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# **EFFICACY OF E-PORTFOLIOS: A SYSTEMATIC REVIEW OF THE EVIDENCE**

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## **Background**

Portfolios are used by most health professions as an instrument and medium for formative and summative assessment, as well as for other educational activities and processes. As portfolios become more widespread across health and other professional sectors - and their content and potential becomes more complex - they have increasingly migrated to electronic format.

There is now a considerable body of evidence published across the health professions, including medicine, nursing, dentistry, pharmacy, clinical psychology and allied health, on the utility of (electronic) portfolios; however, these single studies vary widely in both their design, scope, quality and conclusions.

In clinical research systematic reviews are often employed to synthesise large amounts of disparate evidence. Educational research is very rarely purely quantitative though and at the 1999 Linköping meeting of the Association of Medical Education in Europe (AMEE) a group was formed to bring evidence based practice to medical education. The result was the BEME (Best Evidence Medical Education) Collaboration, an international partnership that has produced methodology to learn from both experimental and non-experimental educational research and promote best practice.

To date, a systematic review on the efficacy/usage of portfolios - electronic or otherwise - has never been conducted. This paper will discuss the findings of the recently formed BEME systematic on this topic which will provide a robust and objective synthesis of the large and increasing body of literature on this vital educational intervention.

## **Aims and Objectives**

This research aims to combine all relevant evidence to determine the efficacy and utility of e-portfolios as educational instruments in healthcare settings.

This would:

- establish how effective e-portfolios are as instruments to support reflective practice,
- summarise the strengths and weaknesses of e-portfolios for conducting formative and summative assessment,
- synthesise the evidence on e-portfolio usage in the work place and how they can further education,
- ascertain whether e-portfolios can accurately determine the educational needs of learners.

## **Research Questions**

- Are e-portfolios an effective and practical instrument for education, particularly formative and summative assessment?
- What are the advantages and disadvantages in moving to an electronic format from paper?
- What is the evidence that e-portfolios are equally useful across health professions, and can they be used to promote inter-disciplinary learning?

## **Methods/Summary of Work**

The group has adopted the methodology of the Best Evidence Medical Education Collaboration and first conducted broad sensitive searches for all available evidence

on the efficacy of e-portfolios in any setting; a second smaller subset of the evidence will be examined to look specifically at the efficacy of portfolios within the health professions. The search included the peer reviewed databases for health (Medline, Embase, CINAHL, Psychlit) and education (ERIC, TIMELIT, British Education Index), as well as a search of the grey literature.

The combined searches produced 2775 citations potentially relevant to the review. Pairs (blinded) then reviewed titles, and where necessary abstracts, to reduce the pool of potentially relevant articles to 225. These are currently being read in full by two reviewers who rate them independently for relevance against pre-determined criteria versus the review questions and quality of methodological design. A web-based tool for detailed appraisal of the papers and abstraction of relevant data has been developed to facilitate this process and ensure a consistent approach.

The research will also incorporate the findings of two evaluations of the United Kingdom's largest e-Portfolio system for healthcare workers - the NHS Education for Scotland (NES) e-Portfolio system, which provides e-portfolios for tens of thousands of health professionals across Scotland, England, Northern Ireland and Wales. In 2007 separate evaluations of the NES e-Portfolio software were undertaken by BECTA (British Educational Communications and Technology Agency) as well as a joint project between the Mersey Deanery and the Royal College of Physicians of London. The evidence from these evaluations will be treated as primary research and appraised identically to the rest.

### **Timeline for Completion**

At the time of abstract submission, the group had appraised approximately 25% of the articles. Further potentially relevant evidence was continuing to be collected and appraised from cited reference searches and contacting authors, though in diminishing quantities (estimated 15-20 new papers will be included).

By the time of e-Portfolio 2007 the group is on course to have all data abstraction completed and will be able to present the synthesised evidence on each of the research questions. The results will be written up in late 2007 for publication in early 2008.

The group continues to work with a variety of interested parties on the project and welcomes any contact. BEME systematic reviews have a proven record of combining diverse evidence in a transparent, reproducible and objective manner and we would look forward to presenting and discussing our methods and findings, and their implications for best practice within health care and beyond.

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