

**Course design and teaching development: Multiple windows
for understanding impact**

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The 30-hour Course Design and Teaching Workshop (CDTW) has been offered to professors for over ten years at one Canadian university and more recently has become an annual offering at two others. The intensive workshop provides professors with an opportunity to discuss and reflect on their teaching with colleagues, and initiate changes to enhance the quality of student learning. Formal follow up groups are being conducted this year for the first time at all three universities to provide continued collegial support as faculty implement the changes they designed in the workshop. We have sought to evaluate the impact of these activities through a number of studies that examine what participating professors learned and the impact of what they learned on teaching and student learning. First, we began by considering *changes in professor thinking about teaching and learning before and after the workshop*. Moving closer to evaluating the impact on teaching, we have also considered *how professors apply what they learn in the workshop to plans for teaching and how they report implementing these plans*. Thirdly, we have moved even closer to linking professor learning to students by documenting the *actual implementation of teaching plans and student perceptions and feedback about this*. In this paper, we discuss four studies, specifically chosen because they are directly linked to student learning either by way of intentions reported by the professor or by data collected from students.

Rationale and Format of the CDTW and Follow-up groups

The Course Design and Teaching Workshop (CDTW) and the follow up groups were initially designed to address questions such as the following resulting from our practice as faculty developers and from our reading of the literature:

- Why do short topical workshops on teaching methods not seem to lead to the changes in teaching—specifically learning-oriented teaching—that we seek to promote? (Weimer & Lenz, 1991)
- How can we support professors to focus more on student learning than on presenting subject matter content? (Ramsden, 1992; 2003)
- Why is it that some professors can articulate appropriate ideas about teaching, but do not put into practice what they seem to understand? (Cranton, 1994; 1996)

The CDTW involves thirty hours of group and individual work and generally takes place over a five-day period, although we have used a number of different formats. In the most common format, participant professors from different disciplines design or redesign a course of their choice and practice teaching aspects of it. By the end of the workshop, participants have produced a course outline including an assessment plan. They also create an action plan for the implementation of their new course design. Many past participants of the workshop return to act as co-instructors for subsequent workshops. (See Saroyan & Amundsen, 2004 for a detailed description of all aspects of the CDTW). Follow up groups meet monthly for a least a year after the conclusion of the workshop. The purpose of the follow up groups is to support faculty as they implement their action plans, explore teaching related questions and continue the sense of community developed

during the CDTW. The agenda for each meeting is decided by the group, but simply coming together to talk about teaching is a major attraction of participation.

The primary focus of the CDTW and the follow up groups is to foster a reasoned and intentional approach to teaching, informed by reflective practice and peer critique. By this we mean participant professors are encouraged to link teaching actions (in-class or on-line time as well as the design of assignments and exams) directly to student learning. We support participants in moving toward the perception that student *learning* is the focus for teaching decisions, and we encourage the development of their teaching practices in a way that is consistent with this perception. Some participant professors in the Workshop already hold this perspective. Others may experience a shift in perspective from a teaching paradigm to a learning paradigm (Barr & Tagg, 1995) as a sudden insight or inspiration. Still others may build gradually on the premise that student learning can serve as the basis for teaching decisions and actions, and that every effort in the teaching process should be directed at making the intended learning happen.

The CDTW is consciously aimed at merging generic knowledge of teaching with subject-matter knowledge and rarely deals with development of teaching knowledge separately. For this reason, workshop participants begin the course design process by drawing on their disciplinary understanding of the major concepts and relationships between these concepts as related to the particular course they are designing. Thus, the critical first link between subject matter understanding, an area of expertise for each professor, and teaching is initiated. Given the importance of subject matter for faculty and the passion they have for it, we believe that beginning the course design process by drawing on subject matter expertise and making it the reference point for subsequent teaching decisions makes the process of teaching meaningful to professors in a way that it may not have been in the past. With this base, professors are more easily able to consider student learning as an ongoing process of developing understanding in the discipline rather than as mastering a sequence of topics within a particular course.

The CDTW and follow up groups also aim to develop a shared discourse on pedagogical issues, and a language to express individual conceptions about teaching and learning to others. Participants are probed in ways that help them to articulate their own evolving ideas about what meaningful learning is in their disciplinary context, what a reasoned approach to teaching might be. This process often leads participants to question past teaching habits and disciplinary teaching norms, and creates opportunities for productive and clarifying discussions. We strive to provide a safe, supportive environment in which individuals can experiment with new teaching approaches, and exchange ideas and experiences about teaching and learning with colleagues across disciplines as a legitimate aspect of their profession. For many participants, the workshop is the first time they have had the occasion to discuss their ideas openly, and experiment with new approaches and strategies to teaching and learning relevant to their discipline. The intellectual exercise of understanding the rationale for a teaching method and how it relates to learning, and testing out the teaching method is akin to what many professors do as scholars (Shulman 2000; Kreber 2001).

Assessing the Effectiveness of the CDTW and Follow up Groups

We realized after the first offering of the CDTW well over a decade ago that we needed to go beyond mere participant satisfaction ratings if we were to understand the transformation in thinking and practice that many participants reported to us. We are aligned in this regard with three reviews of the faculty development literature (Levinson-Rose & Menges, 1981; Weimer & Lenze, 1994; Emerson & Mosteller, 2000). All three reviews reported that, at the time of their review, participant satisfaction ratings remained the most common method of assessing the effectiveness of faculty development programs. All three reviews recommended assessment procedures that included change in teaching practice and ultimately evidence of impact on student learning. The difficulty and complexity of carrying this out is unarguable, as all faculty developers will be quick to point out, but the need for this type of assessment is terribly clear if the field is to evolve. Recognizing that teaching development is, for a professor, a process that we have come to understand as incremental and iterative (Saroyan, Amundsen, McAlpine, Weston, Winer & Gandell, 2004), we have committed ourselves to try and assess various aspects of it. In the remainder of the paper, we discuss four of our research studies, one already published and three in progress. Each of the four studies provides a window on what professors learned and how this is linked to student learning. In each case, an abbreviated description of the methodology and findings are provided, we encourage the reader to consult the complete papers for more detail.

Study 1: Concept mapping: A mindtool for re-examining subject matter

Purpose for inclusion in this paper: Concept mapping is one of the course design tools professors learn in the CDTW. We include this study because it reflects a way of measuring the impact of professor learning: how professors apply what they learn in the workshop to plans for teaching and how they report implementing these plans.

Rationale: Given the primacy of subject matter knowledge for academics, we encourage professors in the workshop to use this expertise as the basis for teaching decisions. As previously discussed, the first step in the course design process is to analyze the content of the course being designed using an unstructured concept mapping process. Concepts, as the basic element of the concept map, have been defined as a “unit of thought or element of knowledge that allows us to organize experience ... any given concept exists within a larger framework which may take the form of a structure, process, or larger category” (Donald, 1983, p. 32). We take the position that concepts and their relationships form the basic structure or the basis of knowledge in any given course in higher education and that this structure within a specific disciplinary context and subject to a professor’s unique organization of it, has direct implications for teaching and learning (Donald, 1983; 2002).

We use an unstructured form of concept mapping to allow the utmost freedom for professors to represent their thinking. The purpose is to uncover the professor’s thinking about the overall concepts in the course, the nature of the relationships between these concepts, and the course as a whole. Therefore we pay attention to both the internal

integrity of the concept map (the representation of concepts themselves and the links between them) and the external integrity (the overall structure and shape of the concept map). The resulting concept maps may be like the more structured and more commonly seen, hierarchical, upside-down tree or cluster formats or they may begin that way, but evolve into circular, triangular or 3-D shapes or be depicted as a metaphor. Whatever the visual organization of the concept map, the true test of the comprehensiveness of the concept map, we believe, is that a professor can see every element of his or her subject matter relevant to the course in the map and can use it to effectively describe the course to someone else, ideally to students.

Many professors have reported to us in conversation and also anonymously on the workshop evaluation form that the concept mapping process is particularly meaningful to them in terms of clarifying their own understanding of the course content and in sharing this conceptualization with students. This feedback has prompted us to conduct a formal investigation of the concept mapping process (Amundsen, Weston & McAlpine, in final preparation).

Methodology: Over a two-year period (2003-2004), we reviewed the successive concept mapping drafts of forty-eight professors who participated in multiple offerings of the CDTW at two different universities. During the workshops, we asked all participants to keep and number the concept map drafts they produced. Participants who consented to participate in our research provided copies of all drafts plus all other materials created during the workshop. We ultimately interviewed a total of 11 professors (out of 48 who consented to participate), selected to represent a variety of disciplines. Interviews were conducted, in each case, within a few weeks of completion of the workshop. Thus data sources analyzed in this study were concept maps and interview transcripts. All 11 professors are tenure track faculty representing the following disciplines: Business and Management, Computing Science, Education and Educational Psychology, Engineering, Library Sciences, Medicine, Physics, Social Work.

The interviewees were asked to spread out the concept map drafts so that they were in clear view for themselves and for the interviewer. The primary question asked was: "I am very interested in understanding your thinking and how it may have changed from draft to draft. Would you please explain each concept map draft and talk about the transition from one to the next." Our primary goals were to investigate:

- Impact of the concept mapping process on the conceptualization of course content.
- Impact of the concept mapping process on other aspects of the course and beyond.
- Value of the concept mapping process itself.

The interviews were coded thematically using guidelines recommended by Miles and Huberman (1994) for emergent themes; intercoder reliability was established. The level of inference in establishing codes was extremely low. In many cases, the code name corresponds exactly with the words used by the interviewees. For example, we have the code name, "Bringing parts of the course together" and "Adjust the relative importance of course concepts". The unit of analysis was a complete thought. Member checking

procedures were followed as outlined by Lincoln and Guba (1985). The coding process resulted in 12 emergent themes.

Findings: Our findings indicate that professors made changes in their thinking about their course and consequently the design of it in a number of ways including: 1) brought parts of the course together that they had previously taught separately; 2) adjusted the relative importance of course concepts; 3) linked assignments and class activities specifically to learning, 4) created ways to use the course concept map with students. Of particular relevance here is that all eleven professors described how they would use their concept map and the concept mapping process with students. All thought that sharing the course concept map with students would help students have a feeling for the overall learning in the course and several said that they would include the concept map in the course syllabus and/or bring the map out often to give students an idea of where the course was heading. Several professors thought that the visual aspect of the concept map would be helpful to students especially as combined with the professor's explanation of the thinking behind the course design. One professor speculated that students in a graduate seminar would benefit from creating their own concept maps. One professor explains:

Like I said I've been pulling this [the concept map] out and putting it back every time we take on a new topic -- where does it fit, why are we doing this -- I've told them this is new I haven't even used it before. The informal feedback is that it's very helpful. I feel like this course in the past has been a little bit like how my stats prof first described this first stats course I ever took and I remember this guy saying -- all these pieces are going to dangle out here like loose strings for a while and you are not going to see how they fit together but trust me you are just going to have to have some faith in me. By the end of the semester they'll all fit together and indeed he was right about that -- now that didn't ease our nerves, people were still fairly twitchy ... Now I must say that I think that this [the concept map] makes it much easier to have faith.

This study helped us to better understand the benefits of the concept mapping process for aiding professors in clarifying to themselves and their students the foundational concepts in their course and the relationship between and among them. We also came to better understand how difficult it often is for a subject matter expert to frame and explain their knowledge as it relates to a particular course in a way that is understandable to their students.

Study 2: A case study of growth in university teaching

Purpose for inclusion in this paper: We include this study because it reflects another way of measuring the impact of professor learning by documenting the actual implementation of teaching plans and student perceptions and feedback about this.

Rationale: Five case studies were conducted between 1989 and 1995 (Gryspeerdt, 1997; Amundsen, Saroyan & Frankman, 1996; Saroyan & Amundsen, 1995), following professors as they implemented the course design developed in the CDTW. The first case study was initiated because we wanted to better understand the enthusiastic response of participants to our first version of the CDTW (as described in Amundsen, Gryspeerdt, & Moxness, 1993) and how participants continued to apply or not apply what they had

learned. This first case study, the one we describe here, was carried out over a five-year period and is significant because of its longitudinal view of evolving professor thinking and student ratings of the course.

Methodology: Myron Frankman, a professor of Economics, had been teaching for 20 years before his participation in our first CDTW. He agreed to be the focus of our first case study and was also a co-author of the published paper (Amundsen, Saroyan & Frankman, 1996).

Data sources for this case study included semi-structured interviews, self-generated teaching metaphors, writings (poems and essays) by Myron, course syllabi, and course ratings over a five-year period. We first constructed a chronological narrative from the interview data illustrated with quotes taken from the interviews, Myron's writings and course materials.

We next coded the interview data using the defining statements that Ramsden (1992) uses to distinguish the progressively sophisticated "theories" of teaching. In the first theory, the view of teaching and learning is fragmented. The role of the professor and the student, the teaching and learning processes, the content and context, while important, are most unrelated. Instructors at this level tend to think that subject matter must be transmitted to students and that teaching and learning are part of a simple input-output process. The instructor's focus is on him/herself as the one who transmits knowledge and expertise, and not on learning, the rightful outcome of the process. The primary tenet of the second theory is organizing student activity. The instructor recognizes there is more concern for what the students are doing and what the professor's interaction with them should be. Typically, at this level, instructors try one or more new methods; emphasizing the belief that improved teaching involves enlarging one's repertoire of teaching methods. The focus on engaging students in activities stops short of intentional connections between the desired learning and the selected activity or teaching method. In the third and most evolved theory, all aspects of the teaching and learning process are well integrated. Teaching, at this level, means cooperatively working with learners to achieve understanding.

Finally, we employed a one-way ANOVA to analyze differences in student responses on course rating questionnaires.

Findings: The chronologically constructed narrative reflects change in Myron's image of himself as a teacher especially as it related to his relationship with students. His teaching became more interactive and less teacher dominated. Myron gradually acknowledged and struggled with, what he described as, his need for personal control of the subject matter and how students dealt with it. This was something he wanted to change because he saw it as a hindrance to the learning outcomes he wanted students to accomplish.

Results of the coding exercise based on Ramsden's framework showed significant decreases in interview statements coded as Theory 1 and a significant increase in

statements coded as Theory 3 over the time of the case study. No significant difference was found in the number of statements coded as Theory 2. These findings correspond with the narrative account of Myron's thinking and indicate that he moved from what he considered quite a distant relationship with students and their learning to what he described as a more interactive relationship.

The analysis of student course ratings resulted in uncovering a statistically significant ($p < .05$) positive change in student course ratings over the five semesters. With regard to specific questionnaire items, significant change ($p < .05$) occurred in student ratings of clarity of presentation, apparent mastery of subject matter, ability to illuminate difficult material, openness to student questions, fairness, overall effectiveness of the course, and overall effectiveness of the instructor.

The case study of Myron uncovered a change process that was iterative and recursive, rather than linear and helped us, at this earlier stage of our understanding, to realize the complexity of pedagogical growth. Myron did not match any one conception of teaching portrayed in the literature, rather his knowledge of pedagogy, his values about teaching and learning, his interactions with students and his teaching practice possessed aspects of several conceptions at any one point in time. This findings is somewhat at odds with Ramsden's (1992) conceptualization of a hierarchical process. We became especially aware of the reality that pedagogical understanding and teaching practice may not be in sync at any one point in time. In other words, what is understood or known may not be actually practiced with students (we elaborate on this notion in a Model of Teaching Expertise (Saroyan, Amundsen, McAlpine, Weston, Winer & Gandell, 2004)).

Study 3: Assessing a curriculum initiative: Student perceptions of goals

Purpose for inclusion in this paper: The CDTW has been offered in different formats and in various contexts. The study described below was conducted in the Faculty of Management at McGill University (McAlpine, Berdugo & Emrick, in preparation). We include this study because it, like Study 2, measures the impact of professor learning by documenting the actual implementation of teaching plans and student perceptions and feedback about this.

Rationale: The goal of the Faculty of Management's curriculum initiative was to re-design the Management curriculum "to create an enhanced learning and teaching environment for both learners and professors". An adapted version of the CDTW was offered four times to different groups of professors within the Faculty during the length of the implementation of the curriculum initiative. The specific curriculum goals were to:

- Encourage learners to be accountable for their own learning.
- Promote new pedagogical techniques to be implemented in the classroom (more focused on student-student and student-teacher interaction than lecturing).
- Focus on continuous evaluation and feedback.
- Encourage learners and professors to value creativity, risk-taking, internal motivation and group problem solving skills.

- Facilitate communication between students and professors.
- Be both modular and scalable in order to make lifelong learning more accessible.
- Provide learners and professors with the tools necessary to affect the changes.

Although faculty involved in the curriculum project consistently collected and used formative data (many using quality circles), there was agreement that the goal was to move beyond these indicators of change and examine sustained changes. A Faculty committee was formed and two strategies were chosen and developed to assess the success of the initiative. They were:

- 1) the examination of course outlines developed in the workshop to determine the extent to which they explicitly addressed the goals of the curriculum initiative.
- 2) the documentation of student perceptions of the course learning environment post-workshop in relation to the course learning tasks and in congruence with the goals of the curriculum initiative.

We discuss the second assessment strategy (perceptions of students) here.

Methodology: To assess student perceptions, professors and students in courses that had been designed or re-designed in the workshop were surveyed at the end of their courses. The survey is a standardized instrument, the IDEA form (www.idea.ksu.edu), chosen because it asks both students and professor to assess the nature of the learning tasks in the course. In the first part of the survey, professors choose from among the 12 statements provided on the IDEA form those that describe the essential learning tasks of their course (e.g., learning to apply course material, developing creative capacities, acquiring skills in working with others). Students then rank the same 12 statements in terms of the emphasis placed on these in the course in relation to all other courses they have taken. Examining the results on the 12 statements informs us about how students perceived the emphasis on course learning tasks in relation to the ones their professor named as essential. This analysis will begin shortly.

We want to focus here on the second part of the survey. The second part consists of seven additional questions, developed by professors who had taken the CDTW. Five of the seven additional questions relate directly to the curriculum initiative. The remaining two questions related to the coherence of the course design and were included because the professors felt that they were important (e.g., There was agreement between the learning outcomes and course activities). Examining these statements provides information about the extent to which students perceived the curriculum initiative goals were representative of their course experience. Since there was no pre-workshop measure, we are examining only the presence or absence of these criteria from the students' perspective.

Findings: An initial analysis of the seven questions composing the second part of the survey for the 18 courses shows variability in students' perceptions of the different curriculum initiative goals. In nearly all courses, students perceived that: a) they were expected to take responsibility for their learning, b) projects, tests or assignments

required original or creative thinking, and c) there was agreement between the learning outcomes and the course activities. In half of the courses, students perceived that: a) in-class activities gave opportunity for practice and application of concepts, and b) instructional strategies were well chosen to aid learning.

Interestingly, students in most courses did not perceive, from the feedback they received on their assignments, what kind of improvements they needed to make; further they did not perceive that assessment mechanisms accurately assessed what they learned. This finding linked with the preliminary results in the examination of post-workshop course outlines which indicated less than hoped for change in assessment mechanisms in the re-designed courses, suggests a careful analysis is needed. At the level of the individual course, we need to compare these results directly to the assessment measures stated on the course outline to see the extent of intended alignment, and we also need to examine the actual assessment tools (e.g., assignments and tests). We hope to undertake this shortly.

We have been aware for a while that the time given to assessment of learning in the workshop is not sufficient to deal with this most complex aspect of the design process. Previous evidence of this has been our own perceptions, participant observations and the nature of the discussions in the three follow-up groups (composed of faculty who have participated in the CDTW) we have instituted this past year. This latest evidence, *from a student perspective*, affirms for us the need to re-think this part of the workshop.

Study 4: A classroom research study: Redesign of a large calculus course

Purpose for inclusion in this paper: Some of the professors that participate in the CDTW would like to evaluate the effectiveness of changes they have made in their course design and they often ask for our support in doing this. Given available resources, the only way we can respond to these requests is through thesis work. Currently, a graduate student who is a member of our research team, Marie Krbavac, is close to completing one such study with a Mathematics professor at Simon Fraser University. Again as with studies 2 and 3, we include this study because it reflects measuring the impact of professor learning by documenting the actual implementation of teaching plans and student perceptions and feedback about this. In this case, we are also collecting data about student achievement.

Rationale: This mathematics professor teaches large (up to 500 students) Calculus courses and it is not possible for him to personally give individualized feedback to students. Adding to this, the mathematics lab, staffed by graduate TAs who could also give feedback, has recently come under budget cuts. The professor believes that immediate feedback increases student confidence and performance in mathematics and of course this is born out in the literature on self-efficacy in mathematics. To address the problem of insufficient feedback to students, the professor has incorporated an online tool called LON-CAPA and at the same time modified his instructional approach in a number of ways. For example, students now submit problem sets 3 times a week as opposed to one, receive immediate on-line feedback about the correctness of their responses and are

able to submit answers to individual problems until they arrive at the correct answer. In addition, the instructor is able to immediately view students' answers to an assignment, which makes it possible for him to address any problem areas during the next class. The professor wants to know how effective these changes are in terms of student confidence and performance.

There are three major goals in this study. The first goal is to learn more about the instructional approach, goals and considerations that influenced the design and delivery of this course. The second goal, which was determined through discussions with the professor, is to examine the relationships between feedback and performance, feedback and mathematics self-efficacy (a measure of confidence as defined by Bandura 1977, 1997) and, performance and mathematics self-efficacy. The third goal, which was chosen as a result of the professor's choice of instructional approach, is to learn about the impact of immediate vs. delayed feedback (on-line vs. paper assignment submissions) on the relationships described in the previous goal.

Methodology: Data sources include: a) 2 interviews with the professor, b) final grades in the original course (2003) and the re-designed course (2004), c) a pre and post self-efficacy questionnaires, and d) student confidence measures taken once a week asking students to predict before answering the question whether they will answer it correctly and, after answering the question, whether they did correctly answer it.

The analysis is underway. Both quantitative and qualitative procedures are being employed. An emergent coding scheme was developed to analyze the interview data. So far, simple descriptive statistics have been used to analyze data derived from the Likert scaled questionnaires.

Findings: Preliminary findings of the qualitative analysis indicate that the instructional decisions made by the instructor were aligned with the learning outcomes he identified and the assessment measures he designed.

Defining the direction of this study and working with our team has been greatly motivating for the professor we are working with. We think that providing support in defining appropriate methodologies and assistance in data collection and analysis is an important way to encourage reflective teaching, in that professors diligently seek to ascertain the impact of course design changes on student learning. It subscribes to the notion of the scholarship of teaching and learning because the professor is supported to inquire about teaching and learning questions of interest to h/her, the results of the classroom studies are made public (in this case documented in a thesis and most probably a publication in a mathematics education journal) adding to the knowledge of the individual professor, but also the wider community.

Significance

From the beginning of our careers as faculty developers, we have understood the importance of evaluating the impact of what we do and of course, as with all faculty

developers, we know students should, in the end, benefit from our work with professors. Yet over the years we have come to gradually understand that the development of teaching knowledge and practice leading to improved student learning is a complex process to support, let alone assess.

In this paper we have shared some of our work that attempts to move closer to assessing impact on student learning. We could not have engaged in this work if we had not first and in some cases simultaneously, sought to continuously understand the many aspects of what we do. Even though we have been offering the CDTW for years, we were first focused on understanding our own thinking about it and designing the most effective workshop possible; we still make constant revisions to it, adapting it for different contexts and different groups. Now it is offered at several universities and it has been adapted according to the understanding of the facilitators in each place. To get to this place, we probed, in a variety of ways, what participant professors thought of different aspects of the workshop, how thinking about teaching and learning and the particular course being designed changed as a result of the workshop and what the challenges were to implementing course design changes. This dissecting of the workshop experience itself was a necessary precursor to where we are now. Implementing the year long follow up groups required an understanding of the collegial support process that professors found useful during the CDTW. We are just starting to analyze the videotapes of these groups. We move forward slowly as our understanding develops and we are getting closer and closer to understanding how to meaningfully assess the impact of our work on student learning.

We have taken a systematic approach in the investigation of what we do because we want to build our own understanding and we want to provide sound scholarly work that other researchers may incorporate and build on.

References

- Amundsen, C., Gryspeerdt, D., & Moxness, K. (1993). Practice-centred inquiry: Developing more effective teaching in higher education. *Review of Higher Education*, 16(3), 329-353.
- Amundsen, C., Saroyan, A., & Frankman, M. (1996). Changing methods and metaphors: A case study of growth in university teaching. *Journal of Excellence in College Teaching*, 7(3), 3-42.
- Amundsen, C., Weston, C., & McAlpine, L. (in final preparation). Concept mapping in course design: A 'mindtool' for re-examining subject matter.
- Bandura, A. (1977). Self-Efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Bandura, A. (1997). *Self-Efficacy The exercise of control*. New York: W.H. Freeman and Company.
- Barr, R.B. & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change*, 27(6), 13-25.
- Cranton, P. (1996). *Professional development as transformative learning: New perspectives for teachers of adults*. San Francisco, CA: Jossey-Bass.
- Cranton, P. (1994). *Understanding and promoting transformative learning*. San Francisco, CA: Jossey-Bass.
- Donald, J.G. (1983). Knowledge Structures: Methods for Exploring Course Content. *Journal of Higher Education*, 54(1), 31-41.
- Donald, J.G. (2002). *Learning to Think: Disciplinary Perspectives*. San Francisco, CA: Jossey-Bass.
- Emerson, J. D., & Mosteller, F. (2000). Development Programs for College Faculty: Preparing for the Twenty-first Century. *Educational Media and Technology Yearbook*, 25, 26-42.
- Gryspeerdt, D. (1997). Factors influencing change in the conceptualization and practice of university teaching: Two case studies of novice instructors. Unpublished doctoral dissertation: McGill University. Montreal.
- Kreber, C. (Ed.) (2001). *Scholarship Revisited: Perspectives on the Scholarship of Teaching*. San Francisco: Jossey-Bass.

- Levinson-Rose, J., & Menges, R.J. (1981). Improving college teaching: A critical review of research. *Review of Educational Research*, 51(3), 403-434.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills: Sage.
- McAlpine, L., Berdugo, G., & Emrick, A. (in preparation). Assessing a curriculum initiative: Linking intended goals and student perceptions.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: A Sourcebook of New Methods* (2nd edition). Thousand Oaks, CA: Sage.
- Ramsden, P. (2003). *Learning to teach in higher education* (2nd Edition). London, UK: Routledge.
- Ramsden, P. (1992). *Learning to teach in higher education*. London, UK: Routledge.
- Saroyan, A., & Amundsen, C. (Eds.) (2004). *Rethinking Teaching in Higher Education: From Course Design Workshop to a Framework for Faculty Development*. Virginia: Stylus Publishing.
- Saroyan, A., Amundsen, C., Weston, C., McAlpine, L., Winer, L., Cowan, S., & Gandell, T. (2004). Assumptions underlying workshop activities. In Saroyan, A., & Amundsen, C. (Eds.). *Rethinking Teaching in Higher Education: From Course Design Workshop to a Framework for Faculty Development* (pp. 15-30). Virginia: Stylus Publishing.
- Saroyan, A., & Amundsen, C. (1995). Understanding the task of teaching and learning. Challenges and transformations: Post secondary education in Canada (pp. 57-60). *Proceedings of the 25th annual conference of the Canadian Society for the Study of Higher Education*, Montreal.
- Shulman, L. (2000). From Minsk to Pinsk: Why a Scholarship of Teaching and Learning? *The Journal of the Scholarship of Teaching and Learning* (JoSoTL) 1 (1):48-52. On the Web: [http://www.iusb.edu/~josotl/search_archives.htm].
- Weimer, M., & Lenze, L. F. (1991). Instructional interventions: A review of the literature on efforts to improve instruction. In J. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 7, pp. 294-333). New York: Agathon.