# Two for One: Merging Continuing Professional Development and Faculty Development in the CATE Curriculum for Pharmacy Preceptors

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## ABSTRACT

**Background:** Continuing professional development (CPD) and faculty development (FD) are not traditionally combined, although there is evidence that integrating them enhances knowledge acquisition.

**Objective:** To explore preceptors' perceptions and the effectiveness of CATE (Clinical And Teaching Education), an education model that blends clinical content with the application of that clinical knowledge through a specified teaching technique.

**Methods:** Thirty-five hospital and community pharmacy preceptors from the Leslie Dan Faculty of Pharmacy, University of Toronto, participated in CATE, which consisted of a 2-hour synchronous, online workshop integrating clinical content about depression with the "One-Minute Preceptor" (OMP) teaching skill. Qualitative and quantitative data were collected longitudinally using surveys and semistructured interviews. Participant and process outcomes were explored through descriptive and thematic analysis using a modified Kirkpatrick framework.

**Results:** Participants valued the incorporation of educational theory and opportunities to practise the OMP using scripted role plays based on the depression-related content. The combination of FD and CPD was appealing, although participants wanted more clarity about their integration. The CATE model positively influenced their approaches to serving as preceptors, and using the OMP helped to reveal learners' knowledge gaps. There was a desire to share the teaching technique with colleagues to provide a more cohesive approach to teaching.

**Conclusions:** Integrating CPD and FD in a synchronous, online environment was feasible and well received, and it helped to solidify preceptors' roles as educators. Combining CPD and FD represents an effective strategy to build the clinical and educational expertise of preceptors, which in turn has the potential to improve the quality of experiential learning for pharmacy students. This novel method of fostering the pedagogical growth of preceptors could be a model for other health professions.

**Keywords:** preceptor development, faculty development, continuing professional development, pharmacy, teaching, education

## RÉSUMÉ

**Contexte :** Le développement professionnel continu (DPC) et le développement professoral (DP) ne sont pas traditionnellement combinés, même s'il existe des éléments probants indiquant que leur intégration renforce l'acquisition des connaissances.

**Objectif :** Examiner les perceptions des précepteurs et l'efficacité du CATE (Clinical And Teaching Education) : un modèle pédagogique qui allie le contenu clinique à l'application de ces connaissances cliniques grâce à une technique d'enseignement spécifiée.

**Méthodologie :** Trente-cinq précepteurs de pharmacies d'hôpitaux et communautaires de la Faculté de pharmacie Leslie Dan de l'Université de Toronto ont participé au CATE, qui consistait en un atelier en ligne synchrone de deux heures intégrant un contenu clinique sur la dépression avec la compétence pédagogique « précepteur-minute ». Les données qualitatives et quantitatives ont été recueillies longitudinalement à l'aide d'enquêtes et d'entretiens semi-structurés. Les résultats des participants et du processus ont été étudiés au moyen d'une analyse descriptive et thématique utilisant un cadre de Kirkpatrick modifié.

**Résultats :** Les participants ont apprécié l'intégration de la théorie pédagogique et des occasions de pratiquer la compétence du précepteur-minute à l'aide de jeux de rôle scénarisés basés sur le contenu lié à la dépression. La combinaison du DP et du DPC était attrayante, même si les participants souhaitaient plus de clarté sur leur intégration. Le modèle CATE a influencé positivement leurs approches en matière de préceptorat, et l'utilisation de la technique précepteur-minute a contribué à révéler les lacunes des connaissances des apprenants. Il y avait une volonté de partager la technique d'enseignement avec des collègues pour offrir une approche plus cohérente de l'enseignement.

**Conclusions :** L'intégration du DPC et du DP dans un environnement en ligne synchrone était réalisable et a été bien accueillie; elle a contribué à consolider le rôle des précepteurs en tant qu'éducateurs. La combinaison du DPC et du DP constitue une stratégie efficace pour développer l'expertise clinique et pédagogique des précepteurs, ce qui, à son tour, a le potentiel d'améliorer la qualité de l'apprentissage expérientiel des étudiants en pharmacie. Cette nouvelle méthode visant à favoriser la croissance pédagogique des précepteurs pourrait constituer un modèle pour d'autres professions de la santé.

**Mots-clés :** développement des précepteurs, développement du corps professoral, développement professionnel continu, pharmacie, enseignement, éducation

## INTRODUCTION

Health professionals who supervise and teach trainees are faced with the daunting task of maintaining competencies in multiple domains related to their roles as clinicians and teachers. The former role is the domain of continuing professional development (CPD), the latter the domain of faculty development (FD).[1,2] Historically there has been little overlap between CPD and FD, despite there being value in the development of collaborative learning that bridges the gap between them.[3] Silver and Leslie[2] have noted common elements between CPD and FD, suggesting that there are opportunities to integrate them for some types of learning. They outlined 3 elements that could facilitate the linking of CPD and FD: the learner, best practices in teaching and learning, and learning formats.[2] In addition to adult learning theory, numerous theoretical orientations can frame and inform CPD and FD, including social constructivism, adaptive expertise, and situated learning and communities of practice. The last of these serves to promote learning, alongside the development of a professional and academic identity.[4,5]

Pharmacists in Canada have experienced an increased need for FD since the time, about a decade ago, when universities transitioned from Bachelor of Science in Pharmacy degrees to entry-level Doctor of Pharmacy degrees. Students now spend approximately one-third of their curriculum in experiential placements. This expansion of experiential training has significantly increased the demand for pharmacy preceptors, who play a key role in developing competent pharmacy graduates.[6] Preceptors at the University of Toronto's Leslie Dan Faculty of Pharmacy are drawn from a pool of licensed pharmacists with at least 2 years of practice experience. Most pharmacy preceptors spend the majority of their time in clinical practice as opposed to supervising and teaching students. As such, their identity as clinicians is likely reinforced by their practice contexts, whereas their preceptor/educator identity may be less well developed or less prominent.[7,8] The province of Ontario does not monitor CPD as a prerequisite for licensure; however, preceptor development is required for any pharmacist who supervises experiential placements at the Leslie Dan Faculty of Pharmacy, and this mandate is supported by national accreditation standards.[9] Although pharmacy preceptors are expected to exhibit proficiency as clinicians and teachers, time and resource constraints pose significant barriers to maintaining expertise in both areas. Similar pressures exist for other health professionals who engage in the provision of clinical care and are also providing supervision and teaching to learners in a workplace context. For busy clinicians, combining clinical content training (i.e., CPD) with teaching skills training (i.e., FD) may improve learning efficiency by allowing preceptors to stay up to date clinically while also practising their teaching skills.[10,11]

The goal of this study was to design, deliver, and evaluate a learning activity for pharmacy preceptors that blended a clinical update (i.e., CPD) with the application of that knowledge by means of a specified teaching technique (i.e., FD). Our primary objective was to explore the experiences of preceptors participating in this combined education model. Our secondary objective was to determine how a blended education program affects teaching effectiveness and translation of new knowledge into practice.

## METHODS

### Intervention

We developed CATE (Clinical And Teaching Education), a workshop consisting of clinical content on depression and the One-Minute Preceptor (OMP) teaching model (Box 1). We selected the topic of depression because it was the top-ranked clinical learning need in a survey of preceptors at the Leslie Dan Faculty of Pharmacy, conducted in July 2019 (internal data). We selected the OMP because of its simplicity and utility as a framework to provide effective feedback to learners in a variety of clinical settings.[12-14] The workshop curriculum was informed by cognitive and

**BOX 1. CATE Workshop Curriculum**

| |
|---|
| **Icebreaker (5 min)** |
| Polling questions to create participant engagement and prime them to the subject matter:<br>a. How many patients with depression do you typically see in a week?<br>b. Think of a time when you experienced a challenging learning situation with a student. What was your greatest challenge?<br>c. Which best describes your practice site: community, hospital, other |
| **Welcome, Introductions (10 min)** |
| **Clinical update – Pharmacotherapy for depression (40 min)** |
| • Didactic session incorporating clinical vignettes, delivered by a subject matter expert |
| **Break** |
| **Teaching skill – One-Minute Preceptor (25 min)** |
| • Introduction and description<br>• Education theories supporting this teaching model<br>• Video demonstration: One-Minute Preceptor in the context of a depression case |
| **Experiential learning (20 min)** |
| • Participants moved into breakout rooms to practice<br>• Scripted role play was provided (Scenario: preceptor applying One-Minute Preceptor technique to review depression case with student)<br>• Small group debrief using guided reflection questions |
| **Large group debrief; question and answer (15 min)** |
| **Summary, commitment to change (5 min)** |

social constructivism[15] and was designed according to principles of adaptive expertise, which provided a framework to develop both procedural (i.e., knowing "what") and conceptual (i.e., knowing "why") knowledge.[16,17] We employed a sequential approach, with a didactic component on depression taught by a pharmacist expert, followed by the teaching content (OMP) taught by faculty members at the Leslie Dan Faculty of Pharmacy. The 2 areas were then integrated for experiential learning to allow participants to learn and practise applying newly acquired clinical knowledge and teaching skills. Because this study took place during the COVID-19 pandemic, a web-based platform (Zoom) was used to deliver the 2-hour workshop synchronously. The workshop was run twice in November 2020. Summary materials (slides, references, and tip cards) were sent to participants by email afterward.

### Participants

CATE was offered to all current pharmacy preceptors at the Leslie Dan Faculty of Pharmacy. Preceptors were invited to participate by a research assistant, who used our learning management system communication database. Ethics approval was obtained from the Health Sciences Research Ethics Board, Office of Research Ethics, University of Toronto (RIS Protocol No. 38398). All participants provided written informed consent.

### Evaluation

To examine the outcomes of our educational intervention, we used Microsoft Forms to administer an online survey (see Appendix 1) to participants at the end of CATE and again approximately 4, 8, and 12 months later to gather immediate and longitudinal data.[18] For each iteration of the survey, reminders were sent twice over a period of 3 weeks. For the follow-up surveys, only participants who had taken on a student in the 4-month period before the survey date were asked to complete the survey, because we wanted to ascertain their experiences in applying with their students what they had learned in the workshop.

Participants were also invited by email to partake in semistructured interviews 6–8 weeks after the workshop to explore in more detail their perceptions of CATE and how this blended education model might influence their teaching and clinical skills, as well as their roles as preceptors. The interview was conducted by telephone, with questions (Appendix 2) taken from another qualitative study that also explored a novel education intervention and adapted on the basis of an initial review of the literature on combining FD and CPD.[2,19] The research assistant took notes to capture responses during the interview.

Our survey questions and semistructured interviews were guided by a modified Kirkpatrick framework,[20,21] a widely used approach to appraising the outcomes of educational interventions, with the lens of exploring what happens when CPD and FD are combined (i.e., participant and process outcomes). This approach allowed us to define a useful taxonomy of program outcomes. For level 1 (perceptions of learning experience), we asked participants about workshop characteristics (e.g., content, delivery), relevance, thoughts about combining a clinical update with a teaching technique, motivation for attending, perceived usefulness of what they learned, and anticipated barriers. For level 2 (knowledge/skills acquisition; modification of attitudes), participants rated their confidence in the management of depression and use of the OMP. For level 3 (behavioural change) and level 4 (change in organizational practice; benefits to patient/clients), questions focused on frequency of use of the OMP[14] and whether the teaching tool affected their or their organization's teaching, and also explored what worked and what did not (successes and challenges).

Themes were generated from the survey and interview data using directed content analysis.[22-24] Derivation of the initial codebook was based on the modified Kirkpatrick framework and study objectives. Two team members (including A.G.) categorized the data using the qualitative analysis software NVivo; any additional identified codes were added during this process. Coded data were then reviewed for consistency of coding by one of the team members (D.K.). A subgroup (including D.D. and D.K.) met to review the coded data, and areas of discrepancy were resolved through discussion and consensus. Themes derived by grouping similar codes were then reviewed by the subgroup. Discrepancies were resolved through discussion and consensus. The entire research team met multiple times to discuss and confirm themes.

## RESULTS

CATE was offered twice to a total of 35 participants. Participants had mean durations of 16.2 (standard deviation [SD] 11.4) years in practice and 10.9 (SD 8.4) years as a preceptor, and the majority (19/35) were hospital pharmacists (Table 1).

**TABLE 1. Participant Characteristics**

| Characteristic | No. (%) of Participants or Mean ± SD (*n* = 35) |
|---|---|
| Practice area | |
| Hospital | 19 (54) |
| Ambulatory/family health team | 8 (23) |
| Community | 6 (17) |
| Industry | 1 (3) |
| Specialty | 1 (3) |
| Time as a practising pharmacist (years) | 16.2 ± 11.4 |
| Time as a preceptor (years) | 10.9 ± 8.4 |
| No. of students overseen per year | 3.1 ± 2.3 |

Ten semistructured interviews were conducted. Follow-up survey response rates were 83% ($n$ = 29), 71% ($n$ = 25), and 54% ($n$ = 19) for the 4-, 8-, and 12-month surveys, respectively. Of the follow-up survey respondents, 55% ($n$ = 16), 48% ($n$ = 12), and 47% ($n$ = 9) had served as preceptors for students in the 4-month period before the 4-, 8-, and 12-month surveys, respectively.

## Themes

Across the 4 levels of the Kirkpatrick model, we identified 9 themes related to preceptors' experiences in CATE.

In level 1, we identified 3 themes related to perceptions of the learning experience (Table 2). First, motivation to attend was driven by a desire for lifelong learning. Participants wanted to learn something new that they could add to their teaching armamentarium. Relevance of the clinical content was also important, with many stating that they wanted a refresher on depression. Curiosity was a prominent contributor that drove the desire to learn. Second, many expressed that they liked the variety of speakers and valued learner-centred pedagogy during CATE. The opportunity to practise the OMP in small groups created a safe atmosphere to solidify new information. Participants appreciated the scripted role plays, which allowed them to focus on learning the OMP components. Surprisingly, the incorporation of educational theory was described as helpful in enhancing their understanding of the OMP and aligns with the fact that, before the workshop, 86% ($n$ = 30) were not familiar

**TABLE 2 (part 1 of 2). Themes and Sample Quotes for Modified Kirkpatrick Framework, Levels 1–4**

| Theme | Representative Quotations |
|---|---|
| **Level 1: Perceptions of the learning experience** | |
| Desire for lifelong learning | "...important to stay current and learn different ways to mentor; I am committed to my continuing growth and continuing education and trying to be a better preceptor" (P-1) |
| | "I was looking for a refresher on this topic" (P-31) |
| | "… just appealed to me so I wanted to hear more about it" (P-1) |
| Value learner-centred pedagogy | "I liked the practical approach to the management of depression, the clear description of the One-Minute Preceptor and the inclusion of multiple presenters to allow for multiple presentation styles" (P-35) |
| Integrated but not equal | "…bonus that it offers something for you to learn and something to help other learners; was a nice balance, a 2 for 1 deal" (P-19) |
| | "I found myself wondering how the two topics were related during most of the presentation" (P-35) |
| | "If it was just preceptor development, honestly, I would have skipped it, but because of a clinical topic, it's a 2 for 1 to participate, I liked that combination" (P-27) |
| **Level 2**<br>**2a: Modification of attitudes in teaching/preceptorship**<br>**2b: Knowledge and skills acquisition in teaching/preceptorship** | |
| Rethink their approach to teaching | "I am finding that preparing for and facilitating formal therapeutic discussions is time consuming and often impractical, and I think that using the OMP concept will help me to teach students on rotation more efficiently" (P-18) |
| | "I will definitely think differently about how to approach discussions with students during a case review and focus more on gathering their thoughts rather than asking questions on the spot to them, for example understanding their assessment rather than grilling them about everything they know about serotonin syndrome" (P-29) |
| Model of how to be a "better preceptor" | "It was nice to know that we can do this type of teaching and get those key points, and we can be impactful in our teaching, be intentional and focused, to hit those 5 points in the OMP" (P-7) |
| **Level 3: Behavioural change** | |
| Using OMP enhanced preceptor effectiveness | "I would try to assess the student at the start of the rotation and possibly tailor some of the interactions at first to subjects that they are familiar with and work from there" (P-12) |
| Using a new teaching skill uncovered gaps in knowledge | "Remembering all of the components/steps; but the tool provided is helpful to mitigate this challenge. I have it taped above my desk to remind myself" (P-10) |
| | "…students with large knowledge gaps we may hit some snags with applying this model; I would overcome this by continuing to be flexible and asking the questions in different ways" (P-32) |
| | "It is a much longer process, especially if student is not practiced enough in being systematic about the way they approach a case" (P-24) |

**TABLE 2 (part 2 of 2). Themes and Sample Quotes for Modified Kirkpatrick Framework, Levels 1–4**

| Theme | Representative Quotations |
|---|---|
| **Level 4**<br>**4a: Change in organizational practice**<br>**4b: Benefits to patient/clients** | |
| More cohesive approach to teaching | "Depending on if your co-preceptor was also using it, it might be coordinated if both preceptors were engaged in that teaching mode" (P-19) |
| | "Maybe before with students I will discuss with them what the model is that we are going to be using, especially in the orientation, and review the points for myself and the student" (P-33) |
| Value of OMP model beyond pharmacy students | "Finding it also helpful in other contexts, with Master's students who are starting their research projects even just talking about her approaching patients to get consent to participate in the study, just asking her who is the patient, what's your approach going to be in terms of discussing the study with patients, and then offering advice in terms of how I would approach it or how I would modify what she suggested" (P-1) |
| | "I don't often have pharmacy learners so it may be hard to remember the steps. However, I might be able to use it with Family Medicine residents and I can use the pocket card as a memory aid." (P-16) |
| | "I think there is value in how we communicate with patients as well. For example, helping them problem solve might now include asking them what they think might help with a side effect rather than just tell them." (P-10) |

OMP = One-Minute Preceptor.

with this model. Use of Zoom for online, synchronous delivery of the workshop enabled participants to attend without having to travel. However, for others, this relatively new technology was a barrier to learning. Several participants expressed a desire for more facilitation and increased time in breakout rooms. The third theme related to the integration of CPD and FD. A few felt it was distracting, and they found themselves wondering about the linkages between the 2 components. However, others thought it was efficient and liked the combination. Overall, participants were satisfied with the workshop (average rating of 4.4/5).

With respect to changes in knowledge, skills, and attitudes (level 2), we identified 2 themes, both focused on teaching (Table 2). First, participants noted that they started to rethink their approach to teaching. They found the OMP to be structured, easy to learn, and feasible to implement. Others stated that the OMP felt familiar, because it consolidated various components of teaching that they were already using in a less organized manner. Participants identified that the model shifted their focus from "telling" students the answer, to exploring the "why" behind the student's decision-making while still being efficient. Second, participants remarked that learning a more structured way of conducting therapeutic discussions provided a more complete approach to their teaching. This allowed them to focus on assessing students' understanding of cases or concepts being discussed.

Before the workshop, 63% of the participants ($n$ = 22) rated themselves as confident or very confident regarding the management of depression. Although we did not discern any prominent level 2 themes related specifically to depression (the clinical topic of the workshop), participants' confidence in managing depression was highest immediately after the workshop and generally declined with each successive follow-up survey (Table 3).

In level 3 of the Kirkpatrick framework, 2 themes were identified (Table 2). First, using the OMP enhanced participants' effectiveness as preceptors: student discussions were more focused, succinct, and balanced, which prevented preceptors from reverting to didactic teaching. Many took the opportunity to extrapolate what they learned about the OMP and apply it to different teaching and learning situations or different types of students.

The second theme within level 3 was that using a new teaching skill uncovered gaps in both the student's and the preceptor's knowledge and skills. Many participants thought that additional practice would allow them to become more proficient with using the OMP tool. Interestingly, our survey responses did not show a change in the self-reported frequency of use of the OMP microskills over the data collection period. Participants noted that it was tempting to skip steps or revert to "telling". This tendency was driven by a perceived lack of student readiness. Weaker students or those who were unprepared hindered the participants' ability to use the OMP successfully (for example, if the student had a significant knowledge gap, was not organized in their case presentation, or was unable to formulate a conclusion about a case). There was also a perception that "under the right conditions", the tool could be extremely useful and a timesaver. However, when the conditions were not right (e.g., when the preceptor could not recall the OMP steps or had competing priorities related to COVID-19), there was a sense of failure in not being able to use the tool to its fullest extent.

Lastly, we identified 2 themes in level 4 of the Kirkpatrick framework (Table 2). With respect to exploring changes

**TABLE 3. Self-Efficacy in Management of Depression**

| Workshop Topic | Timing of Survey; No. (%) of Respondents | | | |
|---|---|---|---|---|
| | Immediately after Workshop (*n* = 35) | 4-Month Follow-up (*n* = 16)[a] | 8-Month Follow-up (*n* = 12)[a] | 12-Month Follow-up (*n* = 9)[a] |
| Choosing a first-line antidepressant | | | | |
| Confident or very confident | 30 (86)[b] | 12 (75) | 9 (75) | 6 (67) |
| Not or somewhat confident | 5 (14) | 4 (25) | 3 (25) | 3 (33) |
| Knowing when to switch antidepressants or add adjunctive medication | | | | |
| Confident or very confident | 26 (74)[b] | 6 (38) | 4 (33) | 5 (56) |
| Not or somewhat confident | 9 (26) | 10 (62) | 8 (67) | 4 (44) |
| Identifying adverse effects of antidepressants | | | | |
| Confident or very confident | 29 (83)[b] | 11 (69) | 9 (75) | 6 (67) |
| Not or somewhat confident | 6 (17) | 5 (31) | 3 (25) | 3 (33) |
| Managing adverse effects of antidepressant | | | | |
| Confident or very confident | 25 (71)[b] | 10 (62) | 7 (58) | 6 (67) |
| Not or somewhat confident | 10 (29) | 6 (38) | 5 (42) | 3 (33) |
| Patient counselling on antidepressant medications | | | | |
| Confident or very confident | 31 (89)[b] | 11 (69) | 7 (58) | 6 (67) |
| Not or somewhat confident | 4 (11) | 5 (31) | 5 (42) | 3 (33) |

[a]Respondents limited to those participants who had taken on a student during the 4-month period before the survey.
[b]Self-efficacy with all topics was highest immediately after the workshop.

to teaching practice, participants expressed a desire to share the OMP technique with other preceptors and students at the site, with the goal of creating a more cohesive approach to teaching. Many commented that usual continuing education and sharing activities were suspended during the pandemic, which limited opportunities to disseminate or more widely implement what they had learned. Finally, participants saw value in using the OMP with other health professional learners, Master's students, or even patients. There was a sense that it would enhance communication by consolidating information and creating dialogue.

## DISCUSSION

We used both quantitative and qualitative approaches to explore the processes and outcomes of combining clinical updates (CPD) and teaching education (FD) for pharmacy preceptors.

### Professional Identity: "Clinician to Clinician–Educator"

During our recruitment and consent process, we were clear about our intentions—that we wanted to study participants' perceptions and the effectiveness of a professional development program that combined clinical and teaching education. Although participants stated that their initial motivation to attend the session was 2-fold—to learn a new teaching skill and to update their knowledge of depression—almost all participants focused on their knowledge deficit concerning teaching. Participants were expected to have baseline knowledge of depression and teaching, given that they had been in clinical and teaching practice for some time. However, the self-perceived knowledge gap was much wider in the teaching domain. This gap likely reflects the approach to pharmacy training in Canada, which traditionally places a heavy emphasis on clinical skills and knowledge. The implicit assumption is that competent practitioners will also possess adequate skills and knowledge to teach.

The health professional literature suggests that faculty members struggle to develop an educator identity.[7] Pharmacy preceptors develop their professional identities as part of a constant process of role change, and many individuals in health professional education struggle to develop an educator identity when they view themselves primarily as clinicians.[25,26] Promoting educator identity through this blending of FD and CPD may inadvertently increase the number of pharmacists who identify as teachers, as those who develop an educator identity may be more likely to want to teach.[27]

Our results indicate that the pharmacists in this study were motivated to participate by both the clinical and the teaching aspects of the workshop; ultimately, however, the teaching component had the most impact.

### The Role of Content

In our attempt to create efficiency of learning, we aimed to include new information in both clinical and teaching

areas. While there are no specific pedagogical guidelines for combining CPD and FD, we chose to introduce clinical and teaching content sequentially and then deliberately wove them together during the experiential learning component. We structured the scripted role play as an OMP interaction based on a depression case. Although we chose the content area based on need (according to a preceptor needs assessment) and relevance (given that OMP is suitable for many teaching settings), the OMP teaching tool was new for the vast majority of participants. In contrast, most participants had a high comfort level with the management of depression. This contrast may explain the lack of improvement in self-efficacy relating to depression in the longitudinal follow-up. Although this result was unanticipated, it likely worked in our favour. Our results showed that the most meaningful and focused learning occurred with the introduction of and practice using the OMP. The OMP's novelty and perceived usefulness contributed to participants' desire to learn and master this tool. Upon reflection, had both the clinical and teaching content been entirely novel, participants might have felt overwhelmed, which would have prevented meaningful engagement and retention. Our results indicate that it might be more prudent to integrate a clinical area in which most participants have a certain degree of comfort, which would allow them to better focus on the new teaching component, or vice versa.

### Adaptive Expertise

These results and consideration of content led us to deeply reflect on the nature of expertise in the context of supporting pharmacy preceptors in a rapidly changing practice landscape. Learning is contextual, and our goal was not to develop preceptors who could simply rhyme off the 5 microskills of the OMP teaching technique. Instead, with the principles of adaptive expertise underpinning our work, we designed the workshop to build on prior knowledge in a new context and solidify "why" the microskills in the OMP would work.[16]

Incorporating longitudinal follow-up allowed participants to retrieve OMP skills and apply them in their practice setting. Being adaptable in the moment is a crucial part of workplace-based learning. Although preceptors likely do this inherently, when provided with a new structure to their teaching approach, gaps seem more apparent. Our results showed that participants used the OMP model flexibly as needed, or even invented and adapted certain aspects, when necessary, within their specific context. However, participants also perceived a lack of proficiency when challenged to recall the teaching steps or when faced with weaker students.

A longstanding debate occurs among psychology and education researchers on the importance of context.[28] In this blended workshop, we chose to teach the OMP situated in a specific context and focused on the topic of depression. Situating a new skill in a specific context leads the learners to develop a deeper and more nuanced understanding of the skill. However, from a knowledge transfer perspective, a disadvantage is that these OMP skills may be embedded in the context in which they were learned and could be less transferable. Context is important, and in this case the choice of depression as a clinical topic in a socially embedded workshop influenced the participants' experiences and the structure of their knowledge. One way to mitigate the effects of embedded teaching is to introduce contextual variation, which supports meaningful understanding of the teaching tool and allows participants to adapt these skills continuously and flexibly in their own context.[17] As an example of flexible adaptation, some participants extended their application of learning by trying the teaching tool with Master's students and patients.

### Limitations

Longitudinal data were gathered from preceptors after they had an opportunity to practise the OMP; consequently, results were available only from participants who taught a student during the designated follow-up period. Because of the COVID-19 pandemic, fewer preceptors took on students, and, consequently, we had fewer responses than anticipated for the follow-up surveys. Using the Zoom platform, which was relatively new at the time, for delivery of the education sessions could have advantaged those who were already familiar with the technology, and this might have influenced their development of knowledge and skills. Our study did not allow for a control group; therefore, we cannot be sure that some of the outcomes we attributed to CATE were actually due to other factors, such as selection bias. Although we chose a teaching tool that has been applied previously with various health professionals, we acknowledge that our study was conducted with one profession at a single faculty, and our findings may not be directly transferable to other health professionals.

### Future Implications

This instructional approach could be used in a variety of combined clinical and teacher training sessions, which would enhance its feasibility as a strategy to advance preceptor development among health professional educators. Lessons learned from this study will inform the development of an integrated curriculum for our preceptors, encompassing several clinical and teaching topics. Changes might include explicitly acknowledging the intentional blending of CPD and FD, in keeping with preceptors' blended identities as clinicians and educators, and providing more opportunities to practise teaching skills during the sessions.

## CONCLUSION

We developed CATE as a novel strategy, combining CPD and FD, to allow pharmacy preceptors to build on and

consolidate their clinical and educational expertise concurrently. This two-for-one approach was acknowledged and appreciated by our participants. Moreover, we believe that contextualizing learning for our preceptors can result in more meaningful education and may also serve to cultivate clinical educator identity.

## References


1. Fallis D, Irwin S, Cervero R, Durning S. Frameworks to guide faculty development for health professions education: a scoping review. *J Contin Educ Health Prof.* 2022;42(3):180-9.
2. Silver I, Leslie K. Comparing and contrasting: faculty development and continuing professional development. In: Davis DA, Turco MG, Rayburn WF, editors. *Continuing professional development in medicine and health care: better education, better patient outcomes*. Wolters Kluwer; 2017. p. 203-18.
3. Ullian JA, Stritter FT. Faculty development in medical education, with implications for continuing medical education. *J Contin Educ Health Prof.* 1996;16(3):181-90.
4. Mulherin K, Walter S, Cox CD. National preceptor development program (PDP): influential evidence and theory. The first of a 3-part series. *Curr Pharm Teach Learn*. 2018;10(3):255-66.
5. Steinert Y. Perspectives on faculty development: aiming for 6/6 by 2020. *Perspect Med Educ*. 2012;1(1):31-42.
6. Walter S, Mulherin K, Cox CD. A preceptor competency framework for pharmacists. Part 2 of a 3-part series. *Curr Pharm Teach Learn*. 2018; 10(3):402-10.
7. Irby DM, O'Sullivan PS. Developing and rewarding teachers as educators and scholars: remarkable progress and daunting challenges. *Med Educ*. 2018;52(1):58-67.
8. Steinert Y, O'Sullivan PS, Irby DM. Strengthening teachers' professional identities through faculty development. *Acad Med.* 2019;94(7):963-8.
9. *Accreditation standards for Canadian first professional degree in pharmacy program*. Canadian Council for Accreditation of Pharmacy Programs; 2018 [revised 2020; cited 2023 Feb 23]. Available from: https://ccapp.ca/wp-content/uploads/2020/10/July7-CCAPP-Professional-Standards-ENG.pdf
10. Green ML, Gross CP, Kernan WN, Wong JG, Holmboe ES. Integrating teaching skills and clinical content in a faculty development workshop. *J Gen Intern Med*. 2003;18(6):468-74.
11. Karg A, Boendermaker PM, Brand PL, Cohen-Schotanus J. Integrating continuing medical education and faculty development into a single course: effects on participants' behaviour. *Med Teach*. 2013;35(11):e1594-e1597.
12. Chinai SA, Guth T, Lovell E, Epter M. Taking advantage of the teachable moment: a review of learner-centered clinical teaching models. *West J Emerg Med*. 2018;19(1):28-34.
13. Chandra S, Ahsan M, Chandra S, Shaifali I, Koul R. Effect of one minute preceptor (OMP) model in learning of core competencies in pharmacology. *J Sci Educ Technol.* 2018;5(1):49-56.
14. Eckstrom E, Homer L, Bowen JL. Measuring outcomes of a one-minute preceptor faculty development workshop. *J Gen Intern Med*. 2006; 21(5):410-14.
15. Baker L, Wright S, Mylopoulos M, Kulasegaram K, Ng S. Aligning and applying the paradigms and practices of education. *Acad Med*. 2019;94(7):1060.
16. Mylopoulos M, Kulasegaram K, Woods NN. Developing the experts we need: fostering adaptive expertise through education. *J Eval Clin Pract*. 2018;24(3):674-7.
17. Mylopoulos M, Steenhof N, Kaushal A, Woods NN. Twelve tips for designing curricula that support the development of adaptive expertise. *Med Teach*. 2018;40(8):850-4.
18. Wong G, Greenhalgh T, Westhorp G, Pawson R. Realist methods in medical education research: what are they and what can they contribute? *Med Educ*. 2012;46(1):89-96.
19. Miller D, Kwan D, Ng S, Friesen F, Lowe M, Maniate J, et al. Initiating communities of practice for teaching and education scholarship in hospital settings: a multi-site case study. *MedEdPublish*. 2018;7:127.
20. Yardley S, Dornan T. Kirkpatrick's levels and education 'evidence'. *Med Educ*. 2012;46(1):97-106.
21. Steinert Y, Mann K, Anderson B, Barnett BM, Centeno A, Naismith L, et al. A systematic review of faculty development initiatives designed to enhance teaching effectiveness: a 10-year update: BEME Guide No. 40. *Med Teach*. 2016;38(8):769-86.
22. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res*. 2005;15(9):1277-88.
23. Erlingsson C, Brysiewicz P. A hands-on guide to doing content analysis. *Afr J Emerg Med*. 2017;7(3):93-9.
24. Sutton J, Austin Z. Qualitative research: data collection, analysis, and management. *Can J Hosp Pharm*. 2015;68(3):226-31.
25. Browne J, Webb K, Bullock A. Making the leap to medical education: a qualitative study of medical educators' experiences. *Med Educ*. 2018;52(2):216-26.
26. Kellar J, Lake J, Steenhof N, Austin Z. Professional identity in pharmacy: opportunity, crisis or just another day at work? *Can Pharm J (Ott)*. 2020;153(3):137-40.
27. Stone S, Ellers B, Holmes D, Orgren R, Qualters D, Thompson J. Identifying oneself as a teacher: the perceptions of preceptors. *Med Educ*. 2002;36(2):180-5.
28. Anderson JR, Reder LM, Simon HA. Situated learning and education. *Educ Res*. 1996;25(4):5-11.



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## APPENDIX 1 (part 1 of 3). Survey questions.

### Post CATE Workshop Survey Questions:

1. Content/Learning objectives:

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| The learning objectives were stated clearly | | | | | |
| The stated objectives were met | | | | | |
| The content included current literature and/or relevant education theories to support ideas | | | | | |
| The workshop provided me with a deeper understanding of the subject matter | | | | | |
| Role play using the one-minute preceptor was valuable | | | | | |

Questions adapted from Faculty Development Workshop Evaluations, Centre for Faculty Development, University of Toronto, 2020

2. Format:

| **The workshop:** | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| format was appropriate (methods used to deliver message suited the content) | | | | | |
| included enough time for interactive learning | | | | | |
| was presented in an organized, well-planned manner | | | | | |
| was balanced and unbiased | | | | | |

Questions adapted from Faculty Development Workshop Evaluations, Centre for Faculty Development, University of Toronto, 2020

3. When managing a patient with depression, how confident are you with/in:

| | Not confident | Somewhat confident | Confident | Very confident |
|---|---|---|---|---|
| Choosing a first line antidepressant | | | | |
| Knowing when to switch antidepressants or add an adjunctive medication | | | | |
| Identifying adverse effects of antidepressants | | | | |
| Managing adverse effects of antidepressants | | | | |
| Counselling patients with depression | | | | |

4. When precepting a student, how often do you do the following:

| | Almost never (<10%) | Sometimes (10-40%) | About half the time (40-60%) | Most or all of the time (>60%) |
|---|---|---|---|---|
| Give negative (corrective) feedback to the student | | | | |
| Provide feedback on the student's ability to synthesize/analyze knowledge related to a case in your practice setting | | | | |
| Explain to the student why they are incorrect about a case | | | | |
| Ask the student what they think is going on in a particular case | | | | |
| Teach a general principal based on the case that you and the student are discussing | | | | |
| Give specific feedback on the things the student did well | | | | |
| Correct a misunderstanding/mistake in the student's reasoning or knowledge | | | | |

## APPENDIX 1 (part 2 of 3). Survey questions.

| | Almost never (<10%) | Sometimes (10-40%) | About half the time (40-60%) | Most or all of the time (>60%) |
|---|---|---|---|---|
| Ask the student to explain how they came to their initial conclusion about a case in your practice setting | | | | |
| Explain how new medical information you are teaching could be applied to similar cases the resident might see in the future | | | | |
| Ask the student to explain how they came to their initial decision about management of a case | | | | |
| Ask the student to define a plan of management for a patient | | | | |

Questions adapted from Eckstrom E, Homer L, Bowen JL. Measuring outcomes of a one-minute preceptor faculty development workshop. *J Gen Intern Med.* 2006;21(5):410-4.

5. How will this workshop help you as a preceptor? Please explain.
6. How will this workshop help you as a pharmacist? Please explain.
7. What was your experience being taught about the one-minute preceptor in conjunction with the clinical topics of depression and anxiety?
8. What were 3 things you liked about this workshop?
9. What are 3 things you would change about this workshop?
10. Will you do or think differently as a result of this workshop? What/How?
11. Other than time, what other barriers do you foresee in implementing this learning? How do you propose to overcome these barriers?
12. Please provide any general comments about the workshop not captured above.

### Participant Demographics:

13. What is your practice area? (hospital, community, ambulatory/family health team, non-direct patient care)
14. How many years have you been a practicing pharmacist?
15. How many years have you been a preceptor?
16. What is the usual number of students you take per year (e.g. APPE, EPE, residents)
17. Prior to this workshop how would you rate your comfort/confidence teaching about management of depression (very confident, confident, needs improvement)
18. Prior to this workshop, did you know about or use the one-minute preceptor (yes, no)
19. Will you use the one-minute preceptor with your next student? (yes, no, not sure)

### Four, 8 and 12-Month Follow-Up Survey Questions:

1. Have you precepted any students in the last 4 months? (*if yes, survey continues*)
2. When managing a patient with depression, how confident are you with/in:

| | Not confident | Somewhat confident | Confident | Very confident |
|---|---|---|---|---|
| Choosing a first line antidepressant | | | | |
| Knowing when to switch antidepressants or add an adjunctive medication | | | | |
| Identifying adverse effects of antidepressants | | | | |
| Managing adverse effects of antidepressants | | | | |
| Counselling patients with depression | | | | |

## APPENDIX 1 (part 3 of 3). Survey questions.

3. When precepting a student, how often do you do the following:

| | Almost never (<10%) | Sometimes (10-40%) | About half the time (40-60%) | Most or all of the time (>60%) |
|---|---|---|---|---|
| Give negative (corrective) feedback to the student | | | | |
| Provide feedback on the student's ability to synthesize/analyze knowledge related to a case in your practice setting | | | | |
| Explain to the student why they are incorrect about a case | | | | |
| Ask the student what they think is going on in a particular case | | | | |
| Teach a general principal based on the case that you and the student are discussing | | | | |
| Give specific feedback on the things the student did well | | | | |
| Correct a misunderstanding/mistake in the student's reasoning or knowledge | | | | |
| Ask the student to explain how they came to their initial conclusion about a case in your practice setting | | | | |
| Explain how new medical information you are teaching could be applied to similar cases the resident might see in the future | | | | |
| Ask the student to explain how they came to their initial decision about management of a case | | | | |
| Ask the student to define a plan of management for a patient | | | | |

Questions adapted from Eckstrom E, Homer L, Bowen JL. Measuring outcomes of a one-minute preceptor faculty development workshop. *J Gen Intern Med.* 2006;21(5):410-4.

4. What did you like about using the one-minute preceptor?
5. What challenges or barriers did you experience when using the one-minute preceptor?
6. What are your reasons for not using the one-minute preceptor?

## APPENDIX 2. Semistructured interview guide for a study of the CATE curriculum.

This guide is a list of the possible prompts that may be asked and does not represent all the questions that may be covered during the interview.

1. Why did you attend this education program?
2. Did the program meet your expectations (why or why not)?
3. Was this education program useful in your role as a preceptor?
4. How has being part of this education program influenced your role as a preceptor? As a pharmacist?
5. Did anything surprise you after attending this education program?
6. Did you have an opportunity to use the one-minute preceptor? If yes, could you describe any:
   a. Successes
   b. Challenges
7. Have you shared what you learned with your colleagues, students (what in particular?)
8. What do you think about this format of learning
   Probe: How was it useful
   Probe: What would make it a better experience for you
9. Please share any concerns you have about similar education programs in the future (e.g. with a different clinical focus, a different teaching technique)
10. Please share any strategies or suggestions you have for improving the program.
11. Is there anything else you think I should know that I haven't asked you about today?

Adapted from: Miller D, Kwan D, Ng S, Friesen F, Lowe M, Maniate J et al. Initiating communities of practice for teaching and education scholarship in hospital settings: a multi-site case study. *MedEdPublish.* 2018;7:127. https://doi.org/10.15694/mep.2018.0000127.1