

Original Article

Assessing Outcomes Through Congruence of Course Objectives and Reflective Work

Jocelyn M. Lockyer, PhD; Herta Fidler, MSc; David B. Hogan, MD, FRCPC;
Laurie Pereles, MD, CCFP, MSc; Bruce Wright, MD, CCFP; Christine Lebeuf, MD, CCFP;
and Cory Gerritsen, BSc

Abstract

Introduction: *Course outcomes have been assessed by examining the congruence between statements of commitment to change (CTCs) and course objectives. Other forms of post-course reflective exercises (for example, impact and unmet-needs statements) have not been examined for congruence with course objectives or their utility in assessing course outcomes. This study assessed the congruence of course objectives and statements of commitment to change, effects on practice, unmet-needs, and the utility of supplementing CTCs with other forms of reflective work in course evaluations.*

Methods: *A 3-module course on Alzheimer's disease and other dementias provided end-of-course CTC statements, follow-up data, and statements of effects on practice and unmet needs. Statements were aligned to module objectives and analyzed descriptively.*

Results: *Of the 932 physicians who registered for 1 of the 3 modules, 404 provided CTCs, 302 provided impact statements, and 265 provided unmet-needs statements. Sixty percent of the CTCs could be assigned to an objective for their module, and between 14% and 25% of CTCs were assigned to objectives for another module. Three-quarters of CTCs were fully or partially implemented. Physicians did not have an opportunity to implement the new content in 70% of nonimplemented CTCs. Fewer impact and unmet-needs statements were congruent with course objectives than CTCs.*

Conclusions: *Commitment-to-change statements had more congruence with objectives than did impact or unmet-needs statements. These latter statements, particularly those that could not be assigned to an objective, may reinforce and supplement the information provided by CTC analyses.*

Key Words: commitment to change, continuing medical education, course outcomes, course evaluation, short course, reflection, continuing professional development, Alzheimer's disease

Dr. Lockyer: Associate Professor, Department of Community Health Sciences, and Director, Continuing Medical Education and Professional Development, University of Calgary; *Ms. Fidler:* Research Associate, Continuing Medical Education and Professional Development, University of Calgary; *Dr. Hogan:* Professor, Department of Medicine, University of Calgary; *Dr. Pereles:* Clinical Assistant Professor, Department of Family Medicine, University of Calgary; *Dr. Wright:* Associate Professor, Department of Family Medicine, and Associate Dean, Continuing Medical Education and Professional Development, University of Calgary; *Dr. Lebeuf:* Clinical Lecturer, Department of Family Medicine, University of Calgary; *Mr. Gerritsen:* graduate student, York University, Toronto, Ontario, Canada.

Correspondence: Jocelyn M. Lockyer, PhD, Office of Continuing Medical Education, University of Calgary, 3330 Hospital Dr. NW, Calgary, Alberta, Canada, T2N 4N1. E-mail: lockyer@ucalgary.ca.

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Reflection has been described by Moon as a form of mental processing with a purpose or anticipated outcome that is applied to relatively complex or unstructured ideas for which there is no obvious solution.¹ Within the context of formal and informal learning, the process of reflection allows practitioners to draw on any combination of formally taught knowledge; informally learned knowledge from educational programs, reading, or other sources; tacit knowledge; experience; critical incidents; and even emotion to create new knowledge and skill.² Practitioners visualize new realities and outcomes through reflection.² Seminal work by Schon³ and by Fox, Mazmanian, and Putnam⁴ established the role that reflection plays in professional development and learning and change, respectively. More recently, Daly's interviews with social workers, lawyers, adult educators, and nurses showed that this process of "meaning making" or reflection is iterative. Professionals move back and forth between their current practices and knowledge obtained at continuing education programs, as they try to make sense of new material and find ways to integrate this information into their work.⁵

Recognizing the importance of reflection from both a theoretical perspective and its empirical base, instructional designers often encourage the use of reflective work in course design in the belief that these activities will enhance the effect of short courses on practice.^{1,2} Having participants complete commitment-to-change (CTC) statements immediately upon course completion is a common way of getting participants to reflect on a course in order to consolidate new information and commit to changes in practice, with the expectation that these CTCs will be implemented.⁶⁻⁹

The assignment of CTC statements to course objectives can help in evaluating the outcomes from short courses (generally considered to be 3 hours to 3 or 4 days) and our understanding of how physicians integrate new knowledge into practice. This approach is consistent

with the recommendations by Kern and colleagues,¹⁰ who argue that objectives should guide the evaluation of learners and curriculum. It is also consistent with the approach taken by Houlden and Collier¹¹ who advocate outcomes-based objectives to make the curriculum explicit for learners and teachers so both know from the outset about the expectations and potential gain from the course. To determine whether the anticipated learning outcomes were being realized, Dolcourt and Zuckerman⁹ recently studied 43 physicians with 157 CTC statements assigned to course objectives. They found that 68% of the CTC statements were linked to course objectives whereas 32% were not. They concluded that evaluations based on instructional objectives, although valuable, were incomplete, because educational activities may stimulate many unanticipated learning outcomes. In this, they recognized that the learning of medical practitioners is intertwined with their ongoing practice and practice issues, making it likely that what physicians learn will be adapted toward the needs and contexts of practice. They further noted that course planners would gain a fuller assessment of their impact by looking at both unanticipated and anticipated learning given that learning is a constructivist endeavor. It is almost impossible for course designers to fully understand the learning that went on before the course, goes on or is triggered during the course, or occurs after the course because chance conversations, patient issues, and even changes in policies and procedures facilitate learning and change. This linking of objectives with CTCs established their congruence and extended the work of Lockyer and colleagues,⁷ who found an association between the number of CTC statements and the amount of time that was allocated to course content. More importantly, Dolcourt and Zuckerman⁹ demonstrated that practitioners will use portions of course material in unanticipated ways and that an examination of both anticipated and unanticipated outcomes is required for a full perspective about course outcomes.

The College of Family Physicians of Canada (CFPC) advocates the use of postcourse reflective work within its MAINPRO-C category of study credit.¹² Their guidelines recommend asking practitioners to describe the impact of the course on their practice and to identify unmet learning needs that exist 2 to 3 months after a course's completion. Studies have not been done, however, to assess the information provided by this approach to postcourse reflection. As part of a 3-module course on Alzheimer's disease and other dementias, we asked participants to describe the impact of the course on their practice, identify any unmet needs, and participate in CTC course work. Based on research by Dolcourt and Zuckerman⁹ and the conceptualization provided by Kern and associates,¹⁰ we assigned the CTCs, impact on practice, and unmet-needs statements to course objectives.

This study was done to assess an evaluation strategy that was based on the relationship between course objectives and 3 different reflective exercises. Specifically, we had the following questions:

- What is the congruence between course objectives and CTC, impact on practice, and unmet-needs statements?
- What are the characteristics of CTC, impact on practice, and unmet-needs statements that cannot be assigned to course objectives?
- Are CTC statements implemented in practice? If they are not implemented, what are the reasons?
- Does the addition of impact and unmet-needs statements contribute to our understanding of how physicians integrate information from courses into practice?

Methods

Course selection

We used data from a 3-module program on Alzheimer's disease and other dementias. This

program was selected because it met all of the accreditation criteria for a MAINPRO-C course; namely, it contained a precourse assessment, had two-thirds of the course time allocated to interactive discussion, and included postcourse reflective work. Further, the course had been updated several times between 1996 and 2002,¹³ consistent with changes in both disease management and educational theory and research. Previous work from the 1999–2000 program, which consisted of two 6.5-hour courses (a basic concept or beginners course and an advanced or expert offering), showed significant improvements in knowledge, comfort, and involvement in care based on a precourse and 3-month postcourse assessments.¹³ Because Canadian family physicians receive additional study credit for MAINPRO-C courses, we hoped this would be a sufficient incentive for physicians to provide postcourse data. We recognized, however, that this was declining in importance to physicians. We hoped that using a data set from a course that was being offered across Canada would give us a sufficient number of participants and statements to compensate for the anticipated attrition in this type of "naturalistic" study.^{7,13,14}

In 2002–2003, the content from the two 6.5-hour courses was updated and augmented into 3 modules, each 3 hours in duration. The modules were diagnosis and pharmacotherapy (module 1), care of patients with mild to moderate dementia (module 2), and late-stage dementia (module 3). The objectives for each of the modules are included in Table 1. Similar to the previous program,¹³ we designed the modules to maximize the potential for change.¹⁵ We encouraged active learning with role-playing (module 1) and case-based discussion (all 3 modules). The modules were run in groups of 10 or fewer physicians with two-thirds of the time devoted to interactive activity. We trained physician leaders across Canada to facilitate the course and cover its content. The CFPC accredited the 3 modules as MAINPRO-C courses.¹²

Table 1 Congruency Between Course Objectives and Statements of Commitment to Change (CTC), Impact on Practice, and Unmet Needs

Course Objectives	CTC		Impact		Unmet-Needs	
	Statements No.	%	Statements No.	%	Statements No.	%
Module 1						
1. Take a thorough history of the person with cognitive problems	41	9.5	7	5.2	1	1.9
2. Note the neurological findings associated with Alzheimer's disease	24	5.5	1	0.7	0	0
3. Administer the MMSE while being aware of the limitations of the test	88	20.3	41	30.4	2	3.7
4. Describe the natural course of Alzheimer's disease	5	11.5	3	2.2	1	1.9
5. Determine the appropriate laboratory tests to pinpoint causes of reversible cognitive impairment	34	7.9	3	2.2	0	0
6. Determine when a brain CT scan is indicated	19	4.3	4	3.0	0	0
7. Properly prescribe specific medication for Alzheimer's disease	70	16.2	10	7.4	11	20.4
Statements that assigned to objectives this module	269	62.1	69	51.1	15	29.4
Statements that assigned to objectives another module	62	14.3	26	19.3	22	43.1
Statements that could not be assigned to objectives	102	23.6	40	29.6	14	27.5
Total	433	100.0	135	100.0	51	100.0
Module 2						
1. Differentiate between common types of dementia	79	8.4	50	17.9	7	4.8
2. Stage dementia and outline a plan for follow-up care	58	6.2	4	1.4	3	2.1
3. Describe available resources that can be mobilized for patients with dementia and their families	79	8.4	8	2.9	8	5.5
4. Prescribe medications used to treat Alzheimer's	205	21.8	25	9.0	20	13.8
5. Outline an approach to the initial management of the common behavioral and psychological symptoms of dementia	23	2.4	10	3.6	9	6.2
6. Describe the components of planning for patients with dementia and their families and how to integrate this into their practice	54	5.7	6	2.2	7	4.8
7. Describe an approach to driving and dementia	102	10.8	12	4.3	8	5.5
8. Demonstrate an awareness of the various types capacity or competency and the relevant laws in patients' place of residence	33	3.5	7	2.5	4	2.8
Statements that assigned to objectives this module	576	61.1	122	43.7	65	44.8
Statements that assigned to objectives another module	242	25.7	50	17.9	14	9.7
Statements that could not be assigned to objectives	124	13.2	107	38.4	66	45.5
Total	942	100.0	279	100.0	145	100.0

Table 1 continued

Course Objectives	CTC Statements		Impact Statements		Unmet-Needs Statements	
	No.	%	No.	%	No.	%
Module 3						
1. Describe an approach to the management of behavioral and psychological symptoms of dementia	162	31.7	22	16.4	11	19.6
2. Describe available resources that can be mobilized for patients and their families	26	5.1	3	2.3	4	7.1
3. Detect caregiver burden and stress and outline strategies to deal with them	31	6.1	2	1.5	2	3.6
4. Determine when placement in a long-term-care facility would be indicated and outline how this would be done in the patient's community	7	1.41	1	0.8	1	1.8
5. Define delirium, describe its manifestations, and outline an approach to the detection and management of this problem when it arises in the setting of preexisting dementia	47	9.2	4	3.0	0	0
6. Outline an approach to the use of physical restraints	3	0.6	2	1.5	0	0
7. Recognize potential hydration and nutrition problems in individuals with severe dementia and outline an approach	9	1.8	1	0.8	0	0
8. Develop an approach for capacity or competency, how to evaluate a patient for restricted incapacity, and demonstrate an awareness of the relevant laws	15	2.9	2	1.5	3	5.4
9. Describe an approach to the management of urinary and fecal incontinence in the setting of severe dementia	2	0.4	2	1.5	1	1.8
10. Outline an approach to end-of-life care in individuals with severe dementia	14	2.7	3	2.3	1	1.8
Statements that assigned to objectives this module	305	59.7	42	31.6	23	41.1
Statements that assigned to objectives another module	83	16.2	37	27.8	16	28.6
Statements that could not be assigned to objectives	123	24.1	54	40.6	17	30.3
Total	511	100.0	133	100.0	56	100.0

MMSE = Mini Mental State Examination

Data Collection

Physician participants were asked to complete a CTC form to identify up to 5 changes they planned to implement in their practice at the end of the course. The form was in the format described in a previous study.⁷

Three months after the course, the physicians were mailed the precourse assessment of comfort and involvement in care. They were provided with their CTC statements and asked whether the changes were now fully implemented, partially implemented, could not be implemented at this time, or would not be implemented. They were

asked to provide reasons for partial or nonimplementation. Finally, they were instructed to describe the effect the course had on their practices (impact statements) and any learning needs (with proposed solutions, if possible) that remained (unmet needs). To enhance the response rate, a second request for the data was mailed to all nonrespondent physicians.

Data Analysis

We used the 3 types of statements provided (CTC, impact on practice, and unmet needs) to assess the congruence with module objectives and course outcomes. We limited the analysis of the CTC statements to those for which we were able to match initial and 3-month statements so that we could understand the extent to which implementation had occurred. All impact and unmet-needs statements were used. CTC data were transcribed verbatim into a database within the NUD*IST version 5 software application for coding purposes. The impact-on-practice and unmet-needs statements were entered into Excel.

All 3 types of statements were matched to the objective to which the content most pertained for that module. Statements that could not be matched to an objective for that module were closely examined to determine whether they could be assigned to an objective for another module. There was minimal overlap between the objectives for each module. However, all of the modules dealt with the same clinical area (dementia), and it was recognized that the unique learning needs of each group could result in discussions more consistent with the content of other modules. Statements that could not be assigned to a course objective for that module or any other module were identified and categorized. Physician data about CTC implementation status (full, partial, and not implemented) were used as a further assessment of course outcome.

Two people (HF and CG) categorized the statements to objectives. One person was primarily responsible for the CTC statements and the other for impact statements. Both categorized

the unmet-needs statements. There was extensive discussion and consultation between them. One other person (JML) periodically reviewed the categorization of data to ensure consistency of categorization and optimal matching of data to objectives. After the categorization processes were complete, the data coded within each category were read to ensure reasonable discreteness and meaningfulness of these categories. Descriptive statistics (numbers and percentages) were used to assess the CTCs, impact, and unmet-needs statements that could be assigned to each objective as well as the 3-month implementation status of CTC statements.

We completed a qualitative assessment of what the addition of the impact and unmet-needs statements contributed to our understanding of how physicians take information from practice.

This evaluation study was approved by the University of Calgary Conjoint Health Research Ethics Board.

Results

Over a 24-month period, a total of 119 modules were run (Table 2). There were 932 registrants, of whom 169 took 2 of the modules and 13 took all 3 modules over that time frame. A total of 404 physicians provided 3-month postcourse data, 302 wrote impact statements, and 265 provided information about their unmet learning needs.

For all 3 modules, almost two-thirds of CTC statements (60% to 62%) could be assigned to an objective for that module (see Table 1). An examination of CTC statements that remained showed that many could be assigned to an objective from another module. For module 1, 44.6% of the remaining CTCs could be assigned to objectives for 1 of the other modules. The proportions for the other 2 modules were 13.7% (module 2) and 19.6% (module 3). CTC statements that could not be assigned tended to be general and nonspecific but often statements of assertion or intent. The general and nonspecific statements often included developing a general

Table 2 Participant Data Along the Collection Points

	Module 1	Module 2	Module 3	Totals
Courses, No.	31	64	24	119
Registrations, No.	263	485	184	932
Physicians who provided commitment-to change and follow-up data, No.	91	202	111	404
Physicians who provided impact statements at 3 months, No.	103	109	90	302
Physicians who provided unmet-needs statements at 3 months, No.	47	161	57	265

approach to dementia, prevention of dementia, needing more CME, and approaches to referral for assistance from other health care professionals or organizations. Typical examples of these included, “I will approach the demented, confused patient in a much more methodical and organized manner,” “plan to attend other courses,” and “utilize the Alzheimer’s Society as a reference for my patients.” When these statements were ones of intent or assertion, some were political (“become more active in our local nursing home board of directors”) whereas others reflected new insights (“be more aggressive

initiating prevention” or “consider elder abuse more frequently”).

For all 3 modules, over 75% of the CTC statements were fully or partially implemented at 3 months (Table 3). The primary reason for not implementing planned changes related to a lack of opportunity (“[the issue] has not come up in clinical practice in the last 3–4 months” or “did not see suitable patients”) about 70% of the time for all 3 modules (n = 57 [70.3%] in module 1, n = 85 [67.5%] in module 2, and n = 41 [68.3%] in module 3). Other reasons for nonimplementation included uncertainty about the

Table 3 Implementation Status of Commitment-to-Change Statements at 3 Months

	Module 1		Module 2		Module 3	
	No.	%	No.	%	No.	%
Number of statements	433		942		511	
Fully implemented	228	52.7	521	55.3	295	57.7
Partially implemented	128	29.6	295	31.3	147	28.8
Could not be implemented	76	17.6	123	13.1	68	13.3
Will not be implemented	1	0.2	3	0.3	1	0.2

innovation (9.9%, 4.0%, and 7.1%), patient factors (4.9%, 2.4%, and 0%), time (3.7%, 7.9%, and 2.9%), and forgetting (3.7%, 6.3%, and 4.3%) for the 3 modules, respectively.

The statements of the impact on practice showed some congruence with the objectives for their module (51.1%, 43.7%, and 31.6% for modules 1, 2, and 3, respectively). Another 19.3%, 17.9%, and 27.8% of the impact statements, respectively, could be assigned to the objectives of another module, as shown in Table 1. The impact statements that could not be assigned to course objectives most frequently related to changes in self-perception, changes in care, and barriers. Examples of change in self-perception included “I have a better understanding of issues surrounding dementia” and “the course gave me more confidence.” Changes in care examples include “I am a lot more comfortable managing uncomplicated dementia with fewer referrals to geriatricians” and “I am now able to raise issues such as finances and advance directives with patients and their families.” Examples of barriers included “I have not seen a suitable patient since the course” or “I cannot apply in practice because my patients are young and childless.”

An examination of unmet-needs statements showed that they were less congruent with their modules than CTC or impact statements. For modules 1, 2, and 3, 29.4%, 44.8%, and 41.1%, respectively, could be assigned to an objective for that module. Another 27.5%, 9.7%, and 28.6%, respectively, could be assigned to objectives for another module. The unmet needs that could not be assigned to course objectives for any module most commonly related to a general need for periodic review and updates in content, the need for opportunities to apply skills learned, and the need for general diagnostic and treatment skills. Common examples included “I still need to review some of the informative points as I forget. I’ll need to review them from time to time”; “self-study should help”; “I can only wait for patients to make that experience known to

me”; and “[I need] refresher courses confirming state of the art as it progresses over time. Currently my practice does not include many patients with this potential diagnosis.” For 104 of the unmet-needs statements, the most common ways physicians described how they would meet these unmet needs were by attending more CME (n = 13), discussing cases with specialists (n = 12), gaining experience as the opportunity presents itself (n = 10), self-study (n = 9), and keeping up with the current literature (n = 8).

CTCs had more congruence with objectives than impact and unmet-needs statements. Depending on the module, only 30% to 50% of impact and unmet-needs statements could be assigned to objectives. The statements that could not be assigned add the most information to our understanding of how physicians integrate new information into practice. The impact statements that could not be assigned reflected changes in self-perception about Alzheimer’s management, approaches as a result of the course, information about how the physicians changed their overall care practices, and barriers to implementation. Unmet needs that could not be assigned to an objective focused on the need for additional knowledge, skill, and practice opportunity before the new information could be applied in practice. Both impact and unmet-needs statements that could not be assigned were often reflective and introspective, whereas the CTC statements that could not be assigned were developmental or ones of intent and assertion. The data provided by impact and unmet-needs statements reinforce the issues that the nonimplemented CTCs raised, that of the criticality of having a clinical opportunity to try out new approaches within a reasonable period of time following an educational program.

Discussion

This study began at a time when the CFPC required that its members engage in activities leading to MAINPRO-C study credit. Courses of

this design, which included reflective work, were one way of obtaining those credits. Since that time, the CFPC has made MAINPRO-C study credit optional for maintaining certification. Future course designers are less likely to take this approach.

The respondent-to-participant ratio is consistent with other naturalistic studies of this type. As our other studies have shown,^{7,13,14} the response rate drops at the 3-month point, particularly for those who do not require study credits. Asking physicians to provide 3 types of statements was an added burden. We do not know whether physicians found this to be an annoyance or helpful to them as part of the reflective processes they were engaged in related to practice improvement. We did, however, obtain data from 404 physicians on 3 different reflective statements and 3 different course modules that we were able to use to examine course outcomes within the framework of course objectives.

Using course objectives as the framework to analyze statements was feasible and relatively simple to execute. Furthermore, it capitalized on the role of objectives, namely, to drive content, communicate curriculum intent and expectations, and guide evaluation.¹⁰ Although physicians could participate in more than 1 module, fewer than 20% did so over a 2-year period.

CTC statements were more congruent with objectives than impact or unmet-needs statements. A closer look at the CTC statements that were assigned to objectives of other modules showed that these statements were core to the management of Alzheimer's and other dementias because they focused on the Mini Mental State Exam in which a series of questions asked of a patient is used to diagnose Alzheimer's disease, medications, differentiation of dementias, and identification of caregiver issues. Examples included "review my patients' list of medication (elderly on polypharmacy) to make sure these meds won't cause [central nervous system] problems down the road" and "rule out delirium

with behavioral changes in Alzheimer's disease patients." Statements that could not be assigned to any objective were often developmental in nature or statements of intent. That is, the physicians provided information that suggested they were still developing some general approaches to care; gaining comfort with the management of Alzheimer's and other dementias; or waiting for additional insights that would come from reading, other courses, or consultation processes. Examples included "more knowledgeable in long-term treatment" and "will feel more comfortable approaching gerontologists for telephone advice." Physicians were able to implement the CTCs at levels consistent with other studies that show a 50% to 70% uptake on commitments.^{7-9,16}

From a course assessment perspective, these statements provide insights about practitioner learning, particularly when one examines those that could not be assigned to any objective. Impact and unmet-needs statements often reflected overall management and clinical situation; they were less likely to be statements of intent or assertion. These findings also reinforce Daley's findings⁵ with other professionals. She found learning to be an iterative process in which professionals go back and forth between new concepts and practices in an attempt to integrate new knowledge and understanding. The reflections from physicians who did not integrate the new information provide rich information about how difficult it can be to integrate new knowledge. One noted, "it didn't impact much because my practice is a locum—I don't know the patients well enough to pick up subtle changes," whereas another stated, "since the course, there has been little opportunity to expand my experience dealing with patients who have dementia as no new patients with memory loss have presented to me." For others, the demands of practice made it difficult to use the knowledge: "I am definitely trying to make use of these tasks, I find it difficult to implement in a busy practice."

Lessons for Practice

- Statements of impact on practice and unmet needs from physicians complement and reinforce evaluation information that physicians provide through commitment-to-change statements.
- There is a higher congruence between course objectives and commitment-to-change statements than between objectives and other reflective statements.
- Information provided in reflective statements that cannot be assigned to course objectives may be useful in curriculum review and revision that is intended to establish course prerequisites, rewrite objectives, or realign teaching strategies. It may also be important in redirecting physicians to other educational programs should their practice profiles suggest they will not be able to integrate new skill sets into their practice in a timely manner.

This study builds on Dolcourt and Zuckerman's⁹ recommendation that examinations of course outcomes consider both anticipated and unanticipated outcomes. We expand on the CTC studies^{7-9,16} by examining 2 other types of reflective statements in the context of their association with course objectives. These new statements appear to complement and reinforce the CTC statements. However, in examining such statements in the context of course outcomes, it must be remembered that the role of objectives is to identify appropriate learners,

suggest learning methods, communicate content, describe expectations, and determine evaluation.¹⁰ When the data provided by these statements indicate that a large number of statements involving many physicians cannot be assigned to objectives, the course curriculum may need to be reexamined or practitioners redirected to courses more suitable to their practices.

We think this study represents a new focus. It is hoped that other researchers will be encouraged to examine different and new approaches to facilitate reflection so that we can progress beyond "commitments to change" and thoughtfully assess new questions and approaches.

References

1. Moon J. Reflection in learning and professional development: theory and practice. London: Kogan Page, 1999.
2. Lockyer JM, Gondocz T, Thivierge R. Knowledge translation: the role and place of practice reflection. *J Contin Educ Health Prof* 2004; 24(1):50-56.
3. Schon DA. The reflective practitioner. New York: Basic Books, 1983.
4. Fox RD, Mazmanian PE, Putnam RW. Changing and learning in the lives of physicians. New York: Praeger, 1989.
5. Daley BJ. Context: implications for learning in professional practice. In: Alfred MV, ed. Learning and sociocultural contexts. *New Dir Adult Contin Educ* 2002; 96:79-88.
6. Mazmanian PE, Mazmanian PM. Commitment to change: theoretical foundations, methods, and outcomes. *J Contin Educ Health Prof* 1999; 19(4):200-207.
7. Lockyer JM, Fidler H, Ward R, Basson RJ, Elliott S, Toews J. Commitment to change statements: a way of understanding how participants use information and skills taught in an educational session. *J Contin Educ Health Prof* 2001; 21(2):82-89.
8. Wakefield J, Herbert CP, Maclure M, Dormuth C, Wright JM, Legare J, Brett-MacLean P, Premi J. Commitment to change statements

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- can predict actual change in practice. *J Contin Educ Health Prof* 2003; 23(2):81–93.
9. Dolcourt JL, Zuckerman G. Unanticipated learning outcomes associated with commitment to change in continuing medical education. *J Contin Educ Health Prof* 2003; 23:173–181.
 10. Kern DE, Thomas PA, Howard DM, Bass EB. Curriculum development for medical education: a six-step approach. Baltimore: Johns Hopkins University Press, 1998.
 11. Houlden RL, Collier CP. Learning outcome objectives: a critical tool in learner centered education. *J Contin Educ Health Prof* 1999; 19(4):208–213.
 12. College of Family Physicians of Canada. MAINPRO accreditation criteria for courses. <http://www.cfpc.ca/English/cfpc/cme/mainpro/maintenance%20of%20proficiency/m1%20and%20c%20criteria/default.asp?s=1> Accessed Jan. 18, 2005.
 13. Lockyer JM, Fidler HM, Hogan DB, Pereles L, Lebeuf C, Wright B. Dual-track CME: accuracy and outcome. *Acad Med* 2002; 77(10 suppl):S61–S63.
 14. Ward R, Fidler H, Lockyer JM, Basson RJ, Elliott S, Toews J. Physician outcomes following an intensive educational program on erectile dysfunction. *J Sex Educ Ther* 2001; 26(4):358–362.
 15. Mazmanian PE, Davis DA. Continuing medical education and the physician as a learner: guide to the evidence. *JAMA* 2002; 288(9):1057–1060.
 16. White MI, Grzybowski S, Broudo M. Commitment to change instrument enhances program planning, implementation, and evaluation. *J Contin Educ Health Prof* 2004; 24(3):153–162.