

“It wasn’t what I expected”: Examining trade-offs between planned outcomes and perceptions of success in a formal mentoring program

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## ABSTRACT

What does it mean for a mentoring program to succeed? In the literature on formal mentoring programs, most empirical studies focus on participants' perceptions of success, while a smaller number use some independent measure of whether the intended outcomes of the program were achieved. Very few studies examine both. We argue that this is problematic because the design of mentoring programs may, like design in other fields, be characterized by inevitable trade offs. The workings of such trade-offs need to be understood in order to provide maximum benefit for participants, but researchers cannot come to understand what they do not choose to study.

Using survey and interview data from a formative study of an on-line mentoring program for high school history students, we demonstrate the complexity of the relationship that can exist between what participants learn in a formal mentoring program and their self-reported satisfaction. We argue that especially when a program is new, this relationship should be examined carefully in order to understand what design trade-offs are at play in the program, and whether they are being managed to the greatest possible benefit for participants.

## INTRODUCTION

What does it mean for a mentoring program to succeed? In the literature on formal mentoring programs, empirical studies tend to focus on one of two possible answers. Some focus on participants' perceptions of success, while others attend to the achievement of the intended outcomes of a program. Thus, what we mostly have in the literature are reports that examine:

- a. Mentees' satisfaction or perceptions of success (Hobson, 2002; Koro-Ljungburg & Hayes, 2006)
- b. Mentors' satisfaction or perceptions of success (Murphy, 1995)
- c. Measured success with respect to planned program outcomes (Evertson & Smithey, 2000; LoSciuto, Rajala, Townsend, & Taylor, 1996)
- d. The determinants of a), b) or c) (Noe, 1988; Turban & Dougherty, 1994)

To date, extremely few studies that we are aware of have examined *both* participants' perceptions of success *and* independent measures of their success with respect to program goals. Kamler (2006) is one of the few examples, and the study was of small scale (Kamler, 2006). Generally, it seems evaluators assume that a program is successful to the degree that its participants consider it so; but this may not be the case. It has been demonstrated that learners' perceptions of success can be quite disjoint from their actual achievement (Hacker, Bol, Horgan, & Rakow, 2000).

This disjunction may be very important, because the design of mentoring programs may, like design in other fields, be characterized by inevitable trade offs (Collins, 1996). The world seldom gives us anything for free, so it is the designer's main job to *optimize* a design for desired effects, while *minimizing* undesired ones. Consider

the design of a house. Large windows afford natural light and a (hopefully) pleasant view. But larger window area makes it more difficult to control internal temperature. During the summer, large windows can allow sunlight to overheat the house, and during the winter, windows do not retain heat as well as walls. So, window area is a design choice that is shaped by trade-offs. There are likewise trade-offs at play in teaching and learning, such as between speed of learning and depth of understanding. Cramming for a test results in knowledge that quickly dissipates, while knowledge that is used to solve a challenging problem is retained longer.

Playing design trade-offs like these demands a working understanding of how the various parts of the design interact; but in mentoring programs, designers deal with things about which we have at best a tenuous understanding – *people* whose goals, relationships, and identities are in continual formation. Our understanding of them is never complete. To do the best job possible for our program participants, it may be useful to focus our attention on understanding the nature of the tensions and trade-offs at play in a mentoring program.

### ILLUSTRATING TRADE-OFFS IN MENTORING

In this section, we consider the relationship between what participants learn in a formal mentoring program and their self-reported satisfaction with it. This relationship can be a complex one, involving trade-offs between the various goods that program designers and participants seek. To illustrate the nature of the design trade-offs at issue, we use data from an online mentoring program for high school history. Our objective here is not to provide a full report on the program – this is done elsewhere (O'Neill & Sohbat, in review). Rather, we present an analysis specifically aimed at understanding the design

trade-offs at issue in our program, as a foundation for a larger argument about appropriate methodologies for early-stage evaluations of mentoring programs.

### Program Goals

There are at least two ways in which one can talk about understanding history. Most often when teachers and researchers talk about students' understanding of history they are referring to their grasp of the stories and concepts in the curriculum – for instance, the Missouri compromise, the continental congress, or checks and balances. In addition though, there is a second sense in which history can be understood. To appreciate how historians come up with their stories and why, on occasion, they disagree about what happened or what it meant, students need to understand overarching “metahistorical ideas” (Lee, 2004).

In the program we discuss here, *Tracking Canada's Past*, the designers' chief goal was to help 10<sup>th</sup> grade students develop more mature metahistorical ideas, while they covered topics in the mandated Social Studies curriculum (O'Neill et al., 2003, April). Our approach to this goal was informed by the work of Denis Shemilt, who conducted research into the development of adolescents' thinking about historical evidence and methodology (Shemilt, 1987, 2000). Based on many hours of interviews with British adolescents, Shemilt described the development of adolescents' conceptions using a four-stage scheme.

At the lowest level of understanding, stage<sup>1</sup> 1 of Shemilt's model, students take knowledge of the past as given. The only difficulty they associate with history is the difficulty of reading the stories and remembering them. By extension, they think of historians as no more than good memorizers of stories about the past. Students move on to stage 2 when they realize that the past does not speak with a single voice: knowledgeable people disagree in their accounts of the past. However, the only explanations a stage 2 thinker can muster for such disagreements are that the evidence may not be reliable (e.g. some people saw the events in question while others did not) or that some reporters may be biased. At this stage students think of historians as people who are able to sniff out false or biased stories, and piece together the *one true account*.

At stage 3, students understand that historical knowledge can never be absolutely certain. At best, we can use the evidence available about the past (only *some* of which is other peoples' stories) to reduce the uncertainty of our knowledge. Stage 3 thinkers understand that history involves working methodically with evidence to come up with the most likely reconstruction of events. Finally, in the 4<sup>th</sup> and most advanced stage, students view historical knowledge as kaleidoscopic. They recognize that it is possible to have several equally defensible (if not equally true) accounts of the past. Each account is shaped by the questions it seeks to answer, while at the same time being constrained by evidence. Like a kaleidoscope, history's "patterns are ordered and determinate, but do not yield a single stable picture" (Shemilt, 2000).

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<sup>1</sup> Despite the Piagetian ring of the word "stage", Shemilt did not observe any firm age dependency in students' progressions from one set of ideas to another. Quite the contrary, he found students at nearly every stage in each age cohort in his sample.

Whichever of Shemilt's stages a participating student began at, we intended for our program to help raise him or her to the next stage. The program thus aimed at producing a form of conceptual change (diSessa, 2002). Posner, Strike, Hewson & Gertzog (1982) propose that when one's goal is conceptual change, learners must experience dissatisfaction with their existing understanding of a phenomenon, in order to be open to developing a new one. Thus, whether a student began the unit at stage 1 or stage 3, we aimed for *Tracking Canada's Past* to provide challenges to understanding, which mentors (and teachers) could help our students to resolve.

### Program Design

Over a period of 10 weeks, *Tracking Canada's Past* involved students in researching and writing about the Canadian Pacific Railway -- Canada's first national railway, completed in the 1880s (Berton, 1970). More specifically, they were to study how the building of the railway shaped life in their communities. We expected that this task would activate students' existing ideas about history, and demonstrate the limitations of those ideas.

The backbone of the program was a series of "milestone assignments" that were written with the aid of a Ph.D. student in history. These were meant to parallel the ways that historians carry out an investigation, and provide a point of connection between the students and their mentors -- a "boundary object" that would better enable them to work together. We hoped this would reduce the need for program facilitators to intervene and resolve breakdowns in communication, as is done in programs such as the *Electronic Emissary* (Ferneding-Lenert & Harris, 1994), which do not have a pre-determined curricular framework.

For their first assignment, students each chose a sub-topic for further exploration. On the basis of students' interests, project staff then grouped each student with peers, and assigned each group to a volunteer mentor who had offered to advise students on that topic<sup>2</sup>. Students were then given access to an online group workspace in which they could share and discuss their ongoing research with their mentors.

Within each research group, we expected that students' research would involve the examination of a variety of sources, whose interpretation can be debated. This would challenge Stage 1 ideas about knowledge of the past as given, and Stage 2 ideas about “reading off” the one true story from correct sources. It was hoped that in the presence of sufficient support from teachers and mentors, confronting multiple sources would bring stage 1 students at least to stage 2, and stage 2 thinkers to stage 3.

We expected that mentors would be able to do more than help students to locate evidence and refine questions. As the unit progressed, mentors would help students to interpret evidence as well, thus helping students advance to a greater appreciation of the thinking that historians do. Mentors might also, when opportunities arose, prompt students to question their assumptions about what constitutes historical knowledge. We expected this type of experience to help carry Stage 3 students to Stage 4 ideas about the “kaleidoscopic” nature of historical knowledge.

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<sup>2</sup> Volunteers were carefully screened prior to participation, undergoing police records checks and submitting two personal references. Each volunteer received a copy of a case-based guidebook prepared from previous research data (O'Neill, Abeygunawardena, Perris, & Punja, 2000). Mentors also received substantial support behind the scenes from the project coordinator, via e-mail and telephone.

## Participants

Our participants were public high school students in the Lower Mainland of British Columbia, and their assigned volunteer mentors. A total of 108 students from three schools participated in the program, of whom 81 provided research consent forms. Thirty participants were from a single class in a small industrial town with a largely white population. The majority of these students did not expect to attend university after graduating. A further twenty-nine students came from one class in an affluent urban neighbourhood. All but one of these students expected to attend university. The remainder of the students (49) came from two classes in a densely populated, ethnically diverse suburb. The majority of these students planned to attend university after graduation.

After eliminating from analysis those students who had missed the administration of either the pre or post survey, as well as students who had not posted or read any notes in the online forum, the number of participants available for the following analysis was 72. Of these, 44 were female and 28 were male. Fifty-three (74%) of the students were interested in attending university after graduation, eight (11%) planned to attend college or vocational school, and the remaining 11 (15%) participants intended to work full time or had other plans.

Seventeen volunteer mentors were recruited from history museums and graduate programs in history to support the program, approximately one mentor for every six students. Volunteers were selected either for their training in historical research, or their specialized knowledge about the subjects that students were studying. Mentors ranged in

age from 27 to 65, and were roughly half female and half male. Sixteen of the 17 mentors provided research permission.

### Methods

This study pursued an explanatory sequential mixed-methods approach (Creswell, 2003), conducted in two phases. The first phase was quantitative, and focused on data from participant surveys and records of online activity to examine how related students' learning in the program was to their impressions of their success in it. The second, qualitative phase involved an analysis of participant interview data to develop an explanation of this relationship from the participants' own perspectives.

Why did we take this approach? In discussing his mixed-method analysis of the Philosophical Transactions of the Royal Society of London, sociologist Charles Bazerman (1988) explained that while numbers can tell you *that* something is going on, text is better for telling you *what* is going on. This captures nicely the relationship between the survey and interview data in the present study.

#### Phase 1: Quantitative Analysis

The driving question for this phase of the study was, "how closely related are students' learning with respect to the program's goals and their perceptions of the success of their mentoring relationships?"

We pursued this question by using multiple regression analysis to model the predictors of students' judgments of success in their mentoring relationships. First, a correlation matrix was constructed using the entire array of quantitative data we had collected from student surveys and traces of online activity. We examined the strength of

the association between students' rated agreement with the statement "overall, the mentoring was a success for me" (a Likert-type item with a scale from 0 to 7) and:

- Students' prior grades in school
- Their plans after graduation (find a job, attend technical school, attend university)
- Their parents' educational attainment
- The number of posts they made in the online forum
- The number of posts they read in the online forum
- Their affective responses to the mentoring relationship (trust of the mentor and rating of his/her friendliness)
- The helpfulness of the mentoring functions they reported receiving

The strongest correlates with students' judgments of the success of their mentoring relationships were the mentoring functions students reported receiving. In the post survey, students were asked the degree to which their mentors had been helpful in each of 13 different ways. The mentoring functions listed were:

- Help me come up with a project question/idea to investigate
- Ask me questions to help me think about my project
- Answer questions I have about specific people, events or ideas in history
- Give me background information on my topic
- Give me locations on the Internet where I can find resources to answer my questions
- Help me to understand material I read about my topic
- Suggest challenging things for me to do that could improve my project

- Review my work as I go along and help me keep on track
- Give me the names and addresses of other people to contact about my project
- Help me to meet project deadlines
- Suggest specific strategies that will help me get my work done
- Suggest books or other sources that I should read
- Help me understand what historians do each day

Survey questions were structured on a scale from 0 to 7, where 0 indicated “not at all” and 7 indicated “a lot”. Performing stepwise multiple regressions both backwards and forwards using all the variables that correlated significantly with students’ judgments of success, three mentoring functions emerged as significant predictors:

- My mentor asked me questions to help me think about my project
- My mentor suggested books or other sources that I should read
- My mentor helped me come up with a project question/idea to investigate

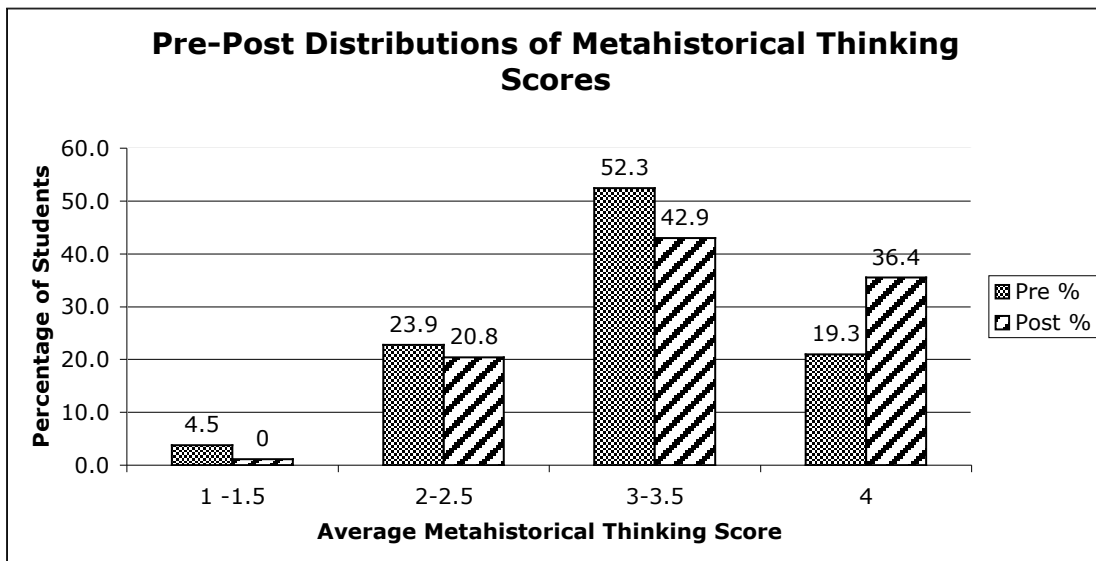
A final significant predictor was students’ rated agreement with the statement, “I trust my mentor” (scaled from 1 to 7). These four variables together accounted for 61% of the variance in students’ self-reported judgments of success. The function “my mentor asked me questions” predicted 44.6% of the variance in students’ judgments of success by itself.

This analysis suggests appreciated their mentors doing for them; now what about what they *learned* from?

Two lengthy survey items administered in a pre/post design had been developed to provide a gauge of where high students stood on Shemilt’s developmental scale. In these questions, students were presented with 300-word excerpts of three narrative

accounts about the Canadian Pacific Railway, published decades apart. Each provided a different answer to the question, “who benefited most from the construction of the railway?” Students read the accounts, summarized the main point of each one, then answered selected-response items asking for the *best* explanation of why the three accounts differed. The response categories were carefully crafted to appeal to the four ways of thinking described in Shemilt’s developmental model. The stages of thinking indicated in students’ responses were averaged to produce an overall score. Table 1 depicts the distribution of students’ scores on the measure, both pre and post.

Figure 1: Pre and Post-Unit Distributions of the Learning Measure



Analysis of students’ responses showed that 51% made gains on the metahistorical thinking measure over the course of the program; but while this was encouraging, as designers we wanted to know more. What background and participation variables might account for this change?

In the same way as was done with the analysis of student satisfaction above, correlations were computed between students' pre-post learning gains and the whole array of possible predictor variables. Surprisingly, this analysis showed that measured success with regard to the planned program outcomes did not correlate with *any* of the variables that had predicted perceived success! Students' pre-post gains on the learning measure were found to be significantly correlated with their receipt of three *different* mentoring functions, the most significant being "My mentor helped me to understand what historians do each day" ( $p=.008$ ). Less significant correlations were observed with the items "my mentor helped me to understand material I read about my topic" ( $p=.023$ ) and "my mentor gave me background information about my topic" ( $p=.029$ ). The ten other mentoring functions rated in the survey did not correlate significantly.

<b>Predictors of Satisfaction</b>	<b>Predictors of Learning</b>
"My mentor asked me questions to help me think about my project"	"My mentor helped me to understand what historians do each day"
"My mentor suggested books or other sources that I should read"	"My mentor helped me to understand material I read about my topic"
"My mentor helped me come up with a project question/idea to investigate"	"My mentor gave me background information about my topic"
"I trust my mentor"	

Table 1: Predictors of Satisfaction and Learning

Naturally, these findings were puzzling to us. Surely it could not be the case that our participants learned from and were satisfied by *entirely* different things. There must be some relationship, because truly dissatisfied participants would disengage and learn

nothing. What do you do as a program designer when faced with this kind of disjunction? You dig deeper into the data.

### Phase 2: Qualitative Analysis

Phase 1 of this study left us with two questions:

1. Why do our participants place more value on functions that do *not* lead to the intended learning outcomes?
2. What relationship do these functions bear in their minds to the ones that *do* lead to learning?

In Phase 2 we sought answers to this question in participants' own statements about their experiences in the program. Taking what we learned from the survey analysis, the first and second authors examined transcriptions of post-unit interviews conducted with mentors and mentees. Due to their relatively small number, the majority of the mentors (9 in all) were interviewed at the conclusion of their participation in the program via telephone, each for a period of roughly 30 minutes. A sample of 43 students participated in focus groups of 20 to 40 minutes in length. Students invited for the focus groups were stratified according to their overall satisfaction with the mentoring relationship as expressed on the final survey, with roughly equal numbers of students who expressed high, low, and average satisfaction.

Working from transcripts of these interviews, the second author extracted for analysis any interview segment in which the participants discussed their expectations of the program, and where these were satisfied or frustrated. The first and second author together then narrowed these selections to a set of quotations that seemed to illuminate the tensions between our participants' expectations and the objectives of the program

designers. Due to limitations of space, we will discuss only the most evocative quotations below. We have organized these according to the two main tensions they illuminate.

*Tension 1: Students' Need for Work Efficiency vs. Mentors' Desire to Make them Work*

In the preparatory materials developed by the program design team, mentors were told that their main goal was to help students understand more deeply what historians did. For their part, however, students had a challenging project to accomplish for their teachers, while juggling other demands on their time. Understandably, they wanted to complete their work as efficiently as possible.

Students often started the conversation with their mentors online by asking them for pointers to learning resources (web sites or books) to get started on their work. One student remarked, "...getting started is one of the hardest parts, because you are so sort of overwhelmed by, like, 'where do I go next?'" In their closing interviews, a number of students remarked on their desperate need for information resources. When asked what he had expected his mentor to do at the start of the project, one student's response was very direct: "to tell us information about our topic, how to get it and where to look, and tell us factual information on it." Other responses were more nuanced, but had a similar ring:

Interviewer: Before starting the project, what did you think your mentor could do for you?

Student: I thought that he would give me some sources like where I could go, like some web sites or some books that I could go [to] and find some more information on the topic. Like he could give me the names of the books and find out the information I required.

Interviewer: And was it the same as you experienced in the project?

Student: Not really. He was more vague, the information that he gave me. He wasn't as specific as I thought he would be. Like, he didn't give me the direct web link to the place I should go and search, instead he gave me the topics that were the things I should go and look for.

While it was not explicitly stated in the preparatory materials provided by the program design team, there was often a strong sense on the mentors' part that they were *not supposed* to be providing information resources:

Interviewer: Was there anything that you were asked...by the students that you thought was unreasonable?

Mentor: Not really, you know...when [one student] asked me a couple questions that I thought were a little unfair, like on my end...I just tried to help him...understand that, you know, that it wasn't really my job to do that, that *he* had to go out and do that kind of research.

Different mentors drew the borderline differently between “just enough” help and too much. Below, a student notes how helpful it was for his mentor to supply a list of books that were potentially relevant to his study:

Yeah ... not all of them were useful but...it was really nice to have. Like, we went to the library as a school group, [and it was great] to have a list of books I knew would be about my topic and that might be helpful...as opposed to going to

the library and being like, “Well, I am looking for something about native women [laughs].” You know, there are thousands and thousands of books here!

Another mentor, whose notes were widely read by participating students and considered extremely useful, decided on her own prerogative that supplying book titles was going too far. As the following quotation shows, this was not a matter of sparing herself effort. In fact, she went to a great deal of effort not to spare her mentees too much work:

I’m not going to babysit them. They’re not going to get through high school, let alone go on to university if people babysit them. I mean a couple of times there I had questions...and I’d go to the city library, or the...[university] library, and get the call numbers and I’d say to them eventually, “OK, well it’s in the FC1s if you go to an academic library, or it’s in 791.8 if you go to a public library.” I’m not going to narrow it down more than that -- they’ve got to do something themselves.

We will return to this tension, and its associated design trade-off, later in the paper.

### *Tension 2: Desire for Depth vs. Need for Visibility*

A number of interview segments revealed both mentors’ and mentees’ recognition that they were supposed to be having a deeper sort of conversation than a question-and-answer exchange – a conversation about how history is done. However, both mentors and mentees found it difficult to get there at times. Quotations in our corpus that revealed students’ recognition that their mentors were attempting to steer their work along intellectually productive lines:

She asked me all these questions about my topic. After I read them and I thought about it, I actually changed my mind. It makes me think in the other direction, not just on my own.

But this didn't always happen. One mentor described what he felt was missing from his relationship with his assigned mentees:

I guess I expected more... I never had students come back [to me] the way I did with professors, with stuff that had actually been done, some research. "I researched on this and this, and found this, does this make sense to you?" Or, "I went and got what you said and...you know, you were wrong." Or, "You were right." Or, "I found something else too." There wasn't a lot of that, there didn't seem to be feedback coming back. I think maybe I should have asked them if they just couldn't get the things I recommended, simple things I should have done better like "Were you actually able to get that [book by] person A or B? What did it look like when you got it? What shape was the book in, in the library? Was it any good, how old was it?" Simple things like this might have helped.

Students occasionally spoke about the same problem:

Interviewer: What type of feedback would have been useful for you?

Student 1: Asking us questions...like, "Have you found out about blah blah? What do you think about that? How might that relate?"

Student 2: Yeah, or, "Are you sure you wanna focus on this, when this [other thing] is happening?" Or something like that. Or, "Don't forget that this happened at the same time period..."

Student 1: He did some of that.

Student 2: Yeah.

Student 1: He did, but I also didn't ask *him* enough questions.

Student 2: Yeah, me too.

Interviewer: Why didn't you guys ask more questions?

Student 1: I don't know.

Student 2: It's hard to know what questions to ask.... You don't wanna sound stupid, like you haven't done all the research, like you are missing something obvious. And also, it's hard to know a question that's gonna help you further along, you know what I mean? Like what isn't just gonna result in a dead end.

This statement seems sadly ironic when juxtaposed with the next one, in which a mentor explains what his goals were with students:

Mostly to help them frame questions, and to, I suppose, legitimize whatever questions they had. To make them understand that probably there was almost no such thing as a bad question or a stupid question about anything, because it's not just a cliché that that's the only way to learn. It's actually the fact that some of the best questions are naïve.

To break this type of impasse, two students suggested that it would be helpful for mentors to prod them once in a while:

Interviewer: How would you like to have seen your mentor help you guys better, or work with you better?

Student: Send questions and stuff, like asking us "how is it going?" And stuff like that. I think it would be more helpful.

Some mentors did this, though not always with success. One mentor who had repeatedly asked for updates on her mentees' progress described the problem succinctly: "I didn't really know where they were going."

In previous work, O'Neill & Gomez (1998) described this as the "visibility problem." It is important, because a lack of knowledge about mentees' current goals and activities can lead to mentors offering advice that is viewed as vague or unhelpfully general, as these students described:

Student 1: She kind of did everything kind of in general , so that kind of confused us...because we were supposed to get very specific resources on our topics, on exactly what we were gonna do.

Student 2: That was the whole point of a mentor, right?

Student 1: She [the mentor] was very nice to us, she talked to us with respect. But then the way she was helping us....

Our attempt at a design response to the problem of visibility was the milestone assignments. The assignments, occurring at regular intervals throughout the 10-week unit, were meant both to offer guidance to students on how to carry out the history project, and to ensure that mentors could offer informed advice by examining the progress of their mentees' work. Unfortunately, the milestones seem to have been a *pro forma* exercise for at least some students *and* mentors. One milestone assignment, for example, was a timeline on which students were to represent the time frame they were investigating, and the major events they were concerned with in this period. One mentor complained that this assignment got in the way of the conversation she was trying to carry out with her mentees:

I had two students who were working together that tried to send me a timeline and things that they were working on, but I think that they were focusing a little too much on that timeline, so I tried to get some information from them about just general ideas about what they were doing and how they were going about it, things they really wanted to focus on. But I never heard anything back from them. The milestone assignments could also lead to resentment on the part of students if they did not get as elaborate feedback on them as they expected their mentors to deliver:

Student 1: [My mentor] was very helpful to me for narrowing my topic, making sure I was really certain about what I was focusing on, and then finding sources. But I don't know. I'd post each of my milestones, but.... Not that he wasn't great or anything, but he didn't really give me feedback specifically about my milestones.

Student 2: Yeah, he was just like, "OK, sounds good."

Student 1: Yeah, yeah, he was saying "sounds great." So I am like, "OK, but you know that doesn't help me keep going."

#### Examining design trade-offs

Associated with each of the tensions identified in Phase 2 of our analysis is a design trade-off that the program design team recognized, and might have chosen to address differently. Other mentoring programs may share these same trade-offs, but that is not the point of our discussion here. Rather, we mean to illustrate how others can go about considering such trade-offs in their own work.

*Design trade-off 1: Priming Research versus Priming Relationships*

The first trade-off relates to the tension between our mentees' need for work efficiency and their mentors' desire to make them work (in order to learn). In the context of Tracking Canada's Past, one obvious strategy for reducing this tension would be to make a larger array of source materials available to students online. This would seem sensible, since the project was designed to require regular access to the Internet. Most students interviewed would certainly have appreciated a more comprehensive index of online sources than we supplied them with.

However, there are costs to this approach, both financial and pedagogical. First, an online archive or index of source materials would afford a less authentic experience of historical study. Some mentors clearly had strong feelings about this. Second, to cover as wide a range of topics as we had planned to let students study in the project would be very time-intensive and costly, while a smaller archive would restrict students' freedom of choice. This freedom of choice was an important motivator for some students, who not normally interested in history but became engaged because the program offered them great freedom of choice

Finally, and perhaps most important, a comprehensive online archive of sources would create a need to "kick off" the mentoring relationship in a different way. As it was, though students and mentors were sometimes frustrated by conversations that focused on source materials, at least they *had something to talk* about right away. It is possible that if students could secure all the information resources they needed without consulting their mentors, they would delay consulting them about their choice of research topics until it was too late to practically change them. (Recall that "asked me questions about my topic"

was a strong predictor of students' ultimate judgments of success.) Some students might even avoid consulting their mentors at all.

Despite these concerns, we are developing an online archive of sources for use in our latest history mentoring program. The process, as expected, has been costly and time-intensive, but it is made more tractable by the fact that the topic students will study for the new program is (coincidentally) far more focused, and the curriculum time involved is much shorter. We are working on assignments that we hope will provide a compelling starting-place for the mentoring relationships; but time will tell how successful we are.

*Design trade-off 2: Assignments as Scaffolds vs. Assignments as Hurdles*

The second trade-off relates to the tension we elaborated between mentees' desires for specific, actionable advice (which mentors also wanted to deliver) and the difficulty of producing adequate visibility to make this possible.

The design team had adopted the strategy of periodic milestone assignments to address the problem of visibility in online mentoring relationships. (We had also produced a 5-minute video for students on "working with your mentor" that stressed early and frequent communication, but this was a less important design response.) Some students expressed appreciation for the milestone assignments as scaffolds for their work, but were less appreciative of them as a way to facilitate ongoing discussion about the doing of historical investigations. Mentors occasionally saw the assignments as *getting in the way* of these conversations. They could also damage relationships by breeding discontent when mentors did not respond to them in as substantive a way as students expected.

There were other possible responses to the visibility problem that might have been used. Visibility becomes a problem because in a mentoring relationship that spans weeks, months, or years, the participants will eventually lapse in their communication. Then, the silence must be broken or the relationship can die. In some programs, the response is to have paid facilitators monitor the relationships, and intervene to restart communications if a silence persists for too long. This approach has been effective, but is also costly due to the fact that the facilitators are usually paid employees of the program (O'Neill & Harris, 2004). Alternatively, the risk of lapsed communications can be reduced by shortening the duration of the program. If the program is shorter and more intensive, the dialogue might be carried along by its own momentum. However, a shorter time frame constrains the nature of the goals that can be pursued, since some objectives will simply not be feasible within a shorter time frame. In our latest work we are attempting shorter, more intensive relationships with a small number of milestone assignments, as well as active facilitation.

## DISCUSSION

In designing and implementing Tracking Canada's Past over the course of several years, we have been conscious of differences between what our target audience seemed to expect, and what scholarship suggested were the kinds of educational experiences necessary to produce the learning outcomes we aimed for. At times we felt stretched between a "customer service" orientation and an orientation toward facilitating the learning outcomes we had committed to with our funders and cooperating teachers.

Phase 1 of this study showed that in the case of Tracking Canada's Past, the mentoring functions that correlated with our students' perceptions of success were,

surprisingly, different from those that correlated with the learning gains targeted by the program. In Phase 2 we sought an explanation for this, and identified two tensions in participants' experiences of the program. Our interview data suggested that our mentors and mentees were, to varying degrees, conscious of some of the design challenges we faced.

We suspect that tensions and trade-offs like these are at issue in the design of many mentoring programs, both online and face-to-face. If they were discussed in the literature, program designers could be much more informed when entering into their work. However, judging from our review of the literature, many mentoring researchers do not distinguish carefully between perceived and measured success in their program evaluation efforts. Over time, this might lead either to program administrators losing sight of their original goals in the quest to satisfy participants, or participants abandoning programs because they do not appear to respect their expectations.

Our goal in this paper was twofold: First, to use our experience to illustrate how the design of formal mentoring programs can involve trade-offs, and second, to provide an example of how such trade-offs can be examined. It is our hope that others will follow this example, because we believe that if they did, mentoring researchers could have a richer scholarly discourse about the design of mentoring programs. So long as our program evaluations assume that *perceived* success is synonymous with *achieved* success, we cannot address design trade-offs between the two on an empirical basis. This makes our literature poorer, and may also make our participants poorer.

## REFERENCES

- Berton, P. (1970). *The National Dream: The great railway, 1871-1881*. Toronto: McClelland & Stewart.
- Collins, A. (1996). Design issues for learning environments. In S. Vosniadou, E. De Corte, R. Glaser & H. Mandl (Eds.), *International perspectives on the psychological foundations of technology-supported learning environments*. Mahwah, NJ: Erlbaum.
- Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage Publications.
- diSessa, A. (2002). A history of conceptual change research. In R. Sawyer (Ed.), *Cambridge handbook of the learning sciences* (pp. 265-281). West Nyack, NY: Cambridge University Press.
- Evertson, C. M., & Smithey, M. W. (2000). Mentoring effects on proteges' classroom practice: An experimental field study. *Journal of Educational Research, 93*(5), 294-305.
- Ferneding-Lenert, K., & Harris, J. B. (1994). Redefining expertise and reallocating roles in text-based asynchronous teaching/learning environments. *Machine-mediated Learning, 4*(2-3), 129-148.
- Hacker, D. J., Bol, L., Horgan, D. D., & Rakow, E. A. (2000). Test Prediction and Performance in a Classroom Context. *Journal of Educational Psychology, 92*(1), 160-170.
- Hobson, A. J. (2002). Student teachers' perceptions of school-based mentoring in initial teacher training (ITT). *Mentoring & Tutoring, 10*(1).
- Kamler, E. (2006). The Aspiring Superintendents' Study Group: investigating a mentoring network for school leaders. *Mentoring & Tutoring, 14*(3), 297-316.
- Koro-Ljungburg, M., & Hayes, S. (2006). The relational selves of female graduate students during academic mentoring: from dialogue to transformation. *Mentoring & Tutoring, 14*(4), 389-407.
- Lee, P. (2004). Understanding history. In P. Seixas (Ed.), *Theorizing Historical Consciousness*. Toronto: University of Toronto Press.
- LoSciuto, L., Rajala, A., Townsend, T. N., & Taylor, A. S. (1996). An outcome evaluation of Across Ages: An intergenerational mentoring approach to drug prevention. *Journal of Adolescent Research, 11*(1), 116-129.
- Murphy, S. D. (1995). *The benefits of mentoring from the mentor's perspective*. Unpublished doctoral dissertation, University of Toronto, Toronto, Canada.
- Noe, R. A. (1988). An investigation of the determinants of successful assigned mentoring relationships. *Personnel Psychology, 41*, 457-479.
- O'Neill, D. K. (2004). Building social capital in a knowledge-building community: Telementoring as a catalyst. *Interactive Learning Environments, 12*(3), 179-208.
- O'Neill, D. K., Abeygunawardena, H., Perris, K., & Punja, Z. (2000). *The Telementor's Guidebook: A field guide to supporting student inquiry on-line* (Final report of

- Office of Learning Technologies project 89116). Ottawa: Office of Learning Technologies, Human Resources Development Canada.
- O'Neill, D. K., & Harris, J. B. (2004). Bridging the perspectives and developmental needs of all participants in curriculum-based telementoring programs. *Journal of Research on Technology in Education*, 37(2), 111-128.
- O'Neill, D. K., & Sohbat, E. (in review). Designing a telementoring program to improve secondary students' understanding of history.
- O'Neill, K., Sohbat, E., Martin, A., Asgari, M., Lort, M., & Sha, L. (2003, April). *Sharing accountability through sharing our accounts: Piloting an on-line community for high school history learning*. Paper presented at the Annual meeting of the American Educational Research Association, Chicago, IL.
- Posner, G. J., Strike, K. A., Hewson, P. W., & Gertzog, W. A. (1982). Accomodation of a scientific conception: Toward a theory of conceptual change. *Science Education*, 66(2), 211-227.
- Shemilt, D. (1987). Adolescent ideas about evidence and methodology in History. In C. Portal (Ed.), *The History curriculum for teachers*. London, England: The Falmer Press.
- Shemilt, D. (2000). The caliph's coin: The currency of narrative frameworks in History teaching. In P. N. Stearns, P. Seixas & S. Wineburg (Eds.), *Knowing, teaching and learning History: National and international perspectives* (pp. 83-101). New York: New York University Press.
- Turban, D. B., & Dougherty, T. W. (1994). Role of protege personality in receipt of mentoring and career success. *Academy of Management Journal*, 37(3), 688-702.