Article

Developing reflection and research skills through blogging in an evidence-based practice postgraduate physiotherapy module

J M Frantz, PhD; **M Rowe,** PhD

Department of Physiotherapy, University of the Western Cape, South Africa

Corresponding author: *J M Frantz (jfrantz@uwc.ac.za)*

Background. Evidence-based practice (EBP) is the process by which a clinician evaluates the quality of evidence before applying it in the management of a patient. Many practitioners struggle to integrate this research-based evidence into their professional practice. Blogs have been identified as useful pedagogical tools that can facilitate the sharing of ideas and clinical experiences among peers to reflect on diverse learning experiences.
Objectives. A qualitative research design was used to examine the use of reflective blogging to teach the process of EBP in physiotherapy.
Methods. A conveniently selected group of postgraduate students who were registered for an EBP module participated in the study. Blogging was used to teach the process of EBP in physiotherapy using Kolb's cycle as a guiding and an evaluative framework. Students reflected on and shared their learning experiences in ways that exposed the limits of their understanding around certain concepts.
Results. The results reflect how students moved from assisted to independent performance by identifying gaps in their own understanding and finding the answers themselves.
Conclusion. Reflective blogging was found to be a valuable tool for promoting meaningful learning activities among participants and assisted students in making sense of their shared experiences. It was also an effective tool to be used in teaching the process of EBP.

AJHPE 2013;5(1):3-7. DOI:10.7196/AJHPE.182

Evidence-based practice (EBP) is the process by which a clinician evaluates the quality of evidence before applying it in the management of a patient, while taking into account the multifactorial nature of the problem.[1] It is a common misconception to equate EBP with the randomised control trial (RCT), and even its founder has clarified that EBP '... integrates the best external evidence with individual clinical expertise and patients' choice',[2] making no mention of RCTs. EBP is core to clinical decision-making among health professionals, as it relates directly to the improvement of patient care through the application of external evidence.[3] However, many practitioners struggle to integrate this research-based evidence into their professional practice as well as justifying experience-based evidence in the face of limited research evidence.[1] When practitioners lack the confidence to utilise formal research, they risk becoming disempowered in an emerging culture of EBP whereby clinicians must show evidence of engaging with research.[4] For this reason, teaching the process of EBP is an essential task for clinical educators.

Reflection is an important component of learning that emphasises the relationship between past and present experiences, and has long been known to play a significant part in the development of higher order thinking skills.[5] Even though the reflective process can be complex, there is evidence to suggest that sharing knowledge and practical experiences in a collegial environment can facilitate the development of reflective skills as it relates to clinical reasoning.[6-8] The difficulty of integrating reflection in learning, and particularly reflection during the EBP process, exists because the 'reflection' describes both a cognitive process and a structured learning activity. In this study 'reflection' was defined as the process of thinking about an experience that was linked to the learning objectives for the tasks related to the EBP module. This is in line with other studies which encourage educators to 'incorporate strategies that encourage students to engage in all types of reflection'.[9] In addition, educators are encouraged to provide opportunities for reflection that are embedded in the curriculum in a way that ranges from the evaluation of simple tasks to evaluating and reflecting on more complex issues.

David Kolb's experiential theory[10] provides a conceptual framework that health professional educators can use to enhance the learning experience. There are four aspects of Kolb's learning cycle, i.e.: (*i*) concrete experience; (*ii*) reflective observation; (*iii*) abstract conceptualisation; and (*iv*) active experimentation. Learning can begin at any point of the cycle and the preferred point of entry for learners is an indication of their learning style.[10] It is important to use the process of experiential learning to make the basic principles of a subject relevant to the students.[11] The authors emphasised that experiential learning can be used to assist students in applying theoretical knowledge in practical situations. Reflection is essential to this learning process as it can link the concrete experience to the abstract concept.

Learning is most effective when it occurs in a social context in which students are guided towards higher cognitive functioning by a more knowledgeable other.[12] There is some evidence that collaborative online tools such as wikis and blogs can help to expose the upper limits of students' understanding of a topic.[13] Blogs are increasingly seen as useful pedagogical tools among health professional students, as they can facilitate a sharing of ideas and clinical experiences among peers in order to reflect on diverse learning experiences.[14,15] The act of writing is a useful part of the reflective process, as the student first constructs an idea mentally before writing it down. Then, when reading over the written statement they have the opportunity to review the ideas and test their viability according to an established schema.[16]

This article examines the use of reflective blogging in teaching the process of EBP in physiotherapy. It describes the experiences of postgraduate students in South Africa as they engage with each other around this process via blogging, using Kolb's experiential learning cycle as a framework. This framework enabled the authors to monitor the learning process of students as they reflected on their experiences in order to move from fact-based learning to a more abstract, but deeper, understanding of the work.[17] The research question we set out to answer was: 'Can reflective blogging help postgraduate physiotherapy students engage with the process of learning about EBP?'

Methods

Research setting and sample

The MSc Physiotherapy coursework programme offered a 14-week EBP module in the second year of postgraduate physiotherapy study at a South African university. The main aim of the module was to help students to determine the significance of research methods and reports as they relate to practice. On completing the module, students needed to derive a research question based on a clinical problem that they had identified, search through relevant literature, report on it, and then select evidence based on the quality of the research methods employed in the studies they chose. This included identifying, critically appraising and applying practice-relevant scientific evidence to answer the question that they had identified. Students were then encouraged to reflect on and share their challenges and experiences during this process on a blog. The final product of the module was an article from each student that answered their research question, after having been through the EBP process.

The postgraduate physiotherapy students (*N*=6) who were registered for the EBP module during the 2010 academic year participated in the blog. It was an on-site module which used a blended learning approach and catered for students from several African countries, including Rwanda, Zambia and Tanzania, and who were diverse in terms of their background and proficiency in English. None of the participants, and one of the facilitators, had ever been exposed to blogging prior to this module. All the students had a minimum of two years' clinical experience but had limited or no research experience.

Procedure

A blog was set up using Wordpress, and user accounts were created for all postgraduate students registered for the EBP module. Tasks within the module included identifying a research question; identifying the parameters for a search using the PICO (Population, Intervention, Comparison, Outcome) method; conducting a search; evaluating the methodological quality of the identified articles; and finally writing a systematic review using the articles they had gathered. The module facilitator provided students with links to additional resources relevant to the task or discussion in class and on the blog at that particular time, providing guidance and support in a 'just-in-time' fashion.[18] The authors held a workshop at the beginning of the module, during which students were able to explore the blog and familiarise themselves with its features. Throughout the module we were available to assist students with both conceptual and technical challenges that arose.

Students were encouraged to post reflective entries describing their learning experiences, perspectives on their personal development and challenges they experienced during each EBP task. They needed to read each other's blog posts and give feedback or advice in the comments section of each post. There was no expectation of the number of responses that each student had to make and therefore some commented more than others, but all students contributed. The blog ran from 7 March to 25 June; comments were made during this period. At the onset, students posted a few short, simple quotes, but later the posts written by students showed that they began to take control of the blog by sharing their thoughts and ideas. There was also an increase in the number of students' comments in their later posts, as well as in the length of the comments, perhaps showing students' increasing confidence in their own voices. The module facilitator also participated in the discussion by giving feedback and guidance based on the students' posts and comments. The aim was to develop their reflective skills and lead them to a better understanding of the EBP process using Vygotsky's notion of the Zone of Proximal Development.[12] Fig. 1 presents an example of one of the module tasks, with student comments below.

Research design

This study was undertaken using action research techniques. Within the process of action research, Kolb's cycle of learning[10] was used both as a learning tool and an evaluation framework. The emphasis was on reflection during the learning process, as opposed to merely learning facts.[5] The blog created this reflective process, creating a space for students to expose their current and prior knowledge around the process of learning EBP. This would then allow the facilitator to guide them to higher levels of understanding. See for the four stages of Kolb's cycle and their relationship to this study.

Ethical considerations

Students were not obligated to participate in the blog as it was not a requirement of the module (although the tasks for the module were

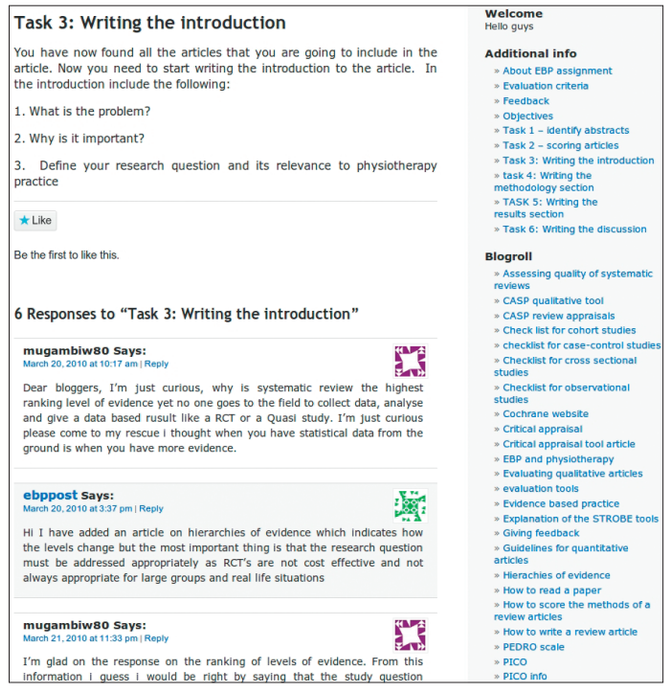


Fig. 1. Screenshot of the blog highlighting one of the tasks, with student responses below.

Table 1. Blogging activities as they related to Kolb's cycle of learning

Stages of Kolb's cycle of learning	Blogging activity
Stage 1 - Experiential learning (the process of doing something)	The facilitator posted six learning tasks onto the blog that were related to the EBP module. Each task built on the outcomes of the previous one, leading students through the process of identifying and evaluating evidence upon which to base practice
Stage 2 - Reflective observation (reviewing or reflecting on the experience)	Students were encouraged to write reflective blog posts based on their challenges and experiences as they worked through the tasks. They were also encouraged to read and comment on each others' reflective posts
Stage 3 - Abstract conceptualisation (drawing conclusions from the experience)	Students identified relationships between their own reflections on past and present experiences, as well as on the reflections of others as they related to the module tasks and the process of learning about EBP
Stage 4 - Active experimentation (planning or trying out what was learnt)	One of the module outcomes was for students to write an evidence-based article, as well as a group article co-authored by all of the students. This gave them the opportunity to actively practise the skills that they had gained during the module

posted on the blog), and informed consent was obtained from each student who allowed their responses to be included in the study. The blog was private and students' reflections were not public-facing. In addition, each student could decide to be anonymous when posting reflections and commenting on each other's work. All students had access to computers and the internet and therefore none was disadvantaged by the use of the technology.

Data analysis

Monitoring of activities, comments and posts on the blog was qualitatively analysed using pre-determined themes based on Kolb's framework. Relevant quotes in each theme were identified by the first author and further insight regarding students' reflective learning experiences was highlighted by the second author. Consensus was reached by both authors on which quotes best explained the themes. Participants were consulted on the relevance of the quotes under the various thematic headings. The results of the students' and facilitators' blog interactions are presented below in a narrative format.

Results and discussion

At each stage of Kolb's cycle within the module students reflected on and shared their learning experiences in ways that exposed the limits of their understanding around certain concepts. This allowed the facilitator and their peers to provide feedback around those experiences to encourage further reflection. Through this guidance, students were assisted to develop deeper levels of understanding around the topic being discussed. Finally, students moved from assisted to independent performance, characterised by identifying gaps in their own understanding and finding the answers themselves. Therefore, as they moved through the tasks posted on the blog, they shared with each other, gave feedback, facilitated each other's reflective process and moved towards self-directed learning.

The results below present quotes that reflect each stage of Kolb's cycle.

Stage 1 of Kolb's cycle: Experiential learning

Students were encouraged to engage with each of the six tasks related to the EBP process as they were posted on the blog by the facilitator. The following quotes highlight students' experiences and challenges while working through these tasks.

> 'I would like to share the experience I went through ... this proved to not be an easy task as there proved to be limited literature around the area ....'

> 'With some abstracts, it was difficult to get the sense of the study. Some of the abstracts were difficult to review since there was [*sic*] limitations in drawing out the specific conclusions of the study like finding the study design which forced the search in the in [*sic*] original article.'

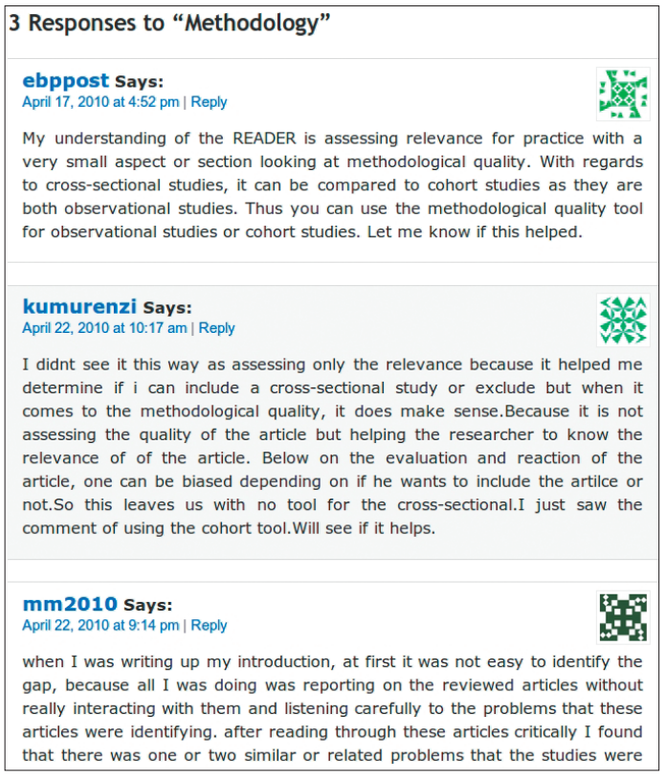
Six learning tasks related to the EBP process were posted on the blog to engage students through active learning experiences. Literature indicates that blogs 'provide a forum for academic discourse that reaches beyond the scope of a module and which augments the knowledge creation throughout a student's enrolment in a module or higher education program.'[19] This is supported by the findings of this study, which highlights the interaction between students around sharing their experiences and additional information as they worked on the module tasks. After receiving feedback from the facilitator and their peers, they would have the opportunity to reflect further and reach a better understanding of the concept. This feature of blogs has been highlighted by other researchers[14] who suggested that blogs could offer health science students opportunities for better understanding of clinical learning experiences.

Stage 2 of Kolb's cycle: Reflective observation

Students reflected on each task that they had completed and then posted their thoughts on how it related to the EBP module. Their reflections emphasised the challenges and opportunities they experienced, as well as how they responded to them.

The screenshot in Fig. 2 shows students engaging with each other around one reflective post that was related to a task on methodology during the module.

The need for reflection as part of the experiential learning cycle, and the development of competence in EBP, was also reinforced by use of the blog. Students were encouraged to step out of 'doing' and into reflecting



3 Responses to "Methodology"

ebppost Says:
April 17, 2010 at 4:52 pm | Reply

My understanding of the READER is assessing relevance for practice with a very small aspect or section looking at methodological quality. With regards to cross-sectional studies, it can be compared to cohort studies as they are both observational studies. Thus you can use the methodological quality tool for observational studies or cohort studies. Let me know if this helped.

kumurenzi Says:
April 22, 2010 at 10:17 am | Reply

I didnt see it this way as assessing only the relevance because it helped me determine if i can include a cross-sectional study or exclude but when it comes to the methodological quality, it does make sense.Because it is not assessing the quality of the article but helping the researcher to know the relevance of of the article. Below on the evaluation and reaction of the article, one can be biased depending on if he wants to include the artilce or not.So this leaves us with no tool for the cross-sectional.I just saw the comment of using the cohort tool.Will see if it helps.

mm2010 Says:
April 22, 2010 at 9:14 pm | Reply

when I was writing up my introduction, at first it was not easy to identify the gap, because all I was doing was reporting on the reviewed articles without really interacting with them and listening carefully to the problems that these articles were identifying. after reading through these articles critically I found that there was one or two similar or related problems that the studies were

Fig. 2. Screenshot showing an example of students' reflections and engagement with each other.

and analysing their experiences and challenges. They shared their own reflections, and commented on the reflections of others, which encouraged debate and externalised their thinking during task completion. This allowed their peers and the facilitator to guide them to deeper levels of understanding around certain topics through feedback.

Stage 3 of Kolb's cycle: Abstract conceptualisation

Students wanted to take control of their own learning and through their blogging experiences discovered the confidence to do so. Following a reflective debate, they negotiated taking control of the module by initiating the discussion topics themselves. They spent time highlighting the value of the module, the process that they went through and reflected on how EBP could be incorporated in the future.

> 'Dear bloggers, I'm just curious, why is a systematic review the highest ranking level of evidence yet no one goes to the field to collect data, analyse and give a data based result like a RCT or a Quasi study.'

> 'Ooh! I seem to be enjoying writing the introduction, and you know why? Because I have most of the literature that I find important in this task during my systematic article search phase. Interesting, is it always like this or am I offline? Well I do not mean that it is easy, but I find it easier than if I was to start from the scratch ….'

> 'Having had a plan (written) from the start and implementing it along the process, then the methodology part is easier to work out according to the guide, it amounts to what my plan to conduct the study was. This still drives me to feel that being systematic from the beginning has made things easier down the road.'

By sharing their views and reflections on the blog, students tried to make sense of their new learning experiences as they related to their own personal growth. This involved deeper thinking in order to interpret, understand, and make links and comparisons between the new experiences and what they already knew. Peers were found to be encouraging and supportive during the process by helping to address the learning needs of others. They were a compelling source of sharing information and encouraging personal learning as they were less threatening and enhanced deeper learning outcomes.[15] However, peer feedback alone did not seem to facilitate deep reflection, which generally only occurred when the facilitator engaged with the students. This is supported by other researchers who found that receiving peer feedback could, in some cases, actually hamper reflection.[16] There may be several reasons for this, including students modifying their written reflection as a result of knowing that their peers would be reading it. The facilitator also noticed that although students were engaging with each other's reflections and with the tasks on the blog, it was often at different levels. This enabled the facilitator to provide specific feedback to individuals to guide their learning experience at an individual level.

Stage 4 of Kolb's cycle: Active experimentation

As part of the process of active experimentation, students were expected to use what they had learned in order to write an article to be submitted for publication. They also used the opportunity to reflect how this approach to teaching and learning could be used effectively for themselves as they moved forward as practitioners and researchers.

> 'EBP as part of our masters program has therefore contributed to a swing of insight pertaining to what a physiotherapist at our level should do in terms of practice and putting pieces of knowledge together. This course (EBP) came at a time when our knowledge on research was a key higher… our writing knowledge has been refined; our aspiration for further writing has been inspired. Now that we have been using a technologically viable resource (a blog), allow me to propose that this should not be the end of an interaction that adds knowledge.'

> 'These experiences are interesting and what it has made me realise as a lecturer is that teaching tools and techniques are not as effective as providing the student with the opportunity to apply the tools or techniques for themselves.'

> 'I first acknowledge that my generation is one that is quite deep into the didactic learning. All along our learning process, writing of notes and face to face facilitation is what we have been through. Blended learning comes with a few technological demands which may not be available always. However it gives an opportunity to share ideas and knowledge.'

In this study, students were provided with the opportunity to create their own learning experiences by being actively involved in the blog and through sharing their thoughts around the processes and challenges they faced during the EBP module. In order to become reflective practitioners, one needs to incorporate both reflective practice to identify problems and action research to provide solutions.[20] Students took charge of the learning that needed

to occur by questioning and constructing meaning from the information provided and seeking consensus among themselves on matters they did not understand. Finally, students shared examples of how this process could be employed in the future, as they progressed towards independent learning practices. In addition, the facilitator realised the importance of interaction between students and educators and how reflection is a good way of developing critical self-appraisal. It can therefore be seen that using the blog led to the emergence of desirable learning activities, i.e. sharing, feedback, facilitation and self-directed learning, that were demonstrated to assist students as they moved through Kolb's cycle of learning. At each stage of the process, students used the blog to expose their understanding of EBP, thereby allowing the facilitator to guide them to the next stage of the cycle. This led to a point where the students eventually took control of their learning by initiating discussion, developing consensus and using the skills they had acquired during the module to write an article for publication.

Conclusion

Previous studies have highlighted the use of blogs to encourage reflective practice and clinical reasoning among physiotherapy students.[15] This study has shown that blogging can also be used to teach the process of EBP in physiotherapy, and was found to be a valuable tool for promoting meaningful learning activities among participants and assisted students in making sense of their shared experiences. In addition, it assisted in promoting an intellectual community that was open to sharing ideas. We therefore posit that through the process of reflective blogging, students' learning can be enriched and they can become more reflective practitioners.

References

1. Jones M, Grimmer K, Edwards I, Higgs J, Trede F. Challenges in applying best evidence to physiotherapy practice: Part 2 – health and clinical reasoning models to facilitate evidence-based practice. Internet Journal of Allied Health Sciences and Practice 2006;4(4). ISSN 1540-580X
2. Sackett DL, Rosenberg WM, Gray JM, Haynes RB, Richardson WS. Evidence based medicine: What it is and what it isn't. BMJ 1996;312:71-72. [http://dx.doi.org/10.1136/bmj.312.7023.71]
3. Sackett D, Strauss S, Richardson W, Rosenberg W, Haynes R. Evidence-based Medicine. How to Practice and Teach EBM. 2nd ed. Edinburgh: Churchill Livingstone, 2000.
4. Welch A. The challenge of evidence based practice to occupational therapy: A literature review. Journal of Clinical Governance 2002;10(4):169-176.
5. Higgs J, Richardson B, Dahlgren MA. Developing Practice Knowledge for Health Professionals. London: Butterworth-Heinemann, 2004.
6. Hanko G. Increasing Competence Through Collaborative Problem-Solving. London: David Futol Publishers, 1999.
7. Jaques D. Learning in Groups. 2nd ed. London: Kogan Page, 1991.
8. Mason L. Fieldwork education: Collaborative group learning in community settings. Australian Occupational Therapy Journal 1998;45:124-130. [http://dx.doi.org/10.1111/j.1440-1630.1998.tb00793.x]
9. Donaghy M, Morss K. An evaluation of a framework for facilitating and assessing physiotherapy students' reflection on practice. Physiotherapy Theory and Practice 2007;23(2):83-94. [http://dx.doi.org/10.1080/09593980701211952]
10. Kolb D. Experiential Learning. Englewood Cliffs, New Jersey: Prentice Hall, 1984.
11. Montgomery K, Brown S, Deery C. Simulations: Using experiential learning to add relevancy and meaning to introductory courses. Innovative Higher Education 1997;21(3):217-229. [http://dx.doi.org/10.1007/BF01243717]
12. Vygotsky LS. Mind in Society; the Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press, 1978.
13. Hardman J. The developmental impact of communicative interaction. In: Hook D, Franks B, Bauer M, eds. Communication, Culture and Social Change: The Social Psychological Perspective. UK: Palgrave, 2010.
14. Boulos MNK, Maramba I, Wheeler S. Wikis, blogs and podcasts: A new generation of Web-based tools for virtual collaborative clinical practice and education. BioMed Central Medical Education 2006;6:41. [http://dx.doi.org/10.1186/1472-6920-6-41]
15. Ladyshewsky R, Gardner P. Peer assisted learning and blogging: A strategy to promote reflective practice during clinical fieldwork. Australian Journal of Educational Technology 2008;24(3):241-257.
16. Xie Y, Ke F, Sharma P. The effect of peer feedback for blogging on college students' reflective learning processes. The Internet and Higher Education 2008;11(1):18-25. [http://dx.doi.org/10.1016/j.iheduc.2007.11.001]
17. Kell C, Jones L. Mapping placement educators' conceptions of teaching. Physiotherapy 2007;93(4):273-282. [http://dx.doi.org/10.1016/j.physio.2006.11.011]
18. Higdon J, Topaz C. Blogs and wikis as instructional tools: A social software adaptation of just-in-time teaching. College Teaching 2009;57(2):105-109. [http://dx.doi.org/10.3200/CTCH.57.2.105-110]
19. Williams J, Jacobs J. Exploring the use of blogs as learning spaces in the higher education sector. Australasian Journal of Educational Technology 2004;20(2):232-247.
20. McMahon T. 'Is reflective practice synonymous with action research?' Educational Action Research 1999;7(1):163-169. [http://dx.doi.org/10.1080/09650799900200080]