The Feasibility and Acceptability of Using a Portfolio to Assess Professional Competence

Patricia A. Miller, Rosine Tuekam

ABSTRACT

Purpose: Little is known about physical therapists' views on the use of portfolios to evaluate professional competence. The purpose of this study was to gather the opinions of physical therapists on the feasibility and acceptability of a portfolio prepared to demonstrate evidence of clinical specialization through reported activities and accomplishments related to professional development, leadership, and research.

Methods: Twenty-nine Canadian physical therapists practising in the neurosciences area were given 8 weeks to prepare a professional portfolio. Participants submitted the portfolio along with a survey addressing the preparation of the portfolio and its role as an assessment tool. Qualitative content analysis was used to interpret the participants' comments.

Results: Participants reported that maintaining organized records facilitated the preparation of their portfolio. They experienced pride when reviewing their completed portfolios, which summarized their professional activities and highlighted their achievements. Concerns were noted about the veracity of self-reported records and the ability of the documentation to provide a comprehensive view of the full scope of the professional competencies required for clinical specialization (e.g., clinical skills).

Conclusion: The study's findings support the feasibility and acceptability of a portfolio review to assess professional competence and clinical specialization in physical therapy and have implications for both physical therapists and professional agencies.

Key Words: acceptability, clinical specialization, competence, feasibility, portfolio

Miller PA, Tuekam R. The feasibility and acceptability of using a portfolio to assess professional competence. *Physiother Can.* 2010;preprint. doi:10.3138/ptc.2009.43

RÉSUMÉ

Objectif : On sait peu de choses du point de vue des physiothérapeutes sur l'utilisation de portfolios pour l'évaluation des compétences professionnelles. L'objectif de cette étude était de recueillir l'opinion de physiothérapeutes sur la faisabilité et l'acceptabilité d'un portfolio préparé pour faire la preuve d'une spécialisation clinique à l'aide d'une nomenclature d'activités et de réalisations liées au développement professionnel, au leadership et à la recherche.

Méthodes : Vingt-neuf physiothérapeutes canadiens qui œuvrent dans le domaine des neurosciences ont eu huit semaines pour préparer leur portfolio professionnel. Les participants ont soumis leur portfolio avec un sondage sur la préparation du portfolio et sur son rôle en tant qu'outil d'évaluation. Une analyse qualitative de contenu de ces portfolios a été réalisée pour interpréter les commentaires des participants.

Résultats : Les physiothérapeutes ont affirmé que le maintien de dossiers en bon ordre a facilité la préparation de leur portfolio. Ils se sont dits fiers du portfolio qu'ils ont préparé et qui résumait leurs activités professionnelles et soulignait leurs réalisations. Certaines questions ont été soulevées quant à la véracité des faits fournis par les personnes qui préparaient leur propre portfolio et quant à la capacité de la documentation de fournir un aperçu complet des compétences professionnelles requises pour la spécialisation clinique (c.-à-d. des compétences cliniques).

Conclusion : Les constatations de l'étude sont favorables à l'acceptabilité et à la recevabilité de l'examen d'un portfolio pour l'évaluation des compétences professionnelles et de la spécialisation clinique en physiothérapie, et ces conclusions ont des conséquences tant pour les physiothérapeutes que pour les organismes professionnels.

Mots clés : acceptabilité, compétence, faisabilité, portfolio, spécialisation clinique

The authors have no conflicts of interest to declare.

We are grateful to the physiotherapists who participated in this study, and for the assistance of Dr. K.W. Eva in the implementation of this study.

This research was completed by Rosine Tuekam in partial fulfilment of the requirements of a MSc(PT) degree at McMaster University.

Pat Miller held a Strategic Training Fellowship in Rehabilitation Research from the CIHR Musculoskeletal Health and Arthritis Institute during the course of this study.

The content of this manuscript was presented, in part, as a podium presentation at the Canadian Physiotherapy Association Congress in Calgary on May 29, 2009.

Patricia A. Miller, BSc(PT), MHSc, MSc, PhD: Associate Clinical Professor, School of Rehabilitation Science, and holder of the Raymond and Margaret LaBarge Post-doctoral Fellowship for Research and Knowledge Application for Optimal Aging, School of Social Work, McMaster University, Hamilton, Ontario.

Rosine Tuekam, BSc, MSc(PT): Care Co-ordinator, Toronto Central Community Care Access Centre, Toronto, Ontario.

Address correspondence to Dr. Pat Miller, School of Rehabilitation Science, McMaster University, IAHS Room 403, 1400 Main Street West, Hamilton, ON L8S 1C7 Canada; Tel.: 905-525-8915; Fax: 905-521-6156; E-mail: pmiller@mcmaster.ca.

DOI:10.3138/ptc.2009.43

INTRODUCTION

A portfolio is a collection of material prepared and maintained for a specific purpose.¹ It has been suggested that “at the heart of every portfolio is information collected in evidence of the owner’s learning process and/or competence levels.”^{2(p.214)} A portfolio can assume many forms, ranging from a curriculum vitae (CV)³ through several file boxes filled with bound documents⁴ to a Web-based summary of experiences.⁵ While portfolios most often include documentation as evidence of learning or achievement,⁶ some feel that portfolios must include evidence of self-reflection.⁷ Portfolios are now routinely used in health professional education and practice to assess professional competence, alongside other forms of assessment such as written examinations, objective structured clinical examinations, and audits of record keeping.^{8–11}

A recent systematic review highlighted the educational effects of portfolios on undergraduate learning in various health professional disciplines, including medicine, nursing, dentistry, radiography, and physical therapy.⁶ A range of educational benefits was identified, including improvements in student knowledge and understanding, especially in the ability to integrate theory with practice. Furthermore, improvements in students’ self-awareness and their engagement with reflection were identified. Because students noted that completing a portfolio can be time consuming and stressful, the authors cautioned that the manageability of portfolio completion needs to be considered so that completing the portfolio does not detract from clinical learning.⁶

Portfolios are used to assess clinical competence in various health professions, including physical therapy,^{8,12–16} and to provide evidence warranting certification by specialty organizations.^{17–19} For example, all physical therapists PTs working in Ontario are required by the College of Physiotherapists of Ontario (CPO) to maintain an up-to-date professional portfolio that includes evidence of their professional development activities as part of the Practice Assessment to evaluate continuing competency.¹⁶ Similarly, PTs practising in New Zealand are now required to maintain a portfolio documenting their continuing professional development activities.⁸ The submission of a Professional Development Portfolio is also an option for American PTs who are seeking recertification from the American Board of Physical Therapy Specialties.¹⁹ The Canadian Physiotherapy Association (CPA) is currently developing a new programme whereby clinical specialization will be recognized within various practice areas, and a portfolio will be used as part of the evaluation process.²⁰ Portfolios are reported to potentially offer a fuller and richer portrayal of the individual than that derived from traditional assessments.²¹

There has been limited research on the use of port-

folios in physical therapy. Portfolios can be used to promote reflection and learning among student and graduate PTs;^{22–27} they can also be useful in tracking career development among teachers and faculty.^{27–29} While the appropriateness of using a portfolio to assess the competence of PTs has been reported,⁸ and the feasibility of portfolio usage among student PTs has been ascertained,²⁶ little is known about PTs’ views on portfolio development or the use of portfolios to assess professional competence.

The purpose of this study was to solicit opinions from a sample of Canadian PTs on the feasibility and acceptability of a portfolio review process. *Feasibility* of an assessment relates to the resources, both financial and personal, that are involved in taking or administering the assessment;^{30,31} *acceptability* refers to the reception of the tool or programme by both those who undergo the test and those who administer it.^{30,31} This study was part of a larger study that investigated the reliability of the portfolio scoring process and the validity of the portfolio contents to illustrate the extent of clinical specialization.³²

METHODS

This study received ethics approval from the Faculty of Health Sciences Research Ethics Board at McMaster University, and written consent was obtained from each participant. Participants were recruited in July 2006 using an email listserv for CPA’s Neurosciences Division ($n = 515$ members with e-mail addresses at the time) and through professional colleagues known to the principal investigator. Participants were asked to prepare a portfolio, which for the purposes of this study was defined as “documentation collected over time that reflects the PT’s professional development, leadership and research activities.” Such a portfolio would be akin to an expanded CV.

Participants received a detailed outline identifying examples of items that could be submitted as evidence. These items had been identified through an online Delphi process involving a national panel purposively selected to comprise PTs representing various practice areas, including clinical specialists, academics, and consultants familiar with issues related to competency development and evaluation.³² Suggested items in the *professional development* domain included workshops, courses, and conferences attended; postgraduate university courses completed; and inservices and teaching rounds attended. Items in the *professional leadership* domain included teaching students and graduate PTs through workshops or courses, acting as a clinical preceptor of student PTs, presentations delivered at professional conferences or to the public, committee work, acting as a mentor or professional consultant, and receiving a professional award. *Research activities* included

participating in a quality-assurance initiative or research project. (See Appendix for a detailed outline of suggested portfolio contents.)

Participants were given 8 weeks to prepare their portfolios, which they submitted along with a completed questionnaire addressing demographic information (e.g., current caseload, years in practice) and identifying the amount of time required to complete the portfolio. The questionnaire also included five open-ended questions, developed by the authors, about the feasibility and acceptability of the portfolio review process:

1. How long did it take you to prepare your portfolio? (*feasibility*)
2. What was the most difficult aspect in the preparation of your portfolio? (*feasibility*)
3. What, if any, strategies helped you prepare your portfolio? (*feasibility*)
4. What features of the portfolio review process make it a good way in which to assess clinical competence or clinical specialization? (*acceptability*)
5. What might be some of the limitations of a portfolio review as a tool to assess clinical competence or clinical specialization? (*acceptability*)

Participants faxed or e-mailed their portfolios and completed questionnaires to a co-investigator on the larger study, who removed all identifying information and assigned the same identification number to both documents in order to protect participants' anonymity. The documents were then forwarded to the other two investigators for analysis.

Descriptive statistics were used to report the amount of preparation time and the demographic data; qualitative content analysis was used to analyze the participants' comments. Qualitative content analysis is the subjective interpretation of the content of text data through the process of coding and identifying themes.³³ A conventional or inductive approach was used, whereby researchers allowed categories and category names to "flow from the data" instead of using pre-conceived codes.^{33(p.1279)} Initially, the two investigators independently read, interpreted, and coded the text data. They then met to discuss the coding and identify the major themes. Consensus on coding and themes was achieved through discussion, and representative quotes were identified.

RESULTS

Participants

Participants were 5 male (17%) and 24 female (83%) PTs working in the neurosciences area. The participants were employed in six different Canadian provinces; the majority practised in Ontario ($n = 18$, 62%); 76%

Table 1 Description of Participants ($n = 29$)

Variable		Result n (%)
Gender	Female	24 (83)
	Male	5 (17)
Highest entry-level credential	Diploma	1 (3)
	Baccalaureate	26 (90)
	Master's entry-level	2 (7)
Practice setting	General hospital	14 (45)
	Rehabilitation centre	8 (34)
	Private practice	3 (10)
	Community care	2 (7)
	Other (university and agency)	2 (7)
Patient population (neurosciences)	Adult, mixed	20 (68)
	Adult, stroke	8 (28)
	Paediatrics	1 (3)
CPA member	Yes	26 (90)
	No	3 (10)
Would you apply for the CS designation?	Yes	15 (52)
	Possibly	11 (38)
	No	3 (10)

CPA = Canadian Physiotherapy Association; CS = clinical specialist

($n = 22$) were employed full time. The majority ($n = 15$, 52%) worked with adults with a variety of neurological conditions (in contrast to a caseload composed of multiple persons with the same condition, such as stroke or spinal-cord injury). With respect to their education, 1 participant had a diploma (3%), 26 had baccalaureate entry-level qualifications (90%), and 2 had an entry-level master's degree (7%). Five participating PTs also had a postgraduate master's degree, and one a PhD. Six participants were working toward a graduate master's degree, diploma, or certificate; two others were completing a PhD. The mean length of clinical practice was 14.5 ± 8.0 years (range: 1–29 years), and the mean length of time working in the neurosciences field was 11.1 ± 6.8 years (range: 1–28 years). See Table 1 for a description of study participants.

Feasibility: Preparation Time

Participants ($n = 26$) reported a mean time of 3.5 ± 2.1 hours to prepare their portfolios. The minimum reported time was 0.5 hours; the maximum was 8.0 hours. Three participants did not report their preparation time.

Written Comments

A summary of the participants' comments on the feasibility and acceptability of the portfolio review follows. Representative quotes are included to highlight the findings.

Feasibility: Difficult Aspects of Portfolio Development

Many PTs reported difficulties in compiling the information necessary for their portfolios. They had trouble finding records or recalling the time spent in various professional development and leadership activities, such as being a student preceptor:

It was difficult to remember the hours. I also had not kept track of my students.

[A difficult aspect was] trying to recall in-services and other less formal learning I participated in.

[A difficult aspect was] making certain I had recorded all continuing ed courses. A few of my brochures for courses had been misplaced so I had to do some digging (phone calls to former PT colleagues, etc.).

As well, many participants reported problems with the process of compiling their portfolio, including the motivation to initiate the process and the time it took to organize the material, as well as the identification and selection of what materials ought to be included:

Deciding on the amount of detail needed.

Organization/formatting of presentation.

Finding the time after work to organize the portfolio.

Just getting around to it.

Feasibility: Strategies That Facilitated Portfolio Development

Participants reported a variety of strategies that facilitated the development of their portfolios. Effective record keeping was essential; participants described various strategies such as using computer programmes to maintain a list of professional development activities, keeping files of all educational activities, and keeping their personal daybooks from past years to help remember the various activities. Many participants noted that having already organized their materials for another purpose (e.g., maintaining an up-to-date CV or having to prepare a professional portfolio for review by a regulatory body) was beneficial. Other strategies that helped participants prepare their portfolios included seeking advice from colleagues and using the portfolio outline provided by the researchers:

Write notes in your day planner when you remember the lectures and courses you have done. Ideally keep a record from Day 1 of your career (but I didn't do this).

I had kept my Day Timers for the last 6 years which had dates, information/letters that I had saved for my CPO portfolio.

I had kept brochures from courses I took [over the] past 10 years.

It was helpful to have already had a CV prepared. So that it just required re-formatting.

Brief outline offered by yourselves; reviewing a sample CV; Speaking with experienced clinicians re: CV preparation.

Acceptability: Benefits of a Portfolio Used to Assess Clinical Competence or Clinical Specialization

Participants reported an array of perceived benefits from preparing a portfolio. First, they noted that the portfolio review process provided a comprehensive overall view of their professional activities across various areas (e.g., education, research) in a concise, efficient manner that they found rewarding:

It outlines a person's involvement in all areas of the profession and gives a picture of activity overall.

Offers a detailed breakdown of hours of personal education, clinical experience, participation in research and teaching experience in a specific area of practice.

Comprehensiveness in types of areas that may reflect ability.

It helps track development of a career and ongoing commitment to the profession.

It is pleasing to look back and know you have accomplished something.

Second, they reported that the portfolio review process was a less threatening form of assessment than a more formal examination process. Many also found it valuable because it allowed them to showcase previous career achievements:

Less frightening than exam, able to "show off" highlights of career.

Highlights of experience and education.

Furthermore, participants reported that the portfolio provided proof of continuing education or teaching experience that may reflect their underlying skills or competencies:

Amount and type of continuing education—this often reflects the pt [patient] population treated and main interest of the therapist.

Areas where the person has taught students/courses/etc.

The depth of courses taken and specialization of courses. The time involved in courses. Whether courses are actually university based.

Tracking of education and research, teaching and work life gives a good indication of skills and interests, investment in career and knowledge level.

Acceptability: Limitations of Portfolio Use to Assess Clinical Competence or Clinical Specialization

Several limitations of the portfolio as a tool to assess clinical competence or clinical specialization were identified. First, a number of participants were not convinced that the professional activities outlined by a portfolio automatically translate into changes in practice; they expressed concerns that the documentation on profes-

sional development, leadership, and research activities cannot stand alone as evidence of actual clinical skills:

People might attend things such as teleconferences, or “read” research articles in order to get education time in with little carryover into change of practice.

Just because a person has taken courses, taught and been involved in research doesn’t necessarily mean they have competence in each area.

With regards to continuing education courses (e.g., teleconferences, and other courses) it is difficult to ascertain whether that knowledge was translated into a change in clinical practice!!

Taking a course does not ensure ability to apply the knowledge.

Second, PTs identified their concerns that the activities and accomplishments identified did not address the full scope of physiotherapy practice competencies that would be required when seeking evidence of clinical competence and/or clinical specialization (e.g., clinical skills application, therapist–patient interaction):

Some people may look great on paper but their hands-on skills and their relationship with the patients may be poor.

No assessment of clinical skills / pt [patient] interaction.

I don’t feel you can assess competence from a piece of paper with regards to “clinical” application.

Third, they felt it was difficult to ascertain the quality of professional experience outlined in a portfolio, because of the heterogeneity and lack of standardization across the range of professional development activities undertaken by PTs:

I think because we have few standard or graded courses it must be difficult to distinguish good education from poor. It is difficult to assess quality of experience or the work done.

There is no way to capture the quality of activities.

Just because someone has shown an interest in a particular area (through continuing education) does not mean they possess an advanced skill level, and someone perhaps could teach but not necessarily demonstrate positive outcomes in clinical practice.

Unless the courses are accredited university courses, it’s difficult to assess what knowledge was learned and what grade/achieved.

Importantly, several participants expressed concerns that because the portfolio content is self-reported, it may include bias or inaccuracy:

The process is based on the integrity of the applicant.

[You cannot know] if people have minimized or exaggerated their areas of involvement.

[One limitation would be the] accuracy of details for those who do not keep it up to date. Starting 17 years after qualifying I am sure there is a lot that I do not have written down because I can’t remember that long ago!

DISCUSSION

Participants in this study viewed a portfolio review as a feasible assessment method through which they could provide evidence of professional competencies related to continuing professional development, leadership, and research. On average, participants prepared their portfolios in less than 4 hours. Some participants, however, found preparing their portfolios challenging, since the process required time and consideration. They encountered difficulties in managing the material necessary to prepare their portfolios. Similar findings have emerged from studies in which nursing and midwifery students experienced problems in deciding the amount and type of evidence that needed to be included.^{34,35} However, participants in the present study used several strategies to accomplish the task successfully, including keeping accurate records of their professional activities, collaborating with colleagues, and using the portfolio outline offered by the study investigators. Similarly, it has been reported that individuals required to prepare a portfolio should be given clear guidelines on the purpose, structure, and content of a portfolio, as such guidelines may minimize the stress and anxiety individuals experience during portfolio preparation.^{21,36} Clinicians should anticipate the need for regular updating of the portfolio, since the portfolio is an account of professional development in relation to the changing context of practice.¹² The strategies identified by the participants in the present study may be useful for PTs and other health professionals required to prepare a portfolio for similar purposes.

Participating PTs indicated that the portfolio preparation process was a positive experience. They noted that the portfolio enabled them to present a comprehensive view of their activities and accomplishments across the domains of professional development, leadership, and research and that this produced feelings of pride. Similarly, a sense of achievement has been reported by students in pharmacy, occupational therapy, and medicine who prepared portfolios.^{37–39} The physical therapy and nursing students in Jensen and Saylor’s study also identified a sense of accomplishment through reviewing the final product.²² Cumulatively, these findings suggest the

important sense of value imparted to individuals who prepare a portfolio. Valuing the portfolio may keep the health professional engaged and motivated to ensure that its contents are current.

On the whole, participants indicated that a portfolio is an acceptable method of assessing clinical competence or clinical specialization. However, they also identified potential shortcomings of portfolio use. One significant concern was that it may be difficult for evaluators to ascertain the quality of the many continuing professional development activities available. Participants also pointed out that the evidence included in a portfolio does not automatically translate into changes in clinical practice; they noted that documentation of activities and accomplishments may not be the most suitable way to assess certain professional competencies, such as hands-on clinical skills and communication during professional interactions with patients and others. The importance of using multiple tools to assess professional competence has been discussed elsewhere,³⁰ and the importance of combining portfolio use with other tools of assessment was identified by Hadfield and et al.⁸ In both the Practice Assessment administered by the CPO and the new CPA Clinical Specialization Program, several different forms of assessment are used as part of the overall process to enable the evaluators to triangulate the evidence from multiple sources.^{16,20} For example, the CPO's Practice Assessment also employs a chart-stimulated recall process.^{40,41}

Some study participants raised concerns about the accuracy of the materials included in the portfolio, noting that these can be susceptible to bias or inaccuracies. It has been suggested that cultural factors may influence both the way one presents oneself within portfolio records and the ease with which one keeps records.⁴² A further concern, though not one that applies specifically to the content of the portfolios described here, is that nursing students identified difficulty in being critical and honest in their reflections when they were being assessed by faculty.⁴³ While inaccuracies in portfolios may be difficult to quantify, they threaten the portfolio's validity as an assessment tool. Strategies to address inaccuracies can include triangulating information through multiple assessment tools as well as verifying the information with the individual or with his or her peers.⁴⁴

LIMITATIONS

This study has several limitations. Because the participants were all working in the neurosciences field, the findings may not necessarily be generalizable to all PTs across different practice areas. Likewise, the participants' comments may not be applicable to portfolios developed for other purposes, since the strategies and challenges related to their preparation may differ according to the purpose and required content (e.g., reflective entries). In addition, it is possible that because the

participating PTs were willing volunteers and the study was part of a peer's graduate thesis, their written comments were more positive than they would have been had the portfolios been used for another purpose. However, given that participants made both positive and negative comments, we believe that they were offering their genuine opinions. Finally, the use of survey questions that address both clinical competence and clinical specialization simultaneously (e.g., "What features of the portfolio review process make it a good way in which to assess clinical competence or clinical specialization?") may be considered to have confounded the responses; however, one would expect that similar issues would arise in compiling a portfolio, regardless of whether the physical therapist's practice was considered specialized or not.

Given the increasing role of portfolios in physical therapy practice and education, further research on the psychometric properties of portfolios and, in particular, on the reliability and validity of portfolio reviews for summative purposes is warranted. While the results of the larger study indicated that interrater reliability was high and that differentiation among candidates with respect to the extent of clinical specialization assessed through documentation review should be possible, further research is needed.³² The use of electronic portfolios has been reported in physical therapy and in other professions, and subsequent studies could therefore consider both electronic and paper-based formats.^{5,14,25,26}

CONCLUSION

Portfolios can be used by health professionals to "form the basis for a retrospective review of accomplishments, a reflective debate on contemporary practice, and a prospective guide for future development."^{45(p.203)} The results of the present study indicate that PTs view the portfolio as a feasible and acceptable tool to assess clinical competence and clinical specialization. A clear, structured outline coupled with accurate record keeping enabled most participating PTs to prepare their portfolio in less than 4 hours. Participants valued the portfolio as a vehicle to showcase career activities and accomplishments, but they noted that a portfolio alone cannot provide a comprehensive view of professional competence. These findings should be of interest to PTs, educators, regulators, and professional agencies considering the role of portfolios in assessing professional competence. Given the increasing use of portfolios, further research on their role in physical therapy education and practice is indicated.

KEY MESSAGES

What Is Already Known on This Topic

While preparing a portfolio can be a time-consuming process, the final product can provide a satisfying view of one's professional career and accomplishments.

What This Study Adds

PTs in this study reported that preparing a portfolio to assess evidence of leadership, research, and professional activities and achievements was both rewarding and feasible. Concerns were raised about the veracity of the material PTs could provide, and participants noted that documentation alone is not adequate to provide a comprehensive view of professional competence.

REFERENCES

- Mathers NJ, Challis MC, Howe AC, Field NJ. Portfolios in continuing medical education—effective and efficient? *Med Educ*. 1999;33:521–30. doi:10.1046/j.1365-2923.1999.00407.x
- Dreissen E, van der Vleuten C, Schuwirth L, van Tartwijk J, Vermunt J. The use of qualitative research criteria for portfolio assessment as an alternative to reliability evaluation: a case study. *Med Educ*. 2005;39:214–20. doi:10.1111/j.1365-2923.2004.02059.x
- Wilkinson TJ, Challis M, Hobma SO, Newble DI, Parboosingh JT, Sibbald RG, et al. The use of portfolios for assessment of the competence and performance of doctors in practice. *Med Educ*. 2002;36:918–24. doi:10.1046/j.1365-2923.2002.01312.x
- Melville C, Rees M, Brookfield D, Anderson J. Portfolios for the assessment of pediatric specialist registrars. *Med Educ*. 2004;38:1117–25. doi:10.1111/j.1365-2923.2004.01961.x
- Carraccio C, Englander R. Evaluating competence using a portfolio: a literature review and Web-based application to the ACGME competencies. *Teach Learn Med*. 2004;16:381–7. doi:10.1207/s15328015tlm1604_13
- Buckley S, Coleman J, Davidson I, Khan KS, Zamora J, Malick S, et al. The educational effects of portfolios on undergraduate student learning: a Best Evidence Medical Education (BEME) systematic review [BEME Guide No.11]. *Med Teach*. 2009;31:282–98.
- Rees C. Portfolio definitions: do we need a wider debate? *Med Educ*. 2005;39:1142. doi:10.1111/j.1365-2923.2005.02326.x
- Hadfield I, Murdoch G, Smithers J, Violette L, Patterson H. Is a professional portfolio, as a record of continued professional development, the most effective method to assess a physiotherapist's competence? *NZ J Physiother*. 2007;35:72–83.
- Finucane PM, Bourgeois-Law GA, Ineson SL, Kaigas TM. A comparison of performance assessment programs for medical practitioners in Canada, Australia, New Zealand, and the United States. *Acad Med*. 2003;78:837–43.
- Vendrey A. Student assessment methods in physical therapy education: an overview and literature review. *J Phys Ther Educ*. 2002;16(2):64–9.
- Walsh M, Bailey PH. Objective structured clinical evaluation of clinical competence: an integrative review. *J Adv Nurs*. 2009;65:1584–95. doi:10.1111/j.1365-2648.2009.05054.x
- Alsop A. Competence unfurled: developing portfolio practice. *Occup Ther Int*. 2001;8:126–31. doi:10.1002/oti.139
- McMullan M, Endacott R, Gray MA, Jasper M, Miller CML, Scholes J, et al. Portfolios and assessment of competence: a review of the literature. *J Adv Nurs*. 2003;41:283–94. doi:10.1046/j.1365-2648.2003.02528.x
- Dornan T, Carrol C, Parboosingh J. An electronic portfolio for reflective continuing professional development. *Med Educ*. 2002;36:767–9. doi:10.1046/j.1365-2923.2002.01278.x
- Chambers DW. Portfolios for determining initial licensure competency. *J Am Dent Assoc*. 2004;135:173–84.
- College of Physiotherapists of Ontario [Internet]. Toronto: The College; 2008 [updated 2008 Jan 25; cited 2008 Jul 12]. Professional portfolio guide. Available from: <http://www.collegept.org/Physiotherapists/Quality%20Management/QualityManagementDocuments/QualityManagementDocuments>
- Bradley RT. Fellow of the American Dietetic Association credentialing program: development and implementation of a portfolio-based assessment. *J Am Diet Assoc*. 1996;96:513–7. doi:10.1016/S0002-8223(96)00143-5
- Sheets Cook S, Kase R, Middleton L, Black Monsen R. Portfolio evaluation for professional competence: credentialing in genetics for nurses. *J Prof Nurs*. 2003;19:85–90. doi:10.1053/jpnu.2003.15
- American Physical Therapy Association [Internet]. Alexandria, VA: The Association; c2008 [cited 2008 Jul 12]. Professional development—specialist recertification 2008; [about 2 screens]. Available from: <http://www.apta.org/AM/Template.cfm?Section=Recertification&CONTENTID=31759&TEMPLATE=/CM/ContentDisplay.cfm>
- Canadian Physiotherapy Association. Guidelines: clinical specialty programs 2007. Toronto: The Association; 2007.
- Byrne M, Delarose T, King CA, Leske J, Sapnas KG, Schroeter K. Continued professional competence and portfolios. *J Trauma Nurs*. 2007;14:24–31.
- Jensen G, Saylor C. Portfolios and professional development in the health professions. *Eval Health Prof*. 1994;17:344–57. doi:10.1177/016327879401700307
- Cross V. The professional development diary: a case study of one cohort of physiotherapy students. *Physiotherapy*. 1997;83:375–83. doi:10.1016/S0031-9406(05)65791-4
- Naidoo N. The use of portfolios for continuing assessment of physiotherapy students in clinical practice settings. *S Afr J Physiother*. 2004;60:31–5.
- Hayward LM, Blackmer B, Canali A, DiMarco R, Russell A, Aman S, et al. Reflective electronic portfolios: a design process for integrating liberal and professional studies and experiential education. *J Allied Health*. 2008;37:e140–59.
- Mori B, Batty HP, Brooks D. The feasibility of an electronic reflective practice exercise among physiotherapy students. *Med Teach*. 2008;30:e232–8. doi:10.1080/0142159080258870
- Paschal KA, Jensen GM, Mostrom E. Building portfolios: a means for developing habits of reflective practice in physical therapy education. *J Phys Ther Educ*. 2002;16:38–53.
- Musolino GM, Mostrom E. Reflection and the scholarship of teaching, learning, and assessment. *J Phys Ther Educ*. 2005;19:52–66.
- Peterson CA, Haymore Sandholtz J. New faculty development: scholarship of teaching and learning opportunities. *J Phys Ther Educ*. 2005;19:23–9.
- van der Vleuten CPM. The assessment of professional competence: developments, research, and practical implications. *Adv Health Sci Educ Theory Pract*. 1996;1:41–67. doi:10.1007/BF00596229
- van der Vleuten CPM, Schuwirth LWT. Assessing professional competence: from methods to programs. *Med Educ*. 2005;39:309–17. doi:10.1111/j.1365-2923.2005.02094.x
- Miller PA. Examining the competence and clinical specialization of Canadian physical therapists [dissertation]. Hamilton (ON): McMaster University; 2008.
- Hsieh HF, Shannon, SE. Three approaches to qualitative content analysis. *Qual Health Res*. 2005;15:1277–88. doi:10.1177/1049732305276687
- Mitchell M. The views of students and teachers on the use of portfolios as a learning and assessment tool in midwifery education. *Nurs Educ Today*. 1994;14:38–43. doi:10.1016/0260-6917(94)90056-6
- Tiwari A, Tang C. From process to outcome: the effect of portfolio assessment on student learning. *Nurs Educ Today*. 2003;23:269–77. doi:10.1016/S0260-6917(03)00012-1
- O'Sullivan PS, Cogbill KK, McClain T, Reckase MD, Clardy JA. Portfolios as a novel approach for residency evaluation. *Acad Psychiatr*. 2002;26:173–9. doi:10.1176/appi.ap.26.3.173
- Ashcroft DM, Hall J. Pharmacy students' attitudes and views

- about portfolio-based learning: a questionnaire survey. *Pharm Educ*. 2006;6:1–5. doi:10.1080/15602210500528117
38. Funk KP. Student experiences of learning portfolios in occupational therapy education. *Occup Ther Health Care*. 2007;21:175–84. doi:10.1300/J003v21n01_13
 39. Davis MH, Ponnampuruma GG, Ker JS. Student perceptions of a portfolio assessment process. *Med Educ*. 2009;43:89–98. doi:10.1111/j.1365-2923.2008.03250.x
 40. Salvatori P, Bapiste S, Ward M. Development of a tool to measure clinical competence in occupational therapy: a pilot study? *Can J Occup Ther*. 2000;67:51–60.
 41. Salvatori P, Simonavicius N, Moore J, Rimmer G, Patterson M. Meeting the challenge of assessing clinical competence of occupational therapists within a program management environment. *Can J Occup Ther*. 2007;75:51–60.
 42. Gannon FT, Draper PR, Watson R, Proctor S, Norman JJ. Putting portfolios in their place. *Nurs Educ Today*. 2001;21:534–40. doi:10.1054/nedt.2001.0587
 43. McMullan M. Students' perceptions on the use of portfolios in pre-registration nursing education: a questionnaire survey. *Int J Nurs Stud*. 2006;43:333–43. doi:10.1016/j.ijnurstu.2005.05.005
 44. Webb C, Endacott R, Gray MA, Jasper MA, McMullin M, Scholes J. Evaluating portfolio assessment systems: what are the appropriate criteria? *Nurs Educ Today*. 2003;23:600–9.
 45. Alsop A. Portfolios: portraits of our professional lives. *Brit J Occup Ther*. 2002;65:201–6.

APPENDIX: SUGGESTED CONTENTS FOR PORTFOLIO

Name:

Work Experience:

Identify employer, job title, and dates for each position

Post-secondary education:

- Entry-level PT degree obtained: the institution, and date of graduation

Additional education:

- Please indicate if you have obtained any other professional certificates or degrees (with graduation dates).
- If you are currently enrolled in a degree or certificate program, please indicate the program and the number of courses currently completed.

*Professional development activities:**

- Courses, symposiums, workshops, inservices or teleconferences taken (Required: title, date(s), and please indicate the number of hours of instruction*; Optional: instructor, location)

* Be sure to indicate the number of hours of study for each professional development activity undertaken.

Student teaching activities:

Please identify your teaching activities that may include but are not limited to:

- Tutoring (indicate course, dates, and stage of students)

- Teaching or demonstrating in clinical skills lab courses of other courses (indicate course, dates, stage of students, amount of time involved (in hours))
- Guest lecturer in the university program (indicate title of presentation, date, length of presentation, and stage of students)
- Clinical preceptor or supervisor or mentor (dates, number of students, stage of students)

Please indicate if you were working with physiotherapy or other health professional students.

*Teaching activities (not related to students):**

- Courses, symposiums, workshops, inservices or classes taught (Required: title, date(s), length of teaching session*; Optional: location, target audience)

* Please indicate the number of hours for each presentation.

Professional leadership activities:

- Guest speaker for patient/community or professional groups (indicate title, length of presentation, and audience)
- Evidence of membership in professional associations (provide association name and length of membership)
- Committee work: provide committee name, position held, and length of term (examples: professional associations, university program, physiotherapy or team or hospital committees)
- Mentoring of junior colleagues (please identify time-frame)
- Awards received
- Professional consultation activities
- Any other activities you consider illustrate your professional leadership

Involvement in research and quality assurance:

- Any publications or presentations that have arisen from research or quality assurance activities (please provide full reference)
- Any research funding received (provide title of project, investigators, funding agency, amount of funding received).
- Evidence of involvement in research/quality assurance. Examples: involvement in surveys, studies, chart audits, patient satisfaction surveys, hospital or department accreditation activities, participation in journal clubs, etc. Please describe the activity, time-frame, and your role. Optional: hospital reports or letter from principal investigator / physiotherapy manager / chairperson regarding your participation.
- Any other practices/activities you believe demonstrate your evidence-based practice, or your involvement in research and quality assurance activities