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# Trapped in the net?

## What to look for in a web based CPD program

### Background

Increasing numbers of general practitioners access web based education programs for continuing professional development (CPD). Web based programs vary in style, content, relevance, reliability, authorship and sponsorship, and hence educational quality.

### Objective

This article outlines how to choose a web based CPD program.

### Discussion

Busy GPs need to maximise their time by enrolling in effective CPD programs. Effective web based education programs implement educational theory on adult learning and the development of clinical competence.

■ General practitioners must develop and maintain their clinical competence throughout their careers. Web based education has many apparent advantages for continuing professional development (CPD). General practitioners can log on and learn at their own pace and place, when they have identified a learning need. Web based programs span time zones and geographical boundaries and can be accessed by a large number of learners. General practitioners can learn with and from their peers across the globe, hear international experts and watch videos of rare but serious clinical conditions. They can repeat aspects to consolidate learning, and even leave for an emergency call and return to the same place in the program.

Figures from the United States show that in 2006 over a quarter (26%) of continuing medical education (CME) activities were web based, up from 0.01% in 1998.[1,2] Accessibility, convenience and availability have ensured popularity, but does web based learning work? What is the evidence for the effectiveness of web based learning? What should GPs look for when choosing web based programs?

### Background to learning

Effective web based learning programs need to implement our knowledge on how adults learn, and how clinicians develop skills in clinical problem solving. Programs also need to actively overcome any barriers to learning.

### Principles of adult learning

McAvoy and Fraser[3] described how the principles of adult learning, articulated by Brookfield[4] and Knowles,[5] apply to general practice training. General practitioners:
- are in a continual state of growth
- have a unique package of experience and values
- are a source for learning
- are self directed

- want input to their learning
- learn best in real life context
- need to see learning as relevant to their future
- have set patterns of learning
- have competing interests – their lives.

Web based programs fulfil many of these principles, for example interactive programs use past experience as a source for learning.

### The development of knowledge and skills

We now know that clinical problem solving is not a generic skill. Experienced clinicians use models or schemas developed from clinical cases. Expert clinicians have a large bank of illness scripts or so called 'encapsulated' knowledge.[6] Clinical knowledge must be accessible when solving patients' problems and is best learnt in context[7] such as through on line case based learning.

Fitts[8] identified three stages of developing skills: cognitive,

practice fixation and autonomous. In the initial cognitive stage a model is developed of the sequence and processes of the skill. In the practice fixation stage the detail of the skill is added and practised and becomes fixed in the person's mind. In the final autonomous phase, using the skill becomes an unconscious action. This frees up brain capacity to absorb new information. The initial cognitive phase of clinical skills can be learned online and in the near future will be practised online with virtual simulators.

### Barriers to learning

Our emotional, physical, psychological and social situations affect our ability to learn. Doctors who are angry, anxious or guilty about a mistake they have made may not be able to learn. Education programs that facilitate reflection on critical incidents and experiences are more likely to promote learning[9] and this can be built into web based programs.

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Table 1. Guidelines to assess the likely effectiveness of web based education

**Program design**
- A learning needs analysis in general practice is undertaken
- GPs, and when appropriate, patients and carers, are involved in the program design and development
- Clear goals and program objectives are specified
- The use of multimedia, hyperlinks and web based communication tools is planned to enhance learning
- GPs, educators and information technology specialists collaborate on program development
- Program developers have editorial independence from sponsors

**Educational methods**
- Active learning is encouraged through:
  - participant self assessment
  - participant reflection
  - self directed learning
  - material based on general practice cases and problems
  - participant interaction
  - feedback to participants
- High order thinking is promoted through learning tasks requiring:
  - analysis
  - application of knowledge and skills
  - problem solving

**Program support**
- Online communication is monitored and facilitated by GPs and/or clinical educators
- Information technology help is available
- Content is regularly checked and updated

**Quality improvement and patient outcomes**
- Translation of learning into improved patient outcomes is supported through:
  - addressing the implementation of learning to patient care in general practice
  - addressing the implications of learning for systems and the organisation of general practice
  - assessment of participant learning
- The program has a structured evaluation and continuous improvement process

### The effectiveness of CPD

Improved patient outcomes are the aim of CPD programs but these are difficult to attribute to one intervention. Patient outcomes are dependent on the patient, their situation, the practitioner and their context and health system. Practitioners can be randomised to different educational interventions but this cannot be double blind. Because measuring change in patient outcomes is hard, CPD programs are often assessed by proxy measures such as their impact on clinician satisfaction, clinician knowledge or skills or clinician performance.

Despite this there are systematic reviews of what is effective in professional development. This evidence directly links to what is known about the development of clinical skills and knowledge and adults as learners.

### Evidence for the effectiveness of CPD

Davis et al[10] reviewed 99 randomised controlled trials of CME strategies that objectively assessed doctors' performance and/or health care outcomes. Effective change strategies included reminders, patient mediated interventions, outreach visits, opinion leaders and multifaceted activities. Audit with feedback and educational materials were less effective and formal CME conferences or activities, without enabling or practice reinforcing strategies, had relatively little impact.

Further work showed some evidence that interactive CME sessions, which enhance participant activity and provide the opportunity to practise skills, can effect change in professional practice and, on occasion, health care outcomes. Based on a small number of well conducted trials, didactic sessions did not appear to be effective in changing physician performance.[11]

Cantillon and Jones[12] looked at whether CME made a difference in general practice. Their findings echoed the two Davis studies and recommended that CME should be based on the work that GPs do. Significant event audits, peer review, group based learning and reminders by computer have all been shown to be effective educational strategies for general practice. Needs assessment is an important component of CME, but relying entirely on individual doctor's self assessment of their learning needs may be problematic.

Mansouri and Lockyer[13] assessed the impact of the moderator on the effectiveness of CME. They concluded that there is a larger effect size when interventions are interactive, use multiple methods over time and are designed for a small group of physicians from a single discipline.

### The effectiveness of online learning

Web based CPD can be effective. An instructional format of multimedia enhanced learning tutorials supplemented by asynchronous computer mediated conferencing for case based discussions was effective in enhancing knowledge, confidence and self reported practice change outcomes by physicians across a range of clinical subject matter areas.[14] Two reviews concluded that web based CME was effective but not superior to traditional

methods in terms of gain in learning or satisfaction.[15,16] The key to the effectiveness of education is its design not the medium of its delivery.

Web based CPD should facilitate self directed learning.[17] The first stage is to provide opportunities to identify learning needs through self assessment and then through reflection on clinical performance identify critical or salient events that might affect learning. Next, the program should provide GPs with opportunities to explore and understand the personal theories underpinning their own practice.[18] Quality programs should then enable the acquisition of new knowledge and skills in a clinical context.[19,20] The materials should combine evidence and expertise and assist health care delivery systems to develop.[21]

Group learning serves as a source of interaction and helps to shape the image of change and the practice of medicine. This can be built into web based learning by allowing individual participants to share their contributions with other participants asynchronously. Assessment of learning and feedback should be incorporated.

## Recommendations for web based CPD programs

Guidelines for GPs on how to assess the quality of a web based education program are shown in *Table 1*.

## The future

The internet has become an integral part of daily life. As a GP in a remote centre, I treasure the access to the latest information and potential to meet with GPs without leaving the comfort of my study. The potential for web based programs to break down the traditional silo mentality of CPD so that practice teams learn together is exciting.

While the advantages of CPD without trying to find a park are prominent now, will we miss the collegiality of local meetings? How will we know what proportion of CPD points should be gained on the web? Is a 100% virtual learner still a competent reality practitioner?

## Conclusion

Effective web based CPD for GPs implements our understanding of adult learners and the development of clinical knowledge and skills. Learning should be case based and active, not passive; didactic teaching sessions are ineffective. Merely placing text online for GPs to read is unlikely to improve patient outcomes. Programs should promote active learning, critical thinking, reflection and implementing change in clinical practice.

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