An Edited Transcript of CoSy 'bcjec'

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INTRODUCTION

The idea for organizing a CoSy conference on computer-mediated communication came about as a result of the realization that something new — a synthesis of ideas springing from but not duplicating the papers themselves — could only be achieved by engaging the authors in a discussion on the topic of computer-mediated communication. There seemed to be no way of facilitating this objective, given the great distances that separated the authors until it occurred to us that the CoSy Conferencing System was designed for precisely this purpose. Gary Boyd took the initiative and set up a conference entitled 'bcjec'. There were topics for each individual paper, and a general discussion topic (topics are work spaces within a conference within which discussion can occur). Most of the edited transcript that appears in Sections I and II was taken from the DISCUSS topic. Several of the papers were actually input on-line into individual author topics, but most were distributed to participants through the mail. At one time or another during the conferencing period (February 1 to March 20), each of the discussants was out of town and unable to participate. The transcript demonstrates clearly the advantage of asynchronous communication in this regard.

The edited version of 'bcjec' is divided into three sections:

> Section I is a lightly edited version of the first half of the conference. We have included both substantive and peripheral discussion in an attempt to demonstrate the nature of comments that occur in a real conferencing environment (it is unlikely that 'bcjec' is representative of conferences involving novice conferees since most participants were acquainted with CoSy in particular and all were acquainted with conferencing in general). Stars between sections indicate.the beginning and end of sequential message blocks. Actual line endings have been left intact.

> Section II consists of two threads of substantive discussion, which did not necessarily appear as contiguous messages in the conference. The first thread addresses questions related to using computers as communicating writing instruments. The second is a discussion of the means and ends underlying the evolution of computer conferencing systems.

Section III is an attempt to simulate a desirable feature of conferencing systems of the future. Here, meaningful quotations from all authors and all parts of the conference have been edited together into a synthetic whole which explores the educational potential of computer-mediated communication. In a sense this section represents the 'collective intelligence' of the authors; to preserve the flow of the text, individual citations have not been included. It is interesting to note that the 'editing' took the form of simply providing transitional phrases for these direct quotations from the discussion (i.e., 85% of the section is comprised of a reordering of the participants' actual comments). This section edited by anon.

Section I - Contiguous Segments

(The conference began with a lighthearted exchange involving the mysterious 'Misc. Discussio'. The beginning of this transcript follows from a previous set of comments concerning a misspelled topic name (Misc. Discussion) and demonstrates how the system software sometimes reacts in a way that is unpredictable and confusing to the participants. Eds.)

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bcjec/discuss #1, from jlecaval, 294 chars, Sat Feb 7 19:42:51 1987
There is/are comment(s) on this message.
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TITLE: Surrender to the Evil Miss Discussio
The original "misc.discussio" topic was causing a few of
us some unwelcome mental stress, so it has been removed —
we only hope it doesn't find us again. . .
Please use this topic from now on for all discussion related to the papers.
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bcjec/discuss #2, from rhart, 210 chars, Mon Feb 9 12:30:35 1987
This is a comment to message 1.
There is/are comment(s) on this message.
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The 'EVIL' still seems to be with us in B.C. (blooming
daffodils notwithstanding). CoSy is telling me I have
TWO topics called misc.discussio, each with 6 new messages
in them. <grin>
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bcjec/discuss #3, from bmcqueen, 91 chars, Mon Feb 9 16:40:34 1987
This is a comment to message 2.
There is/are comment(s) on this message.
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Roger, you have somehow been enrolled twice. Is that a conf, or a topic within a conf?
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bcjec/discuss #4, from rhart, 73 chars, Mon Feb 9 18:00:49 1987
This is a comment to message 3.
There is/are comment(s) on this message.
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It was a topic within bcjec. However, someone somewhere
has fixed it.

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bcjec/discuss #5, from jlecaval, 182 chars, Tue Feb 10 09:45:03 1987
This is a comment to message 4.
There is/are comment(s) on this message.

I think the person who finally slew Miss Discussio is Tom Smith
at Guelph. I had asked Ken McKay for help with this, and he
passed on the question to Tom. May she rest in peace.
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bcjec/discuss #6, from rhart, 160 chars, Tue Feb 10 13:19:50 1987
This is a comment to message 5.

Alas, I think she has risen again. To quote my sign-on today:
  >Conf/Topic   New Messages
  >misc.discussio   8

What is it they used to do with vampires?

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bcjec/discuss #9, from lharasim, 1458 chars, Thu Feb 12 14:26:20 1987
There is/are comment(s) on this message.

Robert:
. . .could you provide some orientation on how you see these
discussions taking place. What form of response do we make to
the papers? Specific questions/critiques/additions? Or to
pursue some of the lines being developed in the paper and hence
enter a more general discussion? It would be very helpful (to me)
to have some orientation on the focus of our discussions.
. . .It seems to me that there are two different types of discussions:
one is a collegial reflection/exchange over the topics, while the
other is a peer review. Thanks for any clarification on the above questions.
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bcjec/discuss #10, from tkaye, 949 chars, Thu Feb 12 14:31:47 1987
There is/are comment(s) this message.

. . .probably, we are not sure of the etiquette/rules of the game for commenting publicly on
colleagues' work. The papers by myself and Elaine have been in bcjec now for over a week,
yet neither of us have had any feedback (unless Elaine has been getting comments
privately in her mailbox: I have not). And the only comments I have sent in, briefly, to Roger,
were for information on the RAPPI project, because
I want to include a mention of it in some course material I am currently
preparing for the OU.
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bcjec/discuss #11, from jlecaval, 520 chars, Fri Feb 13 00:22:57 1987
This is a comment to message 10.
There is/are comment(s) on this message.

. . .The lack of discussion to date, in spite of two papers being in already, seems in my
opinion to follow the pattern of courteous dinner guests

waiting for all to be seated before digging into the feast! (Ç'a l'air delicieux!)

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bcjec/discuss #12, from rbernard, 3229 chars, Mon Feb 16 15:53:12 1987
This is a comment to message 9.
There is/are comment(s) on this message.

The object of this discussion, it seems to me, is not the usual review of separate articles, but discussion of the set of ideas presented by the collective authors. The intention here is to generate a consensual focus on what computer conferencing could and should become, and what might be the best means of getting there (i.e., to build something new rather than tear down and rebuild separate articles). With this in mind, please consider the following "guidelines" in commenting on the various papers:

1. In making comments try to bring together two or more ideas across articles (i.e., ideas that support or contradict each other).
2. Attempt to build on earlier comments of participants, rather than developing another topic, at least until the discussion on a topic has been exhausted.
3. Allow the content of the articles to stimulate new ideas in your own messages rather than repeating ideas from your own paper.
4. Issues in particular papers in need of clarification may serve as a springboard for discussion. . .

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bcjec/discuss #14, from lharasim, 667 chars, Tue Feb 17 00:20:42 1987
This is a comment to message #12.

Bob: Thanks for the orientation. I have not yet received my copies of the papers, but I expect to soon and will follow through as per your suggestions. Re: the discussions: while you speak of
the collective wisdom, I feel like much of my own work is groping to make some sense of a very new and exciting — but as yet relatively unmapped terrain.

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bcjec/discuss #15, from tkaye, 886 chars, Tue Feb 17 10:07:41 1987
This is a comment to message 12.
There is/are comment(s) on this message.
There are additional comments to message 12.

Your guidelines for the commenting procedure are very helpful, and I must say that it was a real pleasure to receive the papers — all 3 look very interesting and I think that this issue of CJEC will become a very important document in this newly emerging field.

I hope to get some comments in before I depart to Ghana on Thursday night — in any case, I shall take the papers with me to read, as I have
2 weekends in Accra, and it's nice to have things to read as a
pretext for lying on the beach day-dreaming! Just think how I will be
suffering, in temperatures of 30-35 $^{\circ}$C, whilst you have a nice refreshing, brisk - 19°C!!!

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bcjec/discuss #16, from dbeck, 3021 chars, Wed Feb 18 15:38:55 1987
This is a comment to message 15.
There is/are comment(s) on this message.
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This is a comment to messages 10, 12, 15

I've only read three papers so far — Elaine and Judith's, Linda's and
Tony's. I find them to be stimulating, posing more questions
than answers — which, I think, is the way it should be at
this stage of cc development. A common thread, of interest
to me, in all three papers, is the question of moderator/
teacher skills that may be used to effect desired
conferencing outcomes.

An attempt to bring some of the ideas together in order
to focus discussion: Successful moderating skills
necessary for the various types of conferencing
activities will emerge (Elaine and Judith). Some of these skills
are already known, e.g., positive feedback and
encouragement skills, and are currently used (in other media)
by successful distance education tutors (Tony). Other
desired skills, e.g., the ability to facilitate
participants' self-regulation (Tony) so that teachers
eventually assume the role of guide rather than
central participant (Linda), are, perhaps, less known.

I'm wondering if we might try to draw upon our
collective experience with this new medium in order
to discover (nail down in Jello/jelly?) some of the
essential and viable elements necessary to the
moderating technology(ies). For example, there appears
to be some evidence to suggest that the presence
or contribution by an expert may have some effect
on conferencing proceedings (Elaine and Judith).
Could the awareness of such lead us to key
elements of the moderating role (whether assumed
by a leader or the participants as a group)?
Another example: There may be clues that
emerge from experiences such as an instructor
and co-instructor switching roles (Linda) (or
two moderators, using different styles, in
similar conferencing applications) that may
guide us to the development of potentially
facilitative procedures. Might there be
observable differences in user participation
(amount, type, quality, etc.) that may, at
least in part, be attributable to particular styles
of moderation? Can we collectively analyze(se)
such moderation styles to determine possible causal
elements? I think it's worth a try.

. . . Why don't we, however, focus
on the more difficult cc possibilities.
Those that go beyond the horseless
carriage applications of the medium
(as suggested by Tony, Linda, Elaine and Judith)?
By jumping into the deep end of the pool (keeping
each other afloat, of course) we may
discover that we may indeed, collectively,
know much more than has yet been verbalized
about this issue!

P.S. This could be a lot of fun.
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bcjec/discuss #17, from lharasim, 3353 chars, Fri Feb 20 22:17:35 1987
This is a comment to message 16.
There is/are comment(s) on this message.

Hi: First of all, I received the 3 papers earlier this week and
they all looked very interesting. I have not had a chance to read them
all in-depth, but from the first readings, I found it very exciting to have
this collection of ideas and analyses of cc — and I look forward to the on-line discussions to
follow-up some of the themes which emerge from
the papers. . .One of the things that I was somewhat surprised to
discover as I was putting my data together for the paper, was the students' perception of
how effective this medium is for learning. My own position had been that it was a medium that
offered new options for learning: and that for some applications, particularly distance
education, cc seemed to have some real advantages. I had not anticipated that
students would rate cc-mediated learning so favorably over classroom
learning. This prompts an interest to conduct more research into student perceptions of the
phenomenon of on-line learning: to try to identify
and rate the perceived benefits and problems associated with learning
(and teaching) on-line. It would be important to involve a wider sample of students and
research for a longer period of time to try to move beyond any novelty effects. . .and also to
see how more extensive experience in
learning on-line might affect initial our early perceptions.

Don: I was very pleased to see that your paper took a crack at developing a model to
analyze group problem-solving in the cc medium. . .I have been very interested in
researching computer-mediated collaboration in education, but find that the models or
theories available are mostly from social psychology and do not help us understand
what is happening in an educational, as opposed to an organizational context. I look forward
to reading your article more thoroughly. Have you any thoughts about how your model might
apply to a group learning situation?

In response to Don's suggestion that we focus on moderation, I agree
with the general need to identify one or several themes for discussion. I have no
problem in addressing some of the issues
raised in the previous point, but I would also like us to consider
some of the innovative potential which this new medium offers to us
as educators. In some ways, this new 'electronic space' offers us the

potential and the challenge to sculpture out new learning environments:
ways of learning that have hitherto not been possible. I start to
see images of global learning networks. It is a challenge to rethink
our notions and practices of education.

Apologies for the overlong message. . .also for the typos*(The typos referred to have been
edited out. Eds.)*. For me conferencing is more an act of speaking rather than
'publishing' so I tend to make typos as my fingers struggle to keep up with my
thoughts! I am also still getting used to CoSy again, and the editing facilities are a bit
clumsy.
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bcjec/discuss #18, from dbeck, 1742 chars, Mon Feb 23 19:15:42 1987
This is a comment to message 17.
There is/are comment(s) on this message.

Hi, It looks like we're off to a start. Linda, as you may
have guessed, I see problem-solving (whether individual or
group) as a learning phenomenon, since the problem-solver
must learn to create viable procedures/processes in order
to create a product (i.e., a workable solution to the problem
at hand). To answer your more specific question, the image
of a classroom learning environment (whether centralized
or distributed) was never out of my mind while developing
the problem-solving model. Problem-solving, as I see it,
unfortunately, is a skill that only a very few learners
possess and fewer educational environments address. I
think, therefore that the process of group problem-
solving may be used to help individuals master the
skills of problem-solving at the same time that the
group is mastering group problem-solving skills; the
process may be less threatening to the individual, and,
at the same time, there will always be problems that
will not be soluble by individuals alone.

I like your idea of sculpturing out new learning
environments, and have no problem with our tackling
some other aspect(s) of cc besides moderating. I
chose it only because I thought it might be a
starting point.

I hope the others join into this discussion;
there's much to sculpt. I will not be able to con-
tinue my end of the discussion until next Monday,
since I'm off to sunny Atlanta for a conference.
(Well, if Tony can rub it in, why can't I?) Please
don't solve all the problems while I'm away.

P.S. You're being overly kind calling the editing
"facilities" a bit clumsy.

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bcjec/discuss #21, from lharasim, 2452 chars, Tue Feb 24 20:52:03 1987
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TITLE: a few last comments
Don: well, as it seems that so many of this group are off to
sunnier climes, I might as well throw in my hat: I am off to
enjoy Carnival in Brazil for the next 2+ weeks. In a way I am sorry
that this discussion didn't really get off the ground before I left,
(but then I also have been feeling overburdened with all the other
things on my desk and in-boxes).

However, I do wish to pursue a bit your comments on the relation between group decision-
making and group learning. In fact, much of the
literature on group learning takes a somewhat similar position to yours:
examining how individuals learn to work in groups and learn to make decisions in groups. But
is there not another aspect — or even several other facets? For example, in my (and the
other) on-line grad courses,
the students are learning how to go about making joint decisions, but they are also doing
other things that are learning activities,
 i.e., the exchange of ideas and information; the process of selecting certain ones and
building upon these; the collaboration and the arguments
seem to have some distinctive properties in this mode. We find that
students can argue, challenge one another, develop a line of reasoning
on-line, perhaps differently from what happens in the classroom
situation. I don't mean to go too far out on a limb, but dialogue (or
info-sharing) is an educational process and perhaps a key one to
learning. I wonder if some of those facets could be incorporated
into your model? How groups work to learn?

Last point: about key issues in cc and education. Perhaps we might all
brainstorm what we see as the critical issues in this new mode.
Don mentioned the issue of moderation, and I strongly agree. I believe,
however, that the design of the activity is even more basic: planning
and designing I find to be the most time-consuming part of the process.
Even though the first few weeks of helping students get on-board, learn
the technical skills and feel comfortable communicating on-line is also
very time-consuming, the design issue I think will make or break an
activity. In addition to design of the activity (taking into consideration
the technical features of one's cc system and also one's learning goals and context) and
then moderating the activity, are issues such as
learning styles, information overload (both for the instructor and the
learner), threading discussions, etc.
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bcjec/discuss #22, from lharasim, 757 chars, Tue Feb 24 20:57:22 1987
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TITLE: theory
One last comment: one of the things that might also be addressed is the
need for some theoretical development of this new phenomenon in
education. Much or most of the literature is quite practical and empirical:
in a way that is reasonable, as we are all exploring the beast. However, there is a need for
theory-building in this area. A recent CJEC article

pointed out the lack of theory in relation to education and technology
in general (Torkelson, 1987). CC in education is a clear case in point.
The bulk of research and theory-building in relation to computer-mediated communication is
either in management science
(OD) or social psychology. Neither is adequate or appropriate for
education. Where to go from here?

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bcjec/discuss #24, from garyboyd, 455 chars, Wed Feb 25 15:06:37 1987
This is a comment to message 18.

With regard to this new environment
it seems to me it is the beginning of our single
planetary mind for Gaiea, or at the very least
a new vast frontier territory to be settled and
civilized. More than civilized, really democratized
in the Athenian or Jeffersonian senses of direct
democracy. These however require a lot of maturity
and intelligent discourse skills.
I think people are capable of rising to the challenges
of this new MIND-SPACE FRONTIER.

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bcjec/discuss #31, from elainemc, 232 chars, Tue Mar 10 15:24:19 1987
This is a comment to message 11.

I like this line of Jacques' about "courteous dinner guests waiting
for all to be seated. . ." . . .while there is such a thing as the intentional late entry — mine is
more a Bette Midler getting here when I can manage it,
honey!

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bcjec/discuss #32, from elainemc, 614 chars, Tue Mar 10 15:29:51 1987
This is a comment to message 12.
There are additional comments to message 12.

This is really a high quality piece of guidance here from Bob about
how to use the discussion to draw out a "set of ideas", a consensual focus on what computer
conferencing could and should become. . .
to build something new. . .rather than to critique papers individually.

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bcjec/discuss #34, from jlecaval, 479 chars, Tue Mar 10 23:41:55 1987
This is a comment to message 33.

Welcome back, Elaine! Just in time for dessert and a few Spanish
coffees to wash it down.

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bcjec/discuss #38, from dbeck, 934 chars, Fri Mar 13 12:15:50 1987
There is/are comment(s) on this message.

Hi. Glad to be back; it was cold and rainy in Atlanta. Hope I'm in time for the brandy and cigars. According to the orientation
suggestions we could focus on creating something new, going beyond
our papers, but I think our collective papers have indeed already
created something new — and exciting. Long live dreamware!

Section II - Two Conference Threads

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bcjec/discuss #53, from rhart, 1677 chars, Mon Mar 16 14:40:24 1987
There is/are comment(s) on this message.

One of the things which the OU pioneered (I think) was the provision
of superb tutoring services for its students. The feedback which
was given to the student in the early days (I assume still is) was far
beyond any 'correspondence course', and more professional than many
campus based courses (the early experiments at using OU courses at
Essex are well worth re-reading).

If we start from the assumption that the goal of the exercise is
people LEARNING, the good and professional feedback is essential.
The question then becomes: 'How can computer-mediated instruction
help in this?'

It seems to me that the trend is inexorably towards people using
computers as a writing instrument. In B.C. 13% of the OLI students
already have a computer at home. Many more have access to one at work, and with the
dramatic fall in hardware costs, purchasing a computer — at least in western Canada is
about the same as buying a washing machine, dishwasher, or VCR. It also seems to me that
if students have access to these tools, they produce better essays, reports, etc. The
logical conclusion for me would be to set up the infrastructure ('orgware')
so that students with computers can submit their assignments electronically to their tutors
(rather than having them printed out and mailed).

What are the advantages of this? Well — I would like to hear other
people's views — but I will suggest two for a start:
(a) Far better turnaround.
(b) Encouraging the student to submit preliminary drafts. In the REAL
world (even at graduate school) we don't expect to produce something
that's perfect without several iterations. Why should we expect
undergraduates to do it?

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bcjec/discuss #54, from tkaye, 768 chars, Tue Mar 17 13:46:14 1987
This is a comment to message 53.
There is/are comment(s) on this message..

. . .right on: as far as I am concerned, the REALLY interesting use of micro-computers is as

COMMUNICATING WRITING INSTRUMENTS. It's so good to hear someone else say this. Many of our "professional" computer people here see
this as being a non-serious use of computers — this goes very much for our mainframe people, and even for many of our Maths and Technology faculty members. What is happening now, of course, is that "non-professionals" (i.e., people like me) who have a basically Luddite stance towards new technologies, can see
how computers-as-communicating-writing-machines can be used to do really new and different things — especially in the (distance) education context. . .
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bcjec/discuss #55, from rhart, 1519 chars, Tue Mar 17 16:10:24 1987
This is a comment to message 54.
There is/are comment(s) on this message.
There are additional comments to message 54.

I don't think ANYONE should be expected to use a line editor in 1987
<'nuff said>!

I wholly agree with you, Tony, when you talk about the use of computers
as COMMUNICATING WRITING INSTRUMENTS, but it isn't just "professionals" who have a problem with this. I'm presently engaged in a discussion with a number of teachers (all of whom are computer fluent), and I have suggested that they ought to be thinking of teaching children to touch-type at a very early age — especially since we now have the technology to do this fairly efficiently and painlessly. You should
see the red-herrings that get thrown up! "Their hands aren't big
enough'! (I had to point out that that doesn't seem to be a problem
with playing the piano), "The curriculum is already far too full
(in elementary school)'!, or 'Young children don't have anything to
write about' (and that from teachers no less!).

But my heavens, in the U.S. you can purchase a bit-mapped computer
based on a 68000 chip for less than $500. There's a lot of truth
in the old adage that a picture is worth a thousand words, and
yet, other than the very specialized interest groups such as SIGGRAPH,
and some outstanding work in Scandinavia, I don't know of anyone
who is looking at protocols which would allow us to include graphics
in a conference as readily as we can with ASCII text. On the contrary,
as far as graphics are concerned, the Macs, the Ataris, the Amigas
and the SUNs seem to be intent on creating a latter day, visual
tower of Babel.
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bcjec/discuss #57, from dbeck, 378 chars, Tue Mar 17 22:47:58 1987
This is a comment to message 53.

Yes, I like the idea of preliminary drafts, which is something I
encourage (and even at the next-to-last stage of project development,
insist on) in my courses. How nice it would be to do this electronically.
Then all students could give feedback to each other as well as receiving
feedback from the instructor — a collective intelligence behind all
student creativity. Great!

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bcjec/discuss #58, from dbeck, 56 chars, Tue Mar 17 22:49:37 1987
This is a comment to message 54.
There is/are comment(s) on this message.

And it would be such a simple application to implement.
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bcjec/discuss #62, from elainemc, 521 chars, Wed Mar 18 12:23:06 1987
This is a comment to message 58.
There is/are comment(s) on this message.

We use electronic cutting and pasting through multiple iterations
here as the norm for graduate student papers and preparation of
research proposals. As an academic advisor, I have no qualms at
all about requiring grads to improve their ratiocinations when I
know that it will be easy enough for them to reprint the good
bits into another draft.

But I really wonder what we are asking of the undergraduate teacher/
tutor/advisor if we start expecting multiple drafts of every student
paper in classes of 60 to 300.
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bcjec/discuss #63, from rhart, 63 chars, Wed Mar 18 15:37:41 1987
This is a comment to message 62.
There is/are comment(s) on this message.
There are additional comments to message 62.

Can we really expect learning to take place in classes of 300?
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bcjec/discuss #65, from tkaye, 898 chars, Wed Mar 18 16:36:43 1987
This is a comment to message 55.
There is/are comment(s) on this message.

. . .one of the most common reactions I get from many Faculty members — especially
amongst scientists — when I suggest they explore the idea of using cc to make our system
more humanistic, to allow students and tutors to communicate more freely, is that I cannot
expect people to. . ."learn to type". As we all know, using a keyboard is a low-level skill only
expected to be performed by young females who left school at 16 because they wanted to
become secretaries and find a husband! Yes, I am afraid to say that in our classist and
sexist society, there is an element of truth in what I have just said. Just as amazing is that,
when there are MACs, PCs, and Amstrads crawling out of the woodwork (or brickwork in our
case) of practically every office on the campus, there are still academics in our institution
who don't realise that typing and word-processing are different skills. C'est bien triste.
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bcjec/discuss #68, from dbeck, 107 chars, Fri Mar 20 10:54:37 1987
This is a comment to message 62.

Perhaps the 60 to 300 students could assume some of the feedbacker role. Collective
emerging intelligence?

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bcjec/discuss #72, from lharasim, 220 chars, Fri Mar 20 18:36:53 1987
This is a comment to message 65.

Tony: Did you notice that when it was predominately a female activity, it
was called 'typing'. Now, perhaps to make it sound more sophisticated,
we use the term 'keyboarding'. . . . . .now that men are doing it as well.

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(Below, 'bmcqueen' is Bob McQueen, responsible for the marketing of CoSy services. Eds.)

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bcjec/harasim #5, from lharasim, 2033 chars, Fri Mar 20 18:30:15 1987

Hi! Am (reluctantly) back from Brazil. I have downloaded the contents of this conference and
topics in order to get back into the rhythm of the discussions. (As an aside, I often feel quite
frustrated with CoSy — it seems to be quite a barren and inflexible communication
environment. As I was downloading, for example, while I was told the sequence # of each
comment, there was no indication of the total # of comments in a conference or topic — i.e.,
comment #10 of 18. Similarly, it is tedious and almost impossible to change topics
midstream). Anyway, I mention this as I think that it significantly impacts upon future
applications and acceptance of this medium. If we are really discussing the emergence of a
new 'environment' for learning and education, then that goal and vision should be integral to
the nature of the software. I have this feeling that if and while CoSy may be acceptable for
what Roger Hart terms 'conferring', it still falls far short of providing a malleable environment
that can be shaped to different communication activities, including a spectrum of
educational environments. I would like to see more information available to users that would
make their on-line interactions more effective (as well as less frustrating). More flexibility in
being able to shape and create environments is also essential — we need to be able to do
and try new things that have hitherto not been possible or perhaps even dreamed out.
(Anyway, apologies for my complaints;. . .

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bcjec/harasim #8, from bmcqueen, 2657 chars, Sun Mar 22 12:54:20 1987

. . .I'd like to respond to the criticisms you made above about CoSy . . .you'd like to see an
"18 of 22" message identifier in the header and an easier way of transferring between topics.

Both of them would be relatively easy to do. If so, why haven't we done it already, you ask?
The answer is in two parts. The first has to do with what we call "creeping featurism", or the
adding of neat features to make the life of a heavy user a bit simpler. COM is rich in these
kinds of features, but the price paid is a more confusing interface for the neophyte user.
CoSy is targeted at the neophyte user; the default command select on <cr> is intended to
avoid decisions, and superfluous information, so the non-computer-literate user feels
comfortable in the first session.

We intend to continue to improve CoSy, but new features and functions are exhaustively
discussed to see what impact they will have on new users, besides adding a whizbang piece
of new information for experts. Our current priorities are development of an enhanced mail
presentation, some behind the scenes system manager functions, and of most interest, a
distributed function that will allow conferences running on separate machines, regardless of
operating system or manufacturer, to exchange messages using existing mail networks,
with conferences being updated without local user intervention or request.

The second part as to why we haven't done it already lies in funding. CoSy development at Guelph is funded by license sales and service bureau revenue. We're doing quite well with license sales, with about 20 sites now running or installing CoSy. ALL of them looked at the alternatives, including Parti, and chose us. If OISE, as a Canadian institution, really wants to move the art and science of computer conferencing forward, why not join us? The fees are low, we supply source (code), and we want to work with you. Your suggestions as to improvements perhaps could follow the path of the Univ of Arizona, who chose CoSy, then funded an additional $12,000 of additions that they are donating free to the next release of the VMS version.

In other words, those who are willing to pay the freight obviously get listened to very clearly, and we hope that relationships with all of our sites will result in new and interesting advancements in the use of computer conferencing, especially at educational institutions, over the next few years.

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bcjec/harasim #10, from bmcqueen, 1101 chars, Mon Mar 23 10:30:59 1987
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I hope I didn't give the impression we've abandoned the heavy/sophisticated user. What we feel is important is getting the "critical mass" of users in a group regularly using conferencing as a way to reach their colleagues. If 40% to 50% of the people you want to reach are on, it will become a habit. I feel that the majority of that critical mass are neophyte users (at least for the first few times), and if you don't get them hooked in the first session, they won't come back the second time; and if most of the first time users don't come back, you lose the critical mass.

The CoSy architecture has two layers: the default <cr> to select the next most logical command, and a command string parser to allow strings of a few letters (non-ambiguous) per command to be joined together, e.g. "j bcjec har sea string", which joins bcjec, topic harasim, and searches for the messages with string 'string' occurring.

Getting the proper balance of fancy/powerful features and intuitive default commands is the trick. (We are not) there yet, but are aware of the tradeoff.
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bcjec/harasim #11, from rhart, 1289 chars, Mon Mar 23 12:14:12 1987
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. . .I agree with what you are saying in your second paragraph, and I think CoSy goes a long way — better than any other system I know — to meet those goals. There are some weaknesses in its user interface, particularly in mail and conversations, but I know from your previous comments that you're aware of these, and are planning modifications.

I wonder, however, if we could come up with a new catch phrase, rather than 'critical mass', since it seems to me that many people interpret that as meaning a large number of users, out of which a small percentage will bubble up to the surface as 'real' users. As you say yourself, Bob, that isn't the problem. I as a user need to know that the people with whom I want to communicate (or at least a significant proportion of them) are going to *read* and *respond* to my comments fairly quickly. When this doesn't happen, as with the OLI CNCP system I mentioned earlier, one simply stops using the system because it has no functional value. Putting on another 100 users, who also have no rationale for using the system, isn't going to help matters one iota.

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bcjec/harasim #12, from lharasim, 1368 chars, Mon Mar 23 14:59:39 1987
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In response to the preceding discussion about computer communications, I don't want to (and certainly did not mean to initiate) a debate about bells and whistles of various brands of conferencing systems. But there is an important point to be made, I believe, about the evolving nature of computer communications. . .My point is that computer communications has been evolving from the very simple and crude 'chat' systems up to computer conferencing and BEYOND. Stevens (1986, "Electronic Organization and Expert Networks: Beyond Electronic Mail and Computer Conferencing") sets out what he sees as 8 levels of computer-aided communication. In his schema, computer conferencing is at the 4th level and is already outdated by level 5, many-to-many communication (characterized by topic branching to form groups and sub-groups) and we are currently at or near level 6, electronic organization and moving into level 7, expert networks.

In order to begin to develop and 'sculpture' electronic educational environments, we (as educators) require such facilities as topic branching, access controls, knowledge base editing, and even decision-tools, in the software.

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bcjec/harasim #14, from lharasim, 1110 chars, Mon Mar 23 15:31:57 1987
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Bob: I don't have the text of your message before me, but I would like to respond to one or two things that you raised. First of all, I still think that system developers (like researchers and practitioners) need a sense of VISION! By that I mean that users will increasingly expect and demand the facilities for creating an electronic environment. It's true that CoSy is selling for a very low price, but you seem to be suggesting that your buyers (i.e., potentially OISE) then reprogram and rewrite the system to be more usable for educational applications. Some of your buyers CAN and even WISH to do this. Others, such as OISE, are not in the position of having the resources (programmers) to work on the system to make it usable. . .

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bcjec/harasim #15, from bmcqueen, 1942 chars, Tue Mar 24 08:57:01 1987
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Linda, perhaps the issue here is the economics of product development rather than the functionality of conferencing systems. Funding for the technical resources to evolve and improve a product doesn't appear out of thin air (except in the case of gov't funding), but rather comes from marketplace acceptance of the first version of that product. The revenue, and suggestions of those first users, are plowed back into evolution and development of the next version, and the process repeats so long as the product continues to meet the market needs. . .

I don't think your comment about having to put programmers to work to make CoSy "usable" would be shared by our installed sites; what we do, however, is provide source code so tailoring at a local level can take place, and hopefully incorporate the best of those improvements in future releases. One person's "feature", such as the topic spawning/branching you suggest, may be another person's anathema. Structure versus flexibility is not a simple issue which can be easily dismissed, or characterized as "good" across a broad diversity of user backgrounds and experience.

Anyhow, this discussion is hopefully providing some insight into the criteria that are driving our development efforts. We welcome all potential partners in this very interesting area to share their ideas with us.

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bcjec/harasim #16-17, from rhart, ### chars, Tue Mar 24 12:07:57 1987
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I must read the (Stevens) article — but the schema you describe sounds very superficial. I agree we have to think BEYOND the limitations of present day systems, but we have to start from reality, not some idealized schema. . .

I think the discussion which has been going on between you, Linda, and you, Bob, is illustrative in itself of the problems we face in moving towards a real conferring system. If the three of us were sitting around a table, with a seminar leader who was both knowledgeable about the content, and skilled in interpersonal relationships (the renaissance university professor, as opposed to his assembly-line, modern-day counterpart), I think what we should rapidly find is that we would get a synergy from our three distinct, and different viewpoints.

Now I know that this does happen frequently with present day conferencing systems, but in my experience there has to be a high degree of coherence between the participants for this to occur. It rarely happens, in my experience, when we get the degree of distinction which is being shown in the present discussion.

I would suggest that there are two reasons for this. The first is that this medium necessarily attenuates the discussion. Even with handwriting. . .you can express anger, frustration, pleasure, etc. not only by the words, but by the shape of the letters, the colour of the ink, the size of the characters, etc. When we moved to the ball pen from the fountain pen we lost a good deal of that expressiveness. This medium is so constraining that we have to try to simulate the same thing artificially, like this <grin>. The second problem is that human conversation (using the word in its technical sense) is highly non-linear. The ASCII terminal — especially at 1200 baud — is a very linear device.

. . .If we look at hardware and communication trends over the past 25 years, we can predict, with a high degree of accuracy, when (the desired) high-bandwidth, high-resolution, multi-tasking systems are going to be widely available. Cartier's estimate *(Reference to this work may be found in Hart's paper. Eds.)* is 1988 - 1993. With deliveries of the Mac II UNIX machine due to start in December 1987, I'd say that Cartier's estimate is likely to be close. Developing the software and orgware to use these new systems is a whole new ball game. However, with players like Guelph, and some other equally fine teams around the country, I would say (yet again) that Canada is in a VERY strong position. I have no worries that we will lose our leadership. Rather, I think we will consolidate it, PROVIDED we can use our differences creatively to develop something that is greater than the sum of the parts.

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bcjec/harasim #18, from lharasim, 1003 chars, Wed Mar 25 11:00:45 1987
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I agree with Roger that this is an example where the limitations of conferencing appear to be at play. . .I find that this text-based discussion makes some tentative thought or comment suddenly 'cut in stone'. In the case of the discussion between Bob, Roger and I, the potential synergy. . .is reduced. Again I wonder if the reason is not linked to the fact that the 'creative' process involved in such synergy — where people toss out ideas, thoughts, half-baked notions — is negatively affected by the fact that 'typography' seems to harden the thought. . .

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bcjec/harasim #20, from lharasim, 1896 chars, Wed Mar 25 11:41:16 1987
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Roger: I'd like to share your optimism re: Canada's preeminence in computer communications, but I have some reservations; of course, most important are the economic issues raised by Bob to fuel research and development, something which Canada is not doing and which is resulting in a dangerous backsliding. But also missing here is the context for debating, discussing, sharing, speculating about this new medium: cc as a software to facilitate new environments and also cc as a whole new social (and political and economic) environment. Just this morning I was reading a fiery debate (on-line, in a US network) about initiatives for global meta-networks and issues, plans, activities that are being promoted and on their way to drawing boards, boardrooms, etc. . . . At another level, the earlier references which I made to historical categorizations of CAC, most categorizations are limited but do have the advantage of providing some overview and hopefully, perspective about lines of development, evolution, and maybe future directions. . .

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bcjec/harasim, from bmcqueen, 752 chars, Thu Mar 26 09:29:24 1987
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Linda, I'd like to comment on your thought that Canadian funding agencies should be "doing more". In my previous life in the real world as owner of a hi-tech small business I believed that the market, not government bureaucrats, should be the driving force behind product development. The attractiveness of the free grants may well be tarnished by the requirement to aim the development this way or that way, or make some changes to accommodate some govt need, while the silent market really wants something entirely different. I feel much more comfortable in responding to buyer requirements, and listening to the want lists of existing customers. Maybe the theory isn't quite so pure, but the results will be far more practical in the long run.

Section III - Collective Intelligence

The intent of this discussion is to use the set of ideas presented in our six articles as a springboard to generating a consensual focus of what computer-mediated communication (CMC) could and should become, and of the best means for getting there. Using our collective intelligence, we can build something new and comprehensive, rather than tearing down and rebuilding separate ideas.

Part of the trouble with any new and exciting medium like this is that its promoters tend to gloss over the inadequacies. While some of the inadequacies are certainly hardware-related, many more can be traced directly to our lack of communicating the full conceptual-ized ideal technology to function within this medium. We tend to forget that appropriate technology is in the mind of the user, not the supplier. While we wish for distributed systems and preach systemic cybernetic implementation, what we allow ourselves to practice (due to insufficient communication of appropriate technology) has often been much more limited.

Can we afford to take comfort in the fact that this dilemma is nothing new to the field of education? It is true that sometimes we who are involved in innovative educational projects tend to be a little defensive and ignore the conventional efforts which take place in the majority of our "educational" institutions under the guise of learning; it is only when

we begin to examine some of the (meta) goals that we can appreciate how totally inappropriate some of these so-called "traditional" methods really are. For example, while we may decide ourselves to facilitate the learning of problem-solving skills, we might remind ourselves that problem-solving is a capability that only a very few learners possess and even fewer traditional educational environments address. This is of little comfort, however, when our collective vision of what could be is so clear and so desirable.

What we have achieved through so many CMC networks and forums across the country, continent and ocean is a social hyperspace. . .and we might as well enter it humbly because it is a burgeoning wonderland of goodheart and bad baggage. . .the goodheart being our collective enthusiasm and individual idealizations of how it might be some day; the bad baggage being the inhumanly expansive job description (which all self-managing individuals seem to work under) made just that much worse by expanding CMC collegial contact. While CMC is a medium through which Habermas' ideal discourse conditions can (very nearly) be met *in principle*. . .when we get a technology which is a little less flaky and far less obtrusive. . .CMC still falls far short of providing a malleable environment that can be shaped to serve different communication activities, including a spectrum of educational environments.

As we observe the emerging "artifacts" of on-line group dynamics, we dream of yet-to-be realized "artifacts". We watch users (ourselves included) learning how to go about making joint decisions, exchanging ideas and information, and selecting certain ideas/information to collaboratively build upon. At the same time, we dream of a technology that makes more information available to users, making their on-line interactions more effective (as well as less frustrating); a technology that allows more flexibility in being able to shape and create environments; a technology that can facilitate the doing and trying of new things that have hitherto not been possible. . .or perhaps even dreamed out.

Therefore, as educators we have a dual function. One is to *use* the medium's technology to demonstrate what is possible. The other is to learn from this use, and insist that the technology is further refined so that it can be used regularly for educational purposes *without* the frustrations. Integral to this refining process is dreamware. How can we put dreamware back into education? (Dreamware from educators in tune with reality does not need to be threatening nor unimplementable.) Imagine how much more motivational drive users would have if the medium were geared up to facilitate learning in fun, easy and satisfying ways.

If we are really discussing the emergence of a new *environment* for learning and education, then that goal and vision should be incorporated into the software design, and we need to rethink what makes for quality learning (which may mean eradicating a lot of preconceived notions of tutors, students, "material" to be learned and the process of learning). Given this, we could easily restructure CMC into a learning-conducive and facilitative medium

With regard to this new environment, it seems it is the beginning of our single planetary mind for Gaiea, or at the very least a new vast frontier territory to be settled and civilized. More than civilized — really democratized in the Athenian or Jeffersonian senses of direct democracy. While this requires a lot of maturity and intelligent discourse skills, people are capable of rising to the challenges of this new *mind-space frontier*.

To be sure, there are really exciting opportunities here for collective cultivation of precision and even more exciting opportunities for valid generalization construction. We need to have more than just message organization, but also ways to create and explore new learning interactions and environments. When we can mindmerge without any mediating

technology (i.e., when the technology is transparent), it will be a true "conspiracy" (breathing together).

This new *electronic space* offers us the potential and the challenge to sculpture out new learning environments. With images of global learning networks before us, the challenge is to rethink a) our notions and practices of education, and b) CMC possibilities that go beyond horseless carriage applications.

Computer-mediated communication offers the potential for improving both the processes and the products of learning. In other words, through this medium it is possible not only to facilitate learning of knowledge, skills and values, but also to facilitate learning how to learn. How might this be effected?

Of primary importance is our insistence on loosening up the storage and handling functions of the software. This capacity to move items around, edit, regroup, thread, represent and revise what has been thought and said is what will transform CMC into a collective art form.

With the technology so changed to reflect the single and collective minds of the users (learners) rather than the minds of the suppliers, we may direct our attention to sculpting new learning environments. For example, we may teach learners (through the modelling of idea and information manipulation) how, when, why, etc. to interact in the receptive-acquisitive, transmissive, and conjugative-propagative modes; how to perform the conditions of a) truth of factual propositions, b) rightness of collective norm assertion, c) truthfulness of commitment, and d) honesty of expressive parts of a communication; and how to control interactive environments in order to effect purposeful and desirable group problem-solving. The pieces are all there to structure the medium so that learning outcomes are closer to a sure thing than to chance; so that learners can effect self-facilitation of their own learning processes. We just need to put them together to create the architecture required to improve learning.

The plea for *educational optimisation* of CMC's unique character is the themesong of this whole issue. We have demonstrated a unity of purpose in our sense that something never before attained is going to be possible for us through this medium. It's better than the early days of flight. And it's better than the early days of radio. And we've all got the time and intent to tinker with the darn thing until it does something spectacular.

'night all . . . .

it was a great party!