Developing Critically Thoughtful e-Learning Communities of Practice

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Abstract: In this paper, we consider an approach to developing critically thoughtful e-Learning communities of practice—where participants are deliberate about the use of specific intellectual tools supporting critical thinking. We address Garrison & Anderson's (2003) argument that such critical thinking should play a central role within the ecology of e-Learning communities and provide our view of what such communities might look like. To do this, we offer four categories of strategies helping to develop such communities—collaborative agreement on goals; facilitator(s) modelling and teaching the tools supporting critical thinking; and shaping communicative interactions within the e-Learning environment to encourage thinking. We provide examples from a current study involving 36 kindergarten to grade 12 teachers' blended use of information and communication technologies (ICT) and face-to-face sessions to illustrate our view.

Keywords: critical thinking, communities of practice, tools for thought, e-Learning.

1. Introduction

We believe the development of critically thoughtful communities of learners is an essential element for successful e-Learning. Despite its value, there is evidence, within conventional classrooms, that developing communities of thoughtfulness (COT) is more wish than practice (Goodlad 1994; Paul, Elder and Bartell 1997; Case 2006). We have not seen convincing evidence that e-Learning environments are any different in this respect. Fortunately, there are features of e-leaning that are particularly suitable for promoting critical thinking (CT). For example, Garrison & Anderson (2003) claim that the "collaborative yet reflective process of e-Learning has great potential for facilitating critical thinking as a core goal of education" (p 58). However, we cannot simply assume that these potential opportunities will lead to tangible results. The literature suggests that rather than improving thoughtfulness, participation in e-Learning often leads to confusion and loss of interest unless there are strategies designed to enhance CT opportunities (MacKnight 2000). Drinkwater *et. al.* (2004) add that one of the challenges for ICT users is to understand how e-Learning technologies can "improve thinking"—and this is the focus of this paper.

More specifically we describe efforts to adapt The Critical Thinking Consortium's (TC2) method of teaching CT for use within an e-Learning community of 36 teachers. The teachers are currently participating in a two-year project to use CT within a newly mandated social studies curriculum. We use preliminary findings collected during the first four months of the implementation project to illustrate our view of COTs. Our purposes are to offer (1) a view of what critically thoughtful e-Learning communities might look like and (2) provide anecdotal indicators of participants' thoughtful interactions within the e-community we are currently studying.

We begin with a brief overview of the TC2 method, which provides our conceptual framing of CT. While the model offers four fronts for teaching CT, our primary focus is on the *community of thoughtfulness* aspect of the model. Then, we define and discuss our view of critically thoughtful e-Learning communities of practice, add the four categories of strategies used to support COT, and then use these strategies to illustrate what such a community looks like. Finally, we offer concluding comments.

2. Conceptual framework (the TC2 model)

The TC2 method of teaching CT is founded on the belief that people are attempting to think critically when they thoughtfully seek to assess what would be sensible or reasonable to believe or do in a given situation (Case & Daniels in press). This need to reach reasoned judgments may arise in countless kinds of problematic situations and can inform a routine approach to supporting interactions and making decisions within an e-community. Such situations require CT because "there is some doubt as to which is the most appropriate of several plausible responses and because these situations involve criterion thinking." The power of the model is that it offers four coherent fronts providing a method for encouraging, teaching, and assessing the qualities of good thinkers. In the discussion of each front (sections 3-6) below we include examples taken from the dialogue between participants involved in the study described in section 7.

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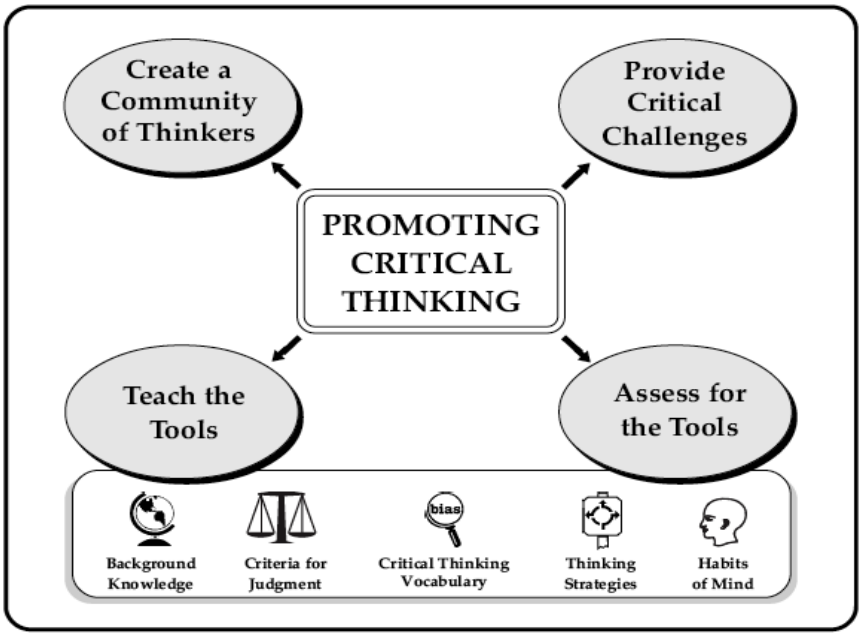

Figure 1: The four fronts (Used with permission from *TC2)*

3. Providing critical challenges

The first front is infusing opportunities to think critically, what we refer to as *challenging questions*. This involves the development of a question form that:

- requires judgment;
- involves meaningful subject matter;
- addresses key aspects of the inquiry;
- and requires that participants either possess or can reasonably acquire the needed intellectual tools.

These *critical challenges* differ from two other commonly asked kinds of questions that focus on knowledge acquisition or mere opinion such as: Who invented the microscope? Or Which novel do you prefer?
Examples of *critical challenges* using content from typical school curriculum are: Who has the greatest mind: da Vinci, Newton or Einstein? Or in *Hamlet*, who is the more noble character: Laertes or Hamlet? We argue that these kinds of question play a key role in engaging students in a topic and include use of criteria for judgment i.e. greatest mind and more noble character.

One such challenging question arising early on within the e-community considered here is - What would the *most effective* name for our group be? This question came about as participants in the study discussed the community's shared goals and identity and at first appears to be superficial and unimportant. As illustrated later, this question ignited a substantial discussion within the e-community resulting in the development of a clear focus for our work together. We use this example below to elaborate on the other aspects of the model.

4. Teaching the tools

The second and most crucial front is helping participants nurture the use of five categories of *intellectual tools* (hereafter referred to as the tools) used by competent thinkers. These include: criteria for judgement, background knowledge, critical thinking vocabulary (concepts), and habits of mind. Below, we define each category and provide examples based on the challenging question asked by members of the study after their first face-to-face meeting. The "group name" in question was eventually resolved through on-line discussion before the second meeting a month later. The consensus name is "Project CSI"—Critical Thinking in social Studies Inquiry group—which identifies the focus and nature of their work together.

Criteria for judgment — the grounds for deciding between viable alternatives. Consideration of useful criteria resulted in an on-line discussion/debate characterized by the following posting about the question: What would the *most effective* [criteria for judgement] name for the professional group be?

Hi Everyone,

As you're thinking of names, perhaps we could consider these as criteria to guide us:
1) memorable (catchy, fun, quirky or .....)
2) succinct (not too long like the one we started with in September)
3) representative (should be indicative of our collective identity and/or purpose) Participant #14

Background knowledge — the information about a topic required for thoughtful reflection. For a conventional course this includes the objectives typically outlined in the syllabus. In the above example, group members purposefully researched and eventually found out what made for *an effective* title, knowledge that later informed individual and small group decisions about titles for various curriculum development projects.

Critical thinking vocabulary — the range of concepts and distinctions that are helpful when thinking critically. It is important to distinguish between this vocabulary and content specific vocabulary. The CT vocabulary referred to here includes thinking-related concepts such as bias, inference, fact, opinion, etc.

For example, within the challenge considered here, understanding *assumptions*, or *inferences* associated with various suggestions was important. Indeed, during the "name-game" discussion referred to above, several participants questioned why certain names were considered and then offered *counter arguments*. In the end, the group came to *a consensus* and now use the agreed upon title often when referring to their work together.

Thinking strategies — the heuristics, organizing devices, models, and algorithms useful in making a decision. These include the strategies effective teachers use to help students organize and make sense of subject matter. These include listing positive and negative factors, graphing, collecting and assessing evidence, debating, ranking, etc.

For example, participants offered various *pros and cons* associated with different possible titles suggested in response to the "group name" question.

Habits of mind — the values and attitudes of a careful and conscientious thinker. These include such dispositions as open, fair and independent mindedness, as well as being circumspect, empathic, reflective, critical and humble among many others.

Within our group name example, participants appeared to be *open-minded* as they considered alternative ideas and were *fair-minded* as they assessed the advantages of different proposals.

Together, these five categories of intellectual tools provide for a comprehensive list of intellectual tools that support the development of sound thinking abilities. While this is a limited explanation, TC2 has identified many such tools including examples of how to teach them that will be published by TC2.ca as "the tool kit."

5. Assessing the tools

The third front is regular assessment of competence in using the intellectual tools. For formal education situations (courses) this requires the careful development and use of appropriate criteria and clearly articulated standards to assess students' use of the tools for thought. Within informal education environments, such as the one described below, the facilitators engage in on-going formative assessment to decide when to teach the tools for thoughtful participation in a COT and how to shape communicative interactions within the e-Learning environment that encourage and support thoughtfulness.

6. Conceptualizing communities of thoughtfulness (COTs)

The fourth and final front is building communities of thoughtfulness where the focus here is on developing thoughtful e-Learning communities. We begin our description of what this looks like by defining and elaborating on the notions of thoughtfulness, community, practice, and e-Learning community used throughout the paper. We then use examples from our current study to illustrating what such communities look like.

Case and Daniels (in press) provide the definition of thoughtfulness underpinning the conception. They argue that someone is being critically thoughtful when "thinking through problematic situations about what to believe or how to act where the thinker makes reasoned judgments that embody the qualities of a competent thinker"—(use the intellectual tools described earlier).

We also borrow from Lipman (1991) and Newman (1991) to provide an understanding of the community aspect and offer four constitutive features that define a community. Communities arise when participants:

- are committed to a common goal;
- interact in collaborative pursuit of their goal;
- agree on the general procedures;
- and assume individual responsibility.

This suggests that decision-making within an effective e-community is not an either/or proposition, rather it is a shared responsibility. As Barell (1995) and Resnick (1989) point out, participants' sense of being able to influence their learning, as opposed to relying exclusively on someone else to direct them, is a significant factor in encouraging community members to "think for themselves."

Building on the above principles, we also take account of Wenger, McDermott & Snyder's (2002 p 9) understanding of *practice*. Participants in such a *community of practice* share frameworks, ideas, tools, information, style, language, stories and documents as knowledge and resources enabling the community to proceed with their inquiries. Within our study, both, the periodic face-to-face sessions and the variety of ICT mediated interactions, involve aspects of such practical knowledge participants bring to their work together.

Finally, we take account of Rogoff's (1994) understanding of *learning-oriented communities*. Rogoff observes that collaborative participation and decision-making involving differentiated roles and responsibilities underpin learning communities. She concludes that for such environments to be effective, the following additional principles inform interactions:

- *decision making*—facilitator and participants negotiate mutually acceptable decisions;
- *teaching/learning methods*—facilitator orients, and mentors while participants engage rigorously with the subject matter in concert with others;
- *practices—f*acilitator teaches the "tools" to enable participants to reach thoughtful responses to structured, but open-ended tasks;

Within such an environment, the facilitator's roles are to frame the tasks, actively mentor participation, and provide support in developing the tools needed in order to reach thoughtful conclusions. For their part, participants work within various negotiated structures and shared norms as they engage seriously with the subject matter.

A critically thoughtful e-Learning community of practice requires taking account of the above defining aspects resulting in the need for use of the following categories of strategies within such communities:

- collaborative agreement on goals, routines and activities;
- facilitator(s) personally modelling critical thinking;
- facilitator developing/identifying and teaching the tools supporting a critically thoughtful community;
- participants shaping communicative interactions to encourage thinking.

7. Considering the strategies for supporting thoughtful e-Learning communities of practice

7.1 Background and the learning environment

In this section, we use the categories of strategies to organize and explore examples of dialogue from our current study to illustrate what such thoughtful communities looks like. The examples used are taken from the first six months of a current two-year study where 36 practicing pre-school to grade 12 teachers have volunteered to participate in professional development aimed at implementation of a new social studies curriculum within the Province of Alberta, Canada. The teachers are drawn from a large geographical area

about half the size of Great Britain and working situations ranging from a one-room Hutterite Colony school to Public Secondary Schools in cities of about 80,000 inhabitants.

Professional development (pro-d), as used here, refers to participation in activities (typically workshops) focused on introducing teachers to new curriculum and teaching methods. The approach taken includes monthly fact-to-face session (large and small groups) with between-session use of various ICTs to support learning. In addition, the three facilitators supporting the e-Learning use the concept of *communities of thoughtfulness* outlined above to inform their work. It is also important to note that a central aspect of the pro-d program is teaching teachers about the TC2 method.

The ongoing use of ICT includes WebCT discussions and chat rooms, e-mail, video, live classroom and video/telephone conferencing. The face-to-face sessions are planned by facilitators as occasions for teachers to learn about aspects of the TC2 method. The small group sessions are intended as opportunities for participants to plan and develop collaborative inquiry projects like those outlined below. The variety of ICTs used is intended to help teach and extend understanding of CT and to support participants' various inquiries.

Our overall study involves inquiry into these teachers' developing understanding of CT methods and their use of various ICTs to support their small group inquiries. Dialogue about these small group inquiries forms the basis of the e-Learning community and is the source of examples offered. Below we briefly describe the group inquires and then elaborate on the four categories of strategies using examples from participants e-discussions.

7.2 Participants' inquiries

The participants quoted below are involved in developing, piloting and refining curriculum *products* as a critical inquiry oriented approach to implementing the new Alberta Social Studies curriculum. It is their shared inquiry that underpins the community of practice or as Lipman (1991) and Newman (1991) suggest, constitutes or defines the community. The kinds of curriculum products take varied forms including:

- developing lessons to adapt textbook resources for different learning abilities;
- assembling exemplars for use in guiding assessment of critical thinking;
- creating lessons using literature that integrates social studies and language arts with critical thinking;
- integrating ICTs such as smart boards, social learning software, web quests and with critical thinking.

For example, one group calling themselves *7 for Socials 7 are* developing a set of resources for teaching and assessing grade seven students' *habits of mind*. Another group has decided on a critical question involving comparison of different cultural groups from the region. One participant proposes:

> *Hi Group;*
>
> *I've gathered some info and ideas on [First Nations] Potlatches and developed activities comparing the traditions of potlatches to [European] Christmas traditions.*
>
> *I don't know how to word the critical challenge or even if this is a good task.*
>
> *I need some feedback! Please! Thanks a bunch #10*

This group meets weekly using ICTs to share and critique aspects of their progress. The dialogue between groups such as the 7 for social 7s and among the whole group provides the examples used below to illustrate or view of a thoughtful e-Learning community of practice. As indicated earlier, we use the four categories of practices to organize and illustrate our view.

7.3 Collaborative decision making

The first category of supporting practice is collaborative agreement on, and implementation of, appropriate goals, routines and activities. From the beginning of the project, participants have collaborated to decide everything from the name of the group (CSI: Collaborative Social Studies Inquiry), to the dates and time of face-to-face and virtual sessions, to the focus and nature of their small group inquires. This has required that participants:

- make up their own minds about most aspects of the project;

- provide reasons supporting different positions;
- consider several possible options or pros and cons for aspects of the project.

All this within an environment where:

- respect and sincerity are expected;
- use of the CT vocabulary is normal;
- participants solicit ideas and suggestions from others;
- participants are encouraged to explore or defend positions from various points of view;
- praise is offered for thoughtful, insightful or empathic responses over merely correctly recalled ones.

The following excerpt from a group working to develop an inquiry into use of criteria to help focus on re-naming categories of tools in "kid Language" is typical of the strings both within small groups and between the entire group. The tone of appreciation, the use of CT tools and the critical give and take of ideas are typical within the community.

#17 ... this is awesome. Can I say that I am jealous of you being able to have such fun with this stuff. I did a similar thing with

Background Knowledge...I call it "What do you know?"

Criteria for Judgment ..... I call it "How will you decide?"

Critical Thinking Vocab .... "How will you say it?"

and so on, I don't have the document right here in front of me but I have found it increasingly effective to pare down the vocab to an understandable level for young students. I will send you the whole list of my ideas when I return to school. Participant #11

While we will not complete a comprehensive analysis of data until later this year, it is commonplace throughout the data to find lengthy exchanges between both the whole group and the smaller inquiry groups where participants are engaging in exchanges about their goals and activities

7.4 Facilitator modelling

The second category of practices involves the facilitator(s) personally modeling the attributes—the intellectual tools---of a good critical thinker. We have found that it is important for facilitators to be explicit about their use of sound thinking and respectful discussion within their postings. Both facilitators working within the study try to do so whether they are discussing use of the technology, aspects of critical thinking, or providing feedback about other ideas being considered within the community.

We have learned from classroom experience (Case & Balcaen, 2007) that at the very least, facilitators need to:

- Not be dogmatic and not always have "the" answer"
- Provide "good" reasons for decisions and actions;
- Be willing to change their mind when other good reasons are offered;
- Acknowledge the existence of different positions on issues.

In the posting that follows, the facilitator is trying to not be dogmatic while still raising a thoughtful question for the participant who has asked about the effectiveness of her ideas. He is also attempting to model the existence of different perspectives on the issues by placing himself in a student's position.

Hello Participant # 9

I sure agree that there is a lot of great work going on and wish that I could be closer to and part of the fun. The characters you are developing to represent different habits of mind *are great and the graphics engaging. When I looked at Jack Rabbit, for example, I wondered about using* kid language *for the criteria that would better compliment the rest of the graphic? I might just be soooo far out of context for this suggestion/question to be meaningful---I was just trying to put myself in a student's place.*

Facilitator # 3

In another posting, the facilitator responds to a technology related problem when a participant asks for clarification. She offers a helpful source of background knowledge, takes a non-dogmatic position, and encourages a collaborative approach to problem solving.

> *Hi # 4, Thank you for letting me know that you had a problem. I will be creating a help document for posting discussions in the coming day or two and will post it in the tutorials area. If you could look at this and see where the thing falls apart - that may be helpful for sorting out what happened. Facilitator # 2*

As is the case throughout much of the data reviewed so far, both facilitators are making efforts to model and be explicit about the attributes of good critical thinking.

7.5 Teaching the tools for participation

What we have learned from previous work is that without teaching and assessing for the tools for critically thoughtful participation, we cannot reasonably expect the emergence of a critically thoughtful e-community. Here the tools for thought are often learned within the context of experiential face-to-face sessions augmented by video/audio interactions and various forms of e-dialogue. The e-discussions play a significant role in teaching and extending the thinking tools used by participants. These include but are not limited to:

- use of criteria such as relevance and clarity;
- developing the essential background knowledge needed to participate;
- developing or extending understanding of key thinking vocabulary such as unanimous, consensus, minority position, or inference;
- developing thinking strategies such as critiquing in a non threatening manner (using questions, beginning with a positive);
- and supporting the development of the *habits of mind* used by a critical thinker such as being independent minded, sensitive to others and self-monitoring.

The following note, like many others, illustrates one member of the 7 for social 7 group's modeling of several of these tools. She extends the thinking strategy of comparison to include students role-playing of pro and con positions and suggests going beyond this to a debate. She also uses questions effectively to provide feedback about areas lacking clarity and needing further elaboration. Her tone indicates that she is quite sensitive to the person she is responding to.

> *Hi # 10*
>
> *I liked your idea of relating Potlatches to Xmas. The comparison would make Potlatch a lot more real to students. I thought the write up on Potlatches would be easy for grade five students to understand. I didn't quite understand gifts as payments. Could you explain that for me?*
>
> *I was also wondering about adding an extra activity to follow the comparison. What about having some groups of students being pro Xmas/potlatch and other groups being not so sure about the celebrations. Groups, based on the point of view that they are asked to take could rate the different aspects of Xmas/Potlach and then write an argument for their stance. This could possibly be turned into a debate (I have the rules for debating). I am not sure what the big question would be or whether there needs to be one. # 32*

While the facilitators periodically take on an instructional role within the e-discussions, most often it is other group members, such as 32, who extend understandings considered during previous face-to-face sessions to help advance others.

7.6 Facilitator designing a communicative environment to support thinking

The central role of a facilitator in such a community is that of designing and shaping the communicative interactions within the e-Learning environment to encourage thinking. Case and Balcaen (2007) identify whole group discussions, facilitator interactions with individual participants and communications among participants as three categories of interactions that support thinking

*Whole group discussion*s--occur within the face-to-face sessions and frame the whole group e-discussions within a *Main* folder established on the first day of work together as well as several others (the name game, assessment, and future chat room topics) established after subsequent face-to-face sessions. Small inquiry

groups have established their own folders where they carry on focused discussions about their work together. Following Case and Balcaen (2007), we argue that effective whole group discussions are encouraged by:

- limited input from the facilitator;
- the use of questions that invite debate and require the use of criteria to make judgments;
- contributions that are substantive and worthwhile;
- and when all participants are invited to participate equally.

In the study we find that facilitators often limit their input to teaching and advancing use of the tools, providing clarification in response to questions, or raising challenging questions for the community at large. The following posting from a discussion about assessment issues illustrates the kind of facilitator input within the general community dialogue. Here, in a typical note, the facilitator provides limited input, identifies other useful sources of information and invites all participants to respond to a substantive and worthwhile question.

> *Attached is a document produced by teachers in BC that is focused on assessment issues and portfolios that might be of some use. You might also be interested in an online discussion on assessment with Prof. Rob Tierney from UBC planned for this week at the Community Updates cite. I wonder what the most important assessment challenges facing you and others are as we begin to consider assessing critical thinking as part of our projects? Facilitator3*

Communication with individuals — While much of the facilitators' input to the discussions is intended for the general audience, at times they must respond to individuals. The following three strategies generally help students answer questions for them themselves and we find these techniques in several facilitator postings.

- Turn the question back by asking questions like; What is your best guess? or How would you respond if asked this question?
- Prompt with clues or hints or offer an example or new situation that might help them see their response as problematic.
- Suggest tentative answers, including those that many participants would see as flawed such as, I'm wondering if it might be? or I'm not certain, some people might think….

In the following posting, the facilitator uses these strategies when responding to a request about whether a particular board game would work as a critical challenge.

> *I don't know if any of what I have offered is even helpful. What do you think? I'm wondering if the students could be asked to design their own board game for grade 5's? Would that work? Facilitator # 1*

Communications among participants — Peers provide most of the individual feedback within the study. This kind of feedback is essential within a critically thoughtful community because it involves thinking critically about another's work. That is, participants are offering assessment based on identifiable criteria such as engaging, interesting, well organized, or justifiable. Within the study, participants were offered the following suggested strategies about feedback that supports thoughtfulness.

- Emphasize positives as well as things needing improvement
- Frame things needing improvement in the form of a query such as "I am unclear why you did it this way. Could you explain?"
- Initially, encourage suggestions for improvement that are low risk, easy to perform and have obvious benefits.

For example, the following anonymous posting was in response to a video-conference where small groups presented the inquiry ideas they were working on.

> *I am very appreciative of the presenters who bravely opened their inner workings to the group. I wonder if for critique purposes it would have been helpful to have the written materials available beforehand. I was impressed by the thought behind and quality of both projects presented.*

These three forms of communications supporting thoughtful communities together with collaborative decision making, facilitator modeling, teaching the tools for participation provide a practical view of a thoughtful e-leaning community of practice in action. However, we must acknowledge that like most e-Learning

environments, not all interactions involve what we would characterize as thoughtfulness. We are impressed by the changes we see as the project proceeds and will report on these when the study concludes.

8. Discussion and conclusions

In our paper, we have argued for and outlined a view of critically thoughtful e-Learning communities of practice. Our initial review of data indicate that the professional development facilitators are practicing the four categories of strategies that we believe are useful in developing thoughtful e-Learning communities by: encouraging collaborative agreement on goals, routines and activities; modelling critical thinking; teaching the tools supporting a critically thoughtful community; and shaping communicative interactions within the e-Learning environment to encourage thinking. Dialogue within the large and smaller inquiry groups of participating teachers indicates that at least some of the participants are using the identified tools demonstrating the thoughtful form of participation that we hope for. The most telling demonstration of the emerging critical community is that many participants are volunteering to present their curriculum products at a symposium within a forum where they will be open to peer critique.

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