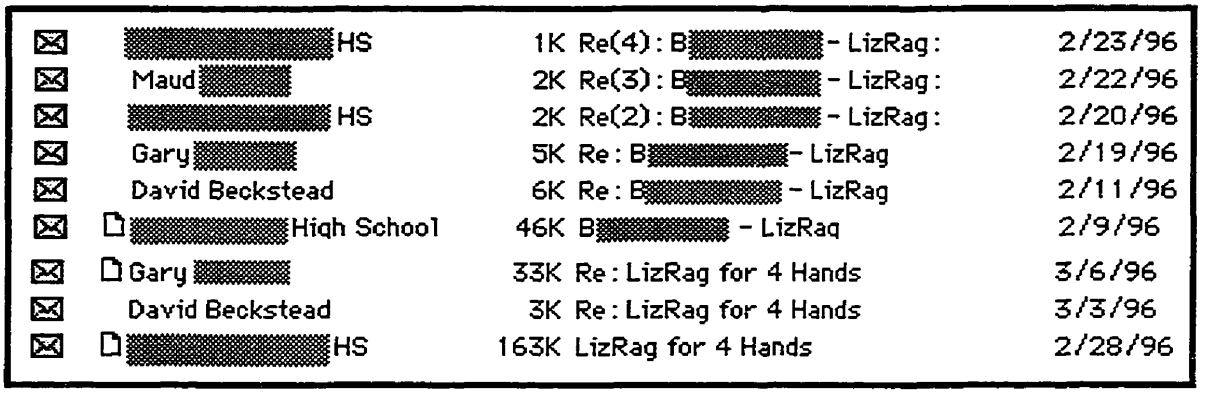
Sometimes, when people compose music in computers, they do so with a loud click playing in their ear (called a metronome). The metronome helps the player keep "on the beat" when entering parts. After the piece is entered, you could listen back and hear how close you came. If it doesn't sound quite right you could always quantize it and push the notes into their "correct" (some people would argue with this word, including me) place. Now, it appears that you have composed these two files(Jewel and World) without the use of the metronome. I figured this out since when I turn the metronome on in my computer, it doesn't click along with your music. In short, you have entered your music in "real time" and not using a reference metronome. That is probably why people who hear it comment on the feel. Now this is a grey area. Personally, I think it is important to experiment with MIDI WITHOUT the metronome to get used to playing "in time" without the annoying click, click, click. However, there are times when it is good to experiment with the metronome to see how well you can play along with it. This develops "good timing". As well, if you try to play with the metronome, you can then experiment with quantizing as well as getting a pretty accurate score from the whole deal.
IN the end, it is up to you how you want to compose. The only thing I would like to suggest is that perhaps you experiment with both ways. What would happen if you worked on Jewel or World with the metronome? Would it sound better? Is it easier to "cut and paste"? Does quantizing sound better or does it make music sound "mechanical"?
I think only you will be able to answers these questions by experimenting and also by listening (like the two pieces I have attached to this note).

I hope I haven't confused you and I would like to say again how much I enjoyed your music--how rich in texture and musically interesting it was.

Please feel free to post your comments/ideas regarding our (mine, Maud's, and Marcia's) responses. We would like to hear from you.

dave

Appendix F: "Liz Rag" Discussion from Composition Forum



[redacted]HS	1K	Re(4): B[redacted] - LizRag:	2/23/96
Maud[redacted]	2K	Re(3): B[redacted] - LizRag:	2/22/96
[redacted]HS	2K	Re(2): B[redacted] - LizRag:	2/20/96
Gary[redacted]	5K	Re: B[redacted] - LizRag	2/19/96
David Beckstead	6K	Re: B[redacted] - LizRag	2/11/96
[redacted]High School	46K	B[redacted] - LizRag	2/9/96
Gary[redacted]	33K	Re: LizRag for 4 Hands	3/6/96
David Beckstead	3K	Re: LizRag for 4 Hands	3/3/96
[redacted]HS	163K	LizRag for 4 Hands	2/28/96

New Posting from B at Europe School, 2/9/96

My name's B. I'm displaced right now and living in *Europe*. I'm a junior here at *Europe School* . I've been a pianist for over 12 years now and composing for about 6 months. I'm in love with Ragtime (have been ever since I saw my first old style Western Vaudeville show back home) and decided to try and create my own. Give her a listen and let me know what you think!

First Response from Dave, 2/11/96:

Amazing piece of music you have composed here. Not being a pianist of any consequence (my wife might add "of absolutely no consequence") I would rather discuss aspects of your work where my own knowledge may be of some help and leave "piano" issues to our illustrious composers Maud and/or Gary.
As well, my working knowledge of ragtime is minimal, though I do have a solid background in jazz harmony, so I may be of some use to you yet. Anyway, for what it's worth, here goes.

On first hearing your piece, I was intrigued by the form which I see as ABACD, where the different letters represent distinct sections, ideas, or melodies in the music. What strikes me about your form is that it is exactly the same that Scott Joplin has used on more than one occasion, the most famous example probably being the Maple Leaf Rag. It is indeed great to hear so many solid and "catchy" ideas in a single piece of music.

Section A of the piece reminds me of that Vaudeville show you speak of with the old player piano (or player) in the corner. Both the chord progression and the block octave/chords in the left hand are, I think, consistent with this kind of music. I do hear some deviation from the "true" ragtime style in sections B, C, and especially D. I think it is good to use a genre (ragtime) for inspiration and ideas, and then build it up using your own ideas/interests. Section B had almost a swing style to it, indicative of later periods in jazz. Section C was more modern or progressive in its approach, building up some tension and using more complex chords and progressions. Section D, the 'chaos'

section is wonderful. I hear almost a satire or spoof of ragtime with the original melody just barely there. Great fun!!!!!!!

Again, I should assert my ignorance in matters "piano" so I will confine my recommendations to a more general nature. As it is, I see great potential for the development of this music in a number of ways.

First, consider this piece as a separate entity to the ones I am going to suggest. Think of it as the computer version and edit it as you like and with the help of one or two of the composers. What I would like you to consider is bringing the music into the more human domain. Now I am not saying this domain is better or worse, just different. Within the "human" domain you could consider the following options:

1. Create a version for solo piano (two hands, not eight). Think of what the most important elements area of each section, and retain them. First work out then left hand and then the right. You do not necessarily have to be able to play it but try to create something that is humanly possible. You could consult your piano teacher or an accompanist to see if this version you create is playable. When you have it worked out, print out a nice score to make the whole thing more "concrete" and real.
Then, try playing it!

2. Working closely with the music you have now, create a version for say, 2, 3, or 4 pianists. There does exist some very interesting music for multiple pianos (Steve Reich, Shostakovich, Chick Corea). Again, you would be thinking in terms of the humans playing it. Who gets what part? Is it playable? etc.

3. Since your music here has jazz overtones, try an arrangement for jazz band or Dixieland band. You could consider the following instruments: string bass, piano, banjo, clarinet, trumpet, trombone to be true to the style of the music. The best way to get started on this is to look at each melody or bass line separately noting what octave it is in. Then assign each idea to a different instrument according to the instrument's range. With a computer, this really will not take very long. Once you have all the instruments assigned, start making musical decisions--how would the trumpet part sound more interesting? What should the string bass do? Should the trombone play the bass line? who gets the melody? etc.
Again a complete score (and separate parts) could be written out.

With any of these versions completed, you could try to have your music "performed" at a recital or concert. It really is quite satisfying, I think, to create music on the computer, and eventually get it out in the world by having it performed. That is, if you are working in a more traditional domain like ragtime, or classical music. A lot of music worked out on computers requires, in whole or in part, a computer as part of the performance. Just ask Gary Barwin about that!

Hope some of this makes sense. If you do decide to start working on other versions I would love to help with some more specific advice such as substitution chords, walking bass lines, or swing drum patterns. For now, I leave it to you to decide what direction you would like to go in.

Please write back and tell me your thoughts on this and keep the music coming!

dave

Second Response from Gary, 2/19/96:

B:

I'm working at a bit of a disadvantage here, not having a proper sequencer to listen with, but here are a few preliminary ideas that I had about the rag. (and also for others that you might write...)

First off, it's really an impressive, amazing piece. I kept ducking, figuring that the gun fight was about to begin at any moment. You've really got control of many compositional and pianistic idioms.

The flow of the overall piece works well. I particularly liked the places where there was a brief pause and then a new section began. As well, the variety in the kinds of rhythmic textures was very effective.

You might think about the issue of overall textural density. I felt that for much of the piece, a wide range was continually used. Though I thought each individual section worked well texturally, I thought that you might increase the drama and variety by having some sections have a thinner textures, some sections using a more limited range. As if in an orchestral piece, there was suddenly a passage where the whole orchestra stopped playing and the trumpet and bass had a duet passage. Or just the high winds played. Or the trombone. You know what I mean. You also can create another layer of structure this way - a pattern of orchestrational changes.

So, along those lines, I might suggest bringing in the high tremolo a bit later.Also, I'd consider thinking about having some sections much thinner - less notes in each chord. I Also, you know those rags where the main flow stops and an arpeggio is played - just a single note at once?

I thought your "left hand" writing was great. I'd also suggest trying some thinner lines. Maybe some countrapuntal material low down. Either make the chording more linear with
chromatic passing notes or an actual line.

Perhaps you might like to experiment with the section that begins in m.85 (where it changes to F minor). I thought you might like to try this contrasting section in a different key, rather than v minor, I'm not sure which, but I had a feeling that you might get more punch if you picked a key based around a different root than the dominant of the main key.

And finally. How do you feel about the ending? I thought that the entire last section to be

very interesting, the piece seemed to end a bit abruptly. Perhaps you listen to the piece considering how the last section sets up, or prepares the piece to end, for the perspective of texture/density, rhythm, harmony. I liked the glissandi that you stuck in at the last section, I could imagine more runs running through the last section.

Gary

P.S. (even more .....!??)

I like the idea of rags for modern-day player pianos - MIDI keyboards.

Have you ever heard a diskclavier (an upright piano rigged for MIDI) or indeed any acoustic piano that can play MIDI. There was one in the studio at the university where I did my degree. Of course, the first thing that everyone did was to make it play every note at once, blowing fuses, solenoids, or whatever. But the effect of writing music for musical octopuses was amazing. There's a entirely different layer of richness having an acoustic instrument play that many notes/lines at once.

I think you've exploited the possibilities of a piano which can play the humanly impossible very effectively. You might like to try to get even more extreme in terms of tempo, speed (I could imagine incredibly fast runs spinning all through the last section), or even complex rhythms (3 against 4 or 5 against 6, etc).

Have you ever heard of Conlon Nancarrow? He was an American composer who wrote practically exclusively for most of his life for player piano. He created some incredible, complex pieces punching out the piano rolls by hand. Though his music fits into the category of avant garde music from the classical tradition, much of his music is influenced by jazz.

Third Response from B, 2/20/96:

Thanks to all who responded to my rag. I appreciate the feedback.

First off, I forgot to mention in the explanation that the rag is unfinished. There is still one more section I need to add at the end. That should help shore up the ending.

I don't know much about key changes, Gary, but I kept looking for a key that sounded all right, and F minor was the only minor key I could think of. I was thinking of adding some transitional measures, but I don't know how to begin to do that. I'm currently looking at my old Joplin music to see how he did it. I have heard of the diskclavier, in fact, I've seen a grand piano version in this mall back in Montgomery, Alabama. It was really cool. I'd like to throw this piece on one and here it live. I haven't heard of Nancarrow. I'll look him up.

Mr. Beckstead, I like your idea of splitting the piece into various versions for one, two, four and however many hands. I am currently working on this idea.

Y'all will see a finished version some time soon. Thank's again for the help.

Fourth Response from Maud, 2/22/96:

B - I (finally) listened to your Liz Rag (sorry for the delay in my response!!). And all i can say is WOW COOL AWESOME!!!!!! I was blown away. Nice form, with changes in dynamic and texture at section changes, and a great wild jazzy section near the end. I will not add any editorial comments - i read the other composers comments and think they suffice. I especially like Dave's idea to write this for four hands.

I do have a question for you however: How did you go about "building" this monster? i.e. did you play it right into the sequencer or did you write down some parts first and then record? etc. just curious. . . . . .

Thanks again for a very entertaining piece of music -- i look forward to hearing your final version.

maud

Fifth Response from B, 2/23/96:

Thanks for the response! I am in the middle of putting together the 4 hand version. It really doesn't loose much. To answer your question, I just layered. I didn't write anything by hand. I first took the boom-chuck left hand part and added a melody to it. Then I added a bunch of counter melodies. I did the whole thing section by section. I still have 1 more section to put on (when I get around to it.) Glad ya like it!

B

New Discussion from B, 2/28/96:

Here's a 4 hand version of my rag for your critical enjoyment. It can be used with Encore so that you can see the notes, or if you just want to hear it, there is a MIDI version. I still have 1 section to add, so be looking for it. Enjoy!

B

First Response from Dave, 3/3/96:

Just listened to your four hands version and my first thought was that it sounds much more "human"--that is, playable. I am not saying this is better or worse, just different. So now you have two distinct versions, well done!

I thought at first the disappearance of the "trills" in the first section might somehow diminish the "raginess" of the work, but this was not the case. All the sections came out sounding really good.

A few comments on the notation:

I don't have encore but I did translate the MIDI file to notation. What I ended up with were four distinct tracks (one for each hand?) Anyway, you might want to combine tracks (the left and right hand) so you end up with two tracks--one for each player. That way, the score from this would be two parts, in the grand staff for two people. BUT, perhaps you were working it out for 4 people (one hand each) OR you already made these changes in the Encore version. These suggestions are only "cosmetically" related as they do not effect the music itself.

One other thing, the jazzy section came out with the notation in triplet markings. This is a common mistake of notation programs in reading swing. If it was written for piano you would probably use eighth notes and indicate "swing feel" at the beginning of the section. The computer tries to create triplets since the second eighth of each pair is pushed ahead (or swung). The computer then interprets that as a three note triplet with the middle note being a rest. At other times, the program will simply write dotted 16th notes. Generally, in jazz circles, the eighth notes are quite acceptable and make for easier reading.

Just some considerations if you are thinking of utilizing the score for performance purposes.

Looking forward to hearing the other section!!!

dave

Second Response from Gary, 3/6/96:

Hey B: I thought this version was really excellent & very clear. I only listened to the MIDI file as I don't have Encore. Perhaps you could tell me how many people is this meant for -- 2? and how many pianos? (It could be for half an octopus or could be arranged for, let me see, 4 x 10 = 40; 40 / 3 = 13, one left over, right: 13 three toed sloths and one earthworm....)

Anyway, the reason I need to know is that I was looking at its playability. In the last section, for instance, the top two lines use many of the same notes. If both lines were intended for the same player or to be played on the same piano, there would be a playability problem.

I've included a MIDI file with some minor changes.

In the first measure, there were some duplicated notes (two of the same at the same time) which I removed. Also, the first B-flat sounded too short, so I changed that (only relevant in terms of playing it as a MIDI file.)

I thought that the sixteenth notes that appear at the end of measures in the first section, seemed too fiddly, and interrupted the flow, and also I thought it most effective to leave

sixteenth note motion to the next section, so I changed the following (I either moved the sixteenth notes back to the 2nd eighth of beat four, or deleted them):

m10, m13, m14, m15, m18. I didn't change the corresponding places when the first section repeats. But you could do that if you want to.
I also took out the repeating D's of m.6. When this passage reappears in m22, you could leave it in, as a "development" or variation of the initial idea. It sounded good this way to be.

I noticed that in m.11 beat 3 there was a very dissonant vertical sonority ("chord"). You had a bunch of passing notes colliding, resulting in F#, G, A, B-flat, C and E sounding at the same time-- that makes for a lot of 2nds. I changed this. It reoccurs when the section reoccurs. You could change it here too.

Let me know about how many pianos/hands.

I looking forward to the next section.

Gary

Appendix G:

Recommendations Posted In Instructor's Forum, 9/5/96

Attached to this note is the promised data analysis from the first session. There is a Claris Works version (should be translatable by any high end Mac wp) and a text version (last resort since you will lose the formatting) It's pretty long winded (17 pages) but then again there was a lot of material (over 150 messages, over 30 MIDI files, questionnaires and your seven reports). Anyway, the short version (less than a page) is at the bottom of this note. It includes the recommendations for this session so please read them carefully and post any questions or concerns you may have.

There are four areas, based on your reports and the discussion in the conference last session. Let me first say that I was pleased to hear that all the schools would like to participate even more in this session. Perhaps these will help:

1. Knowing

It seems everyone would like to see a little more info available on the CIER participants. Here I would recommend utilizing the resume function for teachers, composers and schools--ONE RESUME FOR EACH ACTIVE I.D. Here's the info that you stated you would like to know:
Teachers: how and what you are teaching, class structure, your purpose for using CIER as part of your class. (the composers thought this information would be helpful to them, you could also provide course outlines and if possible, lesson plans).
Schools: information on each of the students involved (if possible) include types of music they listen to and some ideas about how they compose.
Composers: Same as students, also include/attach some work if possible.

Now here's how to deal with the resume function:

Creating a Resume:

Under the "edit" menu at the very bottom is the "Resume" function. If you log on using a school account, you could select the resume function, write the school in at the top, and put information concerning the students below. It's easy enough to have the students add to it as they log on. The text can be changed at any time. If teachers log on using their personal account, then a resume can be created that applies to them only.

Checking Someone's Resume:

When you open a conference message, simply click twice on the person's or school's name (when the hand appears) who sent it. The resume should then pop up. You can test this by clicking on my name above.

2. Project Ideas

There were a few suggestions for some more focused project ideas like a) a connective composition where everyone contributes fragments to build a finished piece, b) exchange of notated versions of works, c) focused assignment groups.
Rather than propose or mandate one, any or all of these ideas get started I will leave it up to the individual teachers to invite participation in these special projects. If other schools have the time and the inclination then things will no doubt work out. I call this "organic growth" as opposed to managed or mandated growth. Lets see what happens.

3. Interaction

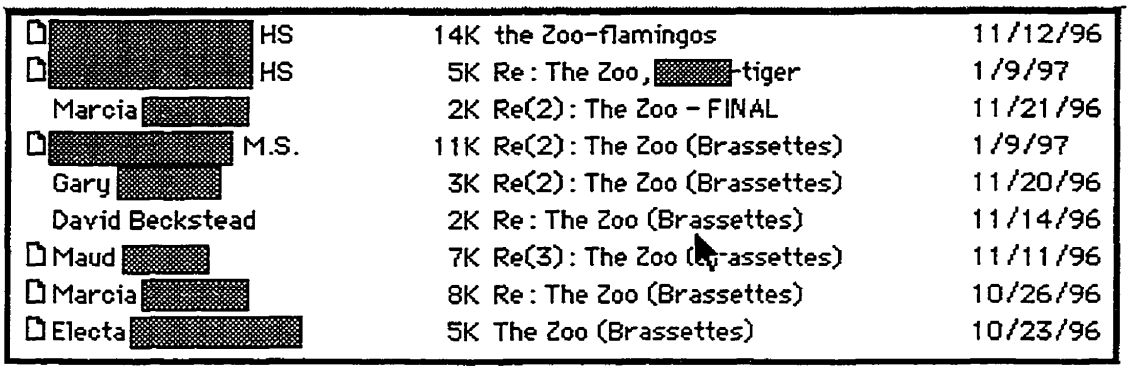
Jessi from Patch stated in her questionnaire that she would like to see more student interaction and the rest of us seem to agree. In reviewing all the music discussion groups I noticed how much more depth and interest was present in those discussions where students (either the original composer or students from other schools) got involved. Also, the project ideas described above would have a much better chance of getting off the ground if the students are more involved. Of course time is always a concern here. I realize that most of you are dealing with serious time constraints. Again, do what you can.

4. Gary

In case you haven't noticed we have a bit of a wild card in Gary--a real live composer, and with a sense of humor to boot! It would be nice if we could utilize him more as in developing compositions with students (from the ground up) and being involved in special projects being done in the class. Gary does provide the unique perspective of the working artist. The rest of us slave away in educational institutions...

dave

Appendix H: Collaborative Composition "The Zoo"



[redacted] HS	14K	the Zoo-flamingos	11/12/96
[redacted] HS	5K	Re: The Zoo, [redacted]-tiger	1/9/97
Marcia [redacted]	2K	Re(2): The Zoo - FINAL	11/21/96
[redacted] M.S.	11K	Re(2): The Zoo (Brassettes)	1/9/97
Gary [redacted]	3K	Re(2): The Zoo (Brassettes)	11/20/96
David Beckstead	2K	Re: The Zoo (Brassettes)	11/14/96
Maud [redacted]	7K	Re(3): The Zoo (Brassettes)	11/11/96
Marcia [redacted]	8K	Re: The Zoo (Brassettes)	10/26/96
Electa [redacted]	5K	The Zoo (Brassettes)	10/23/96

Original Posting from U.S. School, 10/23/96:

Hi Everyone!

Here is a composition that we are starting in class and we wondered if anyone would like to join in.
We are trying to paint a musical picture of a zoo. We think rondo form would work well to organize our piece. We have started by composing "birds" and hope to add fish, sloths, and lions to our piece.
If you would like to add on to this composition that would be great. We can have as many sections as there is interest in creating. You could either add on to our piece or create a separate animal sequence.
We are using a General MIDI tone generator and have labeled the tone colors in the NAME column.

First Response from Marcia, 10/26/96:

This is a super idea and a fun way to start! I wondered if you might want to consider something like 'Pictures at an Exhibition' by Moussorgsky (I hope that's spelled right!) and use a recurrent theme as a link between the animals. In my example I just wrote a little ditty that could be sped up or slowed down (as the visitors got tired, etc) and could wander from voice type (atmosphere, string ensem., etc.) to voice type much as you would in a zoo.
I also added elephants because a trip to the zoo for me is not complete without elephants!
I look forward to hearing more of this musical field trip!!

Marcia
PS: Your birds needed some tweets so I stuck 'em in, too.
- - - - - - - - - - - -

Second Response from U.S. School, 11/6/96:

Hi Marcia.

Thanks for the work on our Zoo piece. We loved the Elephants!!!! We liked the idea of the

bird tweets but lightened them up a bit.

Our next version has added a melody to the bird section. The idea of a walking theme is interesting. Since the elephant pen is the second movement we decided to run to see them. So we just speeded the the tempo up a bit.
We hope to get to add a fish aquarium and a lion cage this Friday.
Thanks for your great ideas.
The Brassettes.

Third Response from Europe School, 11/11/96:

Hey Brassettes -
I love your growing zoo! (I actually have not listened to this latest one - but have enjoyed it up to the point that Marcia added on). I have attached a file you may or may not want to add to your zoo. It's called "monkeying around" and it should remind you of a monkey cage. So if you haven't got a monkey cage yet - and you like mine - add it in!
Maud
N and I (S) added some flamingos to Marcia's version of the zoo. Hope you like it!

Fourth Response from Europe School, 11/13/96:

I'm D and I thought it would be fun to work on the musical Zoo. My song is called "tiger" and it is divided into a introduction and three short "scenes". The introduction is shadowy and is the tiger appearing. Then the oboe plays starting the first scene. It is the prey walking around with no idea that it is being watched, then the oboe sounds again. In the second scene the tiger is approaching. In the last scene the prey is running for it's life. It ends with silence, because the mouse was caught.

Fifth Response from Dave, 11/14/96:

Hey Brassettes

I just listened to all the zoo versions. I was going to add one myself but it seems there is a lot there already!
Perhaps you could put all the ideas together into one composition? I know this would be a lot of work but there are so many good ideas floating around related to your original piece that a final work involving all the bits might be really interesting.
Perhaps you can, with your sequencing software, import the contributions into one file and sort them out that way. This might be a little tricky so you might want to talk to Wayne. You could also use the good ol' cut and paste function as well.

Hope something comes of all these great ideas!

dave

Sixth Response from Gary, 11/20/96:

I'm looking forward to hearing this, soon as I get off-line. It's great that we have the written outline and also the list of contributors. (no doubt so that it will make it easy to distribute the many thousands of dollars that repeated air play of this composers will elicit.)

One thing though that is missing to your trip to the zoo: any time I have been to the zoo with my children at least one of them (and sometimes me!) has a major hairy fit from over-excitement and too much cotton candy, and someone always wants to ride the elephants (usually me). Someone has to be carried kicking and screaming to the car whereupon we go home realizing how much we really did enjoy the zoo.

There's a story about Stravinsky that whenever he would go on tour to a different city he would always make a point of visiting the zoo. And when he was asked by a Circus to write for them, he said 'only if you will have the elephants dance to what I write'.

I think collaboration is a great way to use CIER. I once was involved in a collaborative project where 4 composers were each given 16-bars to write for 4 instruments. We could fill in a bar here or there for various instruments, leaving a patchwork. Then we gave our work to the next composer who filled in some more while the others were filling in what was given to them. This technique makes you constantly rethink what you are writing, and you get lots of surprises. Like when your dainty little melody for piano has a very loud bombastic horn solo slathered over top of it. In the same project 9 composers each wrote something based on one of Beethoven's symphonies. I wrote a piece based on the Fifth, using only material from the final cadences.

Gary

Seventh Response from Marcia, 11/21/96:

CONGRATULATIONS! WHAT FUN! I'M GLAD TO SEE OUR MUSICAL COLLAGE READY FOR "FRAMING!"

My students will have a chance to listen to the finished work this afternoon. I hope our CU-SeeMe works so we can talk about it! They will want to talk about it and may have questions.

I have a question: Could you send us a complete voice listing or description of each track? Be sure to include the changes made during the playing of the piece. I want to be certain that the voices you want played are as close to the ones we select on our sound generator as possible. A complete description or naming will help. Three of the tracks did not have any program changes embedded in them so this would help.

We did have to fix the tempo at the end (exhausted) because it sped up after the first measure and then started to slow down. We matched the speed at the end of the elephants and then let it slow down to total exhaustion from there! The final tempo was mm=47 as

the last kid got in the car to go home!

Again, my congratulations on a super team effort. I know the final editing/selecting took time and work. You really put together a fun picture of a visit to the zoo!

Marcia

Final Posting from U.S. School, 11/21/96:

The Zoo
A Composers In Electronic Residence Collaboration
Fall 1996

"The Zoo" is a contemporary soundscape that follows the Rondo form structure. The recurring "A" section is a strolling theme ala "Pictures at an Exhibition." This theme represents a family going to see the Zoo. At times they are excited and run to the next exhibit and at the end they are tired. (Marcia Dawson)
Patch Assignments:
Measure 1
Track 1 Strolling Theme StrEnsmbl 1

The "B" section portrays an Aviary at the Zoo. Here you will see many types of birds. There are birds on the ground and in the air. A Humming Bird and a Woodpecker are hard at work here. The Flamingos invade the premises at the end.
(The Brassettes, Europe School)
Patch Assignments:
Measure 9
Track 2 Birds on ground Shamisen
Track 3 Birds in Air FantasiaPad
Track 4 Chirping sounds Bird Tweet
Track 5 Woodpecker Pizz Strings
Measure 26
Track 6 Flamingos Marimba
Track 7 Flamingos Flute
Track 8 Flamingos Percussion (Chnl 10)

The "C" section should make you picture an Aquarium. The water surrounds the suspended fish. A school of chubs is chased off by a Tiger Shark and a whale makes a brief appearance. (The Brassettes)
Patch Assignments:
Measure 48
Track 2 Water BowdGlasPad
Measure 51
Track 3 Chubs Breath Noise
Measure 55

Track 4 Tiger Shark Cello
Measure 74
Track 5 Whale Breath Noise

Section "D" finds the family at the monkey cage. "Monkeying Around" should remind you of a monkey cage. (Maud)
Patch Assignments:
Measure 99
Track 2 Monkeys Acou Piano
Measure 107
Track 3 Monkeys SpaceVoxPad
Track 5 Monkeys Ice Rain
Measure 115
Track 4 Monkeys Glockenspeil

The "E" section portrays a Tiger stalking his prey. This movement is divided into three short "scenes." The first is an introduction and is "shadowy"...the Tiger appears. The oboe plays starting the first scene. It is the prey walking around with no idea that it is being watched, then the oboe sounds again. In the second scene the Tiger is approaching. In the last scene the prey is running for it's life. It ends in silence because the mouse was caught. (D)
Patch Assignments:
Measure 133
Track 2 Tiger Appears StrEnsembl 2
Measure 137
Track 3 Mouse Oboe
Measure 138
Track 4 Tiger chasing Vibraphone
Track 5 Running for his life Goblin

"The Elephant Family" is the "F" section. No trip to the Zoo is complete without Elephants! (Marcia)
Assignments:
Measure 152
Track 2 Elephants Synth Bass 1
Track 3 Elephants Synth Bass 1

The piece ends with a very tired family walking back to the car.

[here, a list of all people involved was posted]

Thank you to all who participated in this composition. It was fun!

Appendix I: CIER Restructuring Plan

[Posted April 29, 1997 by Dave]

Hi Folks...

I have been busy the past few weeks going through the conference exchanges both in the general message forum and in the student composition area. I would like to propose a restructuring plan based on the ideas presented by Gary, Wayne, DM., and Brian and his students. I would appreciate any feedback or comments on the plan--especially from Marcia since [] remains one of the most active schools in CIER. I know Marcia has been busy lately but I hope she will be able to respond to the proposed restructuring.

CIER RESTRUCTURING FOR SEPTEMBER

Much of the discussion in the general forum concerning CIER seems to revolve around the idea of structure and trying to create ways of focusing projects as well as further experimenting with interactive communication (video conferencing, chat sessions).

What I propose is that we create spaces or folders in CIER that will help focus ideas, set up new projects, increase communication between Gary and the teachers using CIER and set up video conferences and chat sessions which seem to be really successful and add a compliment to the textual communication. There will be a brand new conference created, probably called CIER 97/98. Inside, there will be the general discussion area (as there is now) but many sub conferences will be located above (there is just the Music folder there now). Below is a list/description of these sub conferences. The general area will be for directing people to certain conferences, posting ideas for new projects etc, asking technical or general questions. Right now there just seems to be too much traffic in both forums--its getting hard to keep track of things.

Student Composition Forum

-basically the same thing as the "CIER Music W97" forum now. Students post works in progress or finished works for comment and discussion. It will remain basically student driven, as it is now.

Instructor's Forum

-Wayne, Gary and D.M. had mentioned the idea for this forum where teachers and composers could discuss curriculum, new projects, ideas for the classroom etc. As well, Gary could liaison with teachers to find out more about what they are doing in the classroom and how they plan to utilize CIER.

Special Projects Forum

-Wayne (and Gary) had mentioned an area where special projects could be instigated and run within separate folders. As projects evolve (like a collaborative composition, or perhaps a soundscape composition project), new folders could be created to house or separate the projects. The "One Note Samba" project is an example that might be better housed in a separate folder or area.

Video/Chat Updates

-here, members will post news about upcoming video conference sessions and information about how to get involved. As well, students could arrange times for FirstClass chat sessions with Gary, or students in other schools. Both Brian and Marcia discussed how we should both increase this form of communication and structure or focus the interactions towards CIER-like activities (discussing music, interactive playing, composer discussion with Gary, etc.)

Student Lounge

I think it is important that if the instructors have a forum, then the students should also have their own space. Hopefully a few students will come forward to moderate this conference.

- -

Other Details: I have tried to structure things so that the composition forum as it is now, remains a part of CIER but other projects might have more of a chance of getting off the ground. Hopefully this will be accomplished without splintering CIER too much (or spreading the activity too thin). As we will have more schools coming on board I think the added spaces might even be necessary.

I mentioned something earlier about having students "moderate" the student lounge. Moderators keep an eye on the conference, are active in instigating discussions, and try to keep others informed of what is going on (deadlines, calls for input, etc.). I guess I have been a "moderator" for the general discussion forum while a number of us (Gary, myself, D.M.) have moderated in the student composition forum. This leads to the question--do we need to appoint moderators for each of the conferences??????

I believe we do--especially as more and more schools join CIER. It's just too much work for one person (believe me, I know). New schools need help in getting to know who is online, how all the conferences work, the resumes, video, chat etc..

I would assume that Gary will continue to moderate the student composition forum (as I think it should be). We need others to come forward (if you think moderators are a good idea) and take over in other areas like special projects and instructor's forum. Any

takers???????????

The Future

This "restructuring plan" might not seem like much--just a bunch of new folders. But I think we should stick with FirstClass and for now, that's all we can do within the system. Already we have worked at instigating special projects and creating online resumes (both of which were successful, I think) I believe this restructuring is just the next step in expanding and improving the experience, communication and interaction in CIER (trumpets start in the background).

I have heard that FirstClass is coming up with a web based conferencing system. I think things will get really interesting as we could incorporate MIDI file playback, video conferencing, web page design and growth, and all our regular interactions in one system. Web based conferencing is still in its infancy and I have yet to see anything that matches FirstClass for a balance between power and ease of use. I think we may see a version in the next year (or two at the outside).

PLEASE try to give some feedback/ideas here.

dave

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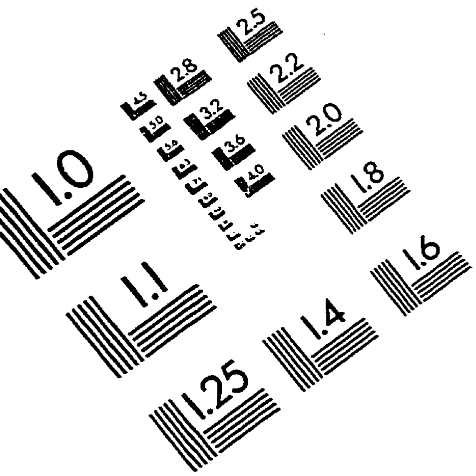
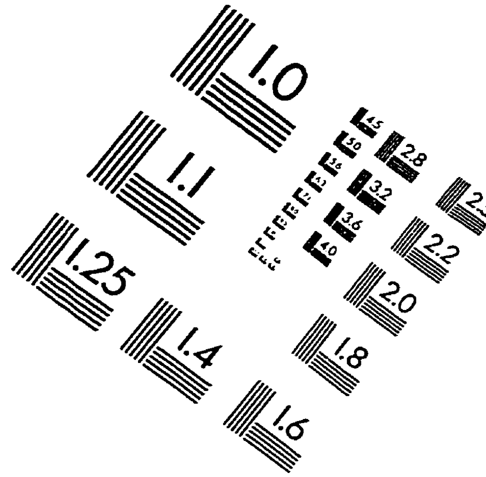
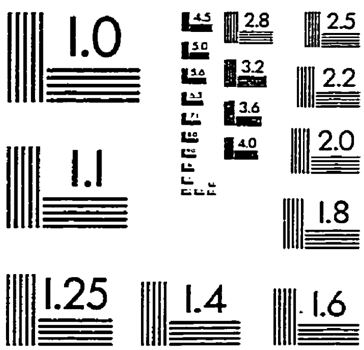
IMAGE EVALUATION TEST TARGET (QA-3)







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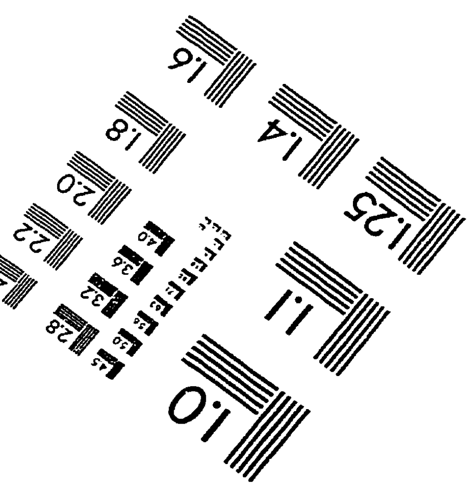

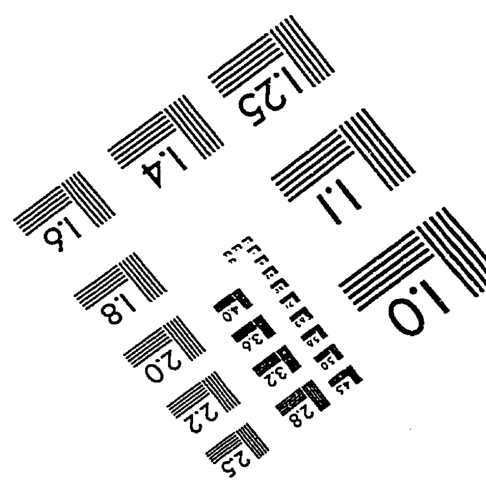

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