

Introducing a portfolio assessment in a pre-professional osteopathy program.

Brett Vaughan^{1,2}
Prue Florentine¹
Annie Carter¹

¹ Osteopathy Unit, School of Biomedical & Health Sciences, Victoria University, Melbourne, Australia

² Institute for Sport, Exercise and Active Living, Victoria University, Melbourne, Australia

Contact Details

Brett Vaughan
Osteopathy Unit
School of Biomedical & Health Sciences
Victoria University
PO Box 14428
Melbourne, Victoria, 8001
Australia
Phone: 61 3 9919 1210
Fax: 61 3 9919 1030
E-mail: brett.vaughan@vu.edu.au

Introducing a portfolio assessment to a pre-professional osteopathy program.

ABSTRACT

Portfolios are used in the education of health professionals across numerous professions including medicine, nursing, dentistry and physiotherapy. Portfolios are a collection of evidence of learning and reflection, both of which are required to be a capable healthcare professional. The current paper describes how a portfolio is to be introduced into the assessment of the final year of a pre-professional osteopathy program. A discussion of the introduction, structure, mentoring and assessment of the portfolio is provided, along with how the implementation of the portfolio will be reviewed.

Keywords: portfolio, education, assessment, capability, osteopathy

INTRODUCTION

Capable health professionals are practitioners with a broad range of skills, knowledge and abilities in their discipline. They appropriately incorporate these proficiencies into their work whilst taking into account both patient-related influences and the specific practice environment. Furthermore they possess an ability to routinely reflect on their practice. Reflection is an important component of safe healthcare practice¹ and professional development whilst also providing a basis for self-directed learning practices.²

Pre-professional education programs can develop capable health practitioners by not only teaching the skills and knowledge for that discipline, but they ideally utilise assessments that encourage students to develop generalisable skill sets.³ At present, it would appear that the methods of assessment used, not only in the osteopathic profession but health professions generally, have focused primarily on point-in-time, factual recall and limited demonstration of performance. Such methods are often not representative of performance in real clinical situations, do not offer the opportunity to demonstrate an integrated approach, and therefore do not accurately represent the individuals' healthcare practice capability. Portfolios appear to be a possible means to promote comprehensive, authentic and integrated learning and may also promote active engagement in learning activities.

Portfolios are widely used in undergraduate health professional education,⁴ however there is no research into the use of a portfolio assessment in osteopathy. A portfolio could be described as, a collection of evidence of practice within a profession and is a demonstration of what the candidate or student does in practice, and as such is often referred to as being 'authentic'.^{1, 5, 6}

Furthermore, portfolios can gauge the development of a student's abilities over time in contrast to a single point-in-time assessment.⁷

The portfolio is being introduced into the final year (year 5) of the osteopathy program at Victoria University (VU), Australia leading to the award of Master of Health Science (Osteopathy). The osteopathy program is accredited by the Australian & New Zealand Osteopathic Council. The introduction of the portfolio will allow the assessment of components of osteopathic practice that cannot be evaluated using other assessment methods, such as the Objective Structured Clinical Examination (OSCE), and to encourage students to reflect on their practice.

DEVELOPMENT OF THE PORTFOLIO

Chambers⁸ suggested four stages in the development of portfolio assessment:

1. Establish the competencies to be evaluated
2. Develop 'rules' for what will be accepted as evidence
3. Define who the examiners are and how the assessment will be conducted
4. Consider the logistics and timelines

These are used as a basis, with some modification, for the implementation of the portfolio assessment at VU as these headings suggested by Chambers⁸ provide a simple overview of the development process.

1. Establish the competencies to be evaluated

The academic staff of the osteopathy program at VU have developed the Graduate Capabilities for Osteopathic Practice (GCOP). These capabilities provide a foundation for the knowledge, skill sets, and professional values, that students graduating from the program will be able to display. There are seven domains within the GCOP (Table 1) and each of these domains has a number of corresponding elements and criteria. The portfolio assessment has been blueprinted against the domains and elements in the GCOP.^{6,9}

INSERT Table 1 here

2. Develop 'rules' for what will be accepted as evidence

Students will be provided with the GCOP at the beginning of the academic year, along with a portfolio guide and the assessment sheet. The portfolio guide includes an overview of the function and form the portfolio can take, provide models of the structure of the portfolio, and examples of evidence that can be used as part of the submission. Such clear guidance about the expectations, content, structure and assessment of the portfolio is important,^{1,10} particularly to increase the quality of evidence provided.^{4,5,11} A mentor will also be allocated to the student to assist them in the development of the portfolio. The mentoring process is discussed in detail later in this paper.

3. Define who the examiners are and how the assessment will be conducted

background to assessment

Any assessment should be reliable, valid and authentic, in addition to being fair and reasonable.⁹ In the use of a portfolio, validity is established through the blueprinting of the assessment against capabilities (in this case the GCOP) as noted above.

The reliability of portfolio assessments has been questioned,^{12, 13} and the main factor responsible for the limited reliability is predominantly the assessment method employed,⁸ that is the poor explanation and communication of the criteria. Efforts directed towards improving the reliability of the assessments have included increasing the number of examiners,^{5, 14-16} holistic scoring,⁶ use of criterion-based assessments,^{5, 17} restricting the number of pieces of evidence in the portfolio,¹⁵ and ensuring that assessment criteria are shared between, and followed by, all parties involved in the portfolio process.¹⁸ As a consequence acceptable reliability has been achieved.¹⁸

assessment of the portfolio

The assessment of the portfolio at VU will be summative and based on a global, or holistic, rating for each of the 7 domains in the GCOP, with the student requiring a 'satisfactory' grade for each domain to satisfactorily complete the portfolio. The use of a global rating incorporates the professional judgement of the assessor^{15, 18, 19} about whether the student has met the domain using the evidence presented. The global rating awarded for each domain is based on the assessment of the evidence provided by the student.

Assessments will be undertaken independently by two assessors using the assessment form.¹⁰ Driessen⁶ suggested that reliable decisions can be achieved by the use of two to three examiners. At VU the assessors to be used in the process will have also been mentors, but not

for the student being assessed. All mentors will receive training in the assessment of the portfolio,^{7, 15} and mentors will be required to approve the portfolio(s) they have mentored before it is submitted for marking. Once the assessment is completed, the examiners will meet to compare results. Where there are discrepancies between the ratings awarded, the examiners will be instructed to come to a consensus, similar to the procedure described by Friedman Ben David et al.⁷ Where the examiners are unable to come to a consensus, the portfolio will be marked by a third examiner, whose ratings will be matched with the previous assessments to make an overall satisfactory or unsatisfactory assessment.

Where the portfolio is deemed to be unsatisfactory, the student, mentor and examiners will meet to discuss why the grade was awarded and how the student is able to further develop the portfolio in order to achieve a satisfactory grade. The student will then be provided with further time and mentoring to address the concerns of the examiners, before resubmitting the final version of their portfolio.

Some research has suggested that portfolios should be summatively assessed, rather than formatively assessed, based on the idea that without grades both students and mentors may not take the development of a portfolio seriously.¹ Nursing students for example, reported that they would prefer a summative assessment of their portfolio rather than it being entirely formatively assessed, however summative assessment has been found to inhibit honest and authentic reflection.²⁰

Research has indicated that the portfolio is an acceptable method of assessing competency,²¹ and that a combination of an OSCE and portfolio is an effective way of assessing competency for

graduation.²² Whilst the portfolio can be used to triangulate and confirm results from other assessments,^{7, 21} Roberts¹² contended that portfolio assessment scores do not correlate well with results from other assessments. Portfolios may potentially reduce the number of false-positive competency decisions when their results are combined with other assessments,⁸ and an investigation of the identified issues around triangulation, false-positives, and assessment validity will be undertaken in the future.

4. Consider the logistics and timelines

The process of developing the portfolio will be introduced to the year 5 osteopathy students at the beginning of the first semester of 2012 and be assessed in the examination period at the end of semester 2, 2012. When portfolios are constructed over such an extended period of time, the financial costs of their implementation are reduced.⁸

In addition to the ideas of Chambers,⁸ consideration has also been given to the structure of the portfolio, the involvement of mentors in developing a portfolio, the students perceptions of such an assessment, and the quality assurance processes required to review the implementation.

PROPOSED STRUCTURE OF THE PORTFOLIO

The portfolio is designed so that the student can demonstrate how they meet each of the domains and elements in the GCOP. There are two aims of providing the GCOP to the students:

1) so that students become familiar with the content of the GCOP and are able to recognise the breadth and depth of skills, knowledge and abilities they will possess upon graduation; and 2) to

encourage them to carefully consider the selection of, and justification for, each piece of evidence that they feel demonstrates, individually or collectively, each of the domains and elements.² This approach incorporates the requirement of the student proposing and justifying the piece of evidence, and the examiner accepting the evidence as proof of competency/capability. Such a process is contrasted to other assessments where the examiner is the sole determinant of competency/capability.⁸

A highly structured portfolio may inhibit reflection,¹ and lead the student to a 'tick the box' approach to the development of the portfolio.⁵ Structured portfolios are often used to reduce the size of the compiling task and improve the reliability of the assessment. At VU, it is proposed to implement a basic 'skeleton' structure for the portfolio to allow the student, and their mentor, to include any type of evidence they feel meets the elements of the GCOP, thereby increasing the validity of the assessment. The only caveats placed on the portfolio will be limiting the number of pieces of evidence to twenty, and that each piece of evidence be accompanied by an 'evidence form', in order to assist the examiners with the assessment of the portfolio.

Examples of evidence that could be included in the portfolio include, but are not limited to:

- Deidentified patient clinical histories
- Referral letters
- Outcome measures
- Videos of patient consultations
- Peer assessment of treatment and management
- Participation in professional development activities, such as seminars

How the portfolio is presented for assessment is a matter for the student, with guidance of their mentor. Again the only limitations are the number of pieces of evidence and the inclusion of the form that explains and justifies each piece of evidence.

MENTORING

Mentoring is designed to support and guide the student in the development of their portfolio, to reduce the anxiety associated with its production,²⁰ and to produce a more positive attitude towards the experience of developing it.¹⁶ The mentor will identify those students who are unwilling, unable, or do not have the ability to reflect on their practice,^{1,6} as well as assisting the student to recognise their own learning needs.⁵ This is particularly important as students may not have the cognitive ability to meet the demands of the construction of a portfolio.² In addition, mentoring is one of the key factors in the success of developing a reflective portfolio,¹ as well as validating the evidence included in the portfolio.⁵

Students will be required to meet with a mentor at least twice each semester.¹⁵ The mentor will be one of the academic or clinical teaching staff from within the osteopathy program at VU.

These mentors will undergo training prior to the implementation of the portfolio, and there will be opportunities for mentors to meet during each semester to share and discuss issues and ideas, and reflect on their own experience with the portfolio process.²³ Training and meetings between mentors are important, given that McMullan²⁰ has indicated mentors find the portfolio process time consuming and stressful, particularly where little guidance on the portfolio has been provided.

STUDENTS PERCEPTIONS OF PORTFOLIOS

A large amount of the literature related to portfolios has focused on the perceptions of students who undertake the process. Initial uncertainty about the portfolio process and the perception that it will cause an increased workload^{2, 20} are reported, however these issues generally subside after students undertake the process.²² Indeed, some students would choose the portfolio assessment again even if it meant an increased workload.² Generally, students found the process of developing a portfolio to be useful,^{2, 22} that it supported their learning and professional development,^{7, 16, 20, 22} was a positive experience,²¹ and further developed their understanding of curriculum outcomes.^{2, 22} In their investigation of the effectiveness of a portfolio in a university nursing program, Tiwari and Tang² found the development of a portfolio increased student interest in learning (particularly in unmotivated students) and also appeared to encourage "...spontaneous collaborative learning..." between students.

Another issue identified by McMullan²⁰ was students not wanting to, or having difficulty with honestly and critically appraising themselves because the portfolio was to be assessed. To reduce this occurrence, the mentors will assure the student of the confidentiality of the portfolio and reinforce the value of self-appraisal as a lifelong learning skill.²⁰

The student's perception of the assessment of portfolios has been studied by Davis et al.²² In this study students reported that they were unsure about whether the examination of the portfolio was fair, and also that different examiners applied inconsistent standards in their assessments.

To counter this, all students will be provided with the assessment rubrics and the examiners will undertake training in the assessment of the portfolio.

QUALITY ASSURANCE

In order to investigate the implementation of the portfolio, each of the student, mentor and examiner groups will be surveyed.^{6, 15} Students and mentors will be surveyed at the start of the implementation process about their thoughts on the feasibility and acceptability of the portfolio, using a modified version of the survey by used by McMullan.²⁰ During the process of developing the portfolio, mentors will keep a diary about each student meeting, taking particular note of issues that arise, suggestions about their resolution and the time spent with each student.

Students will be asked to keep a record of the time taken to develop the portfolio as well as keep a diary about their interactions with their mentor. After the portfolio is submitted, students will be asked to complete the same survey by McMullan,²⁰ as well as submit details about the time spent to complete the portfolio. Mentors will also be surveyed about their experiences with the portfolio process. The information collected pre- and post-submission of the portfolio will be analysed to ascertain whether changes need to be made to the portfolio process.¹²

CONCLUSION

Portfolios have been demonstrated to improve the validity of decisions related to health care competency. This potentially reduces the number of false-positive decisions particularly when the results of portfolios are combined with results from other types of assessment. In order to successfully implement a portfolio, it is important that the positive aspects of this type of assessment are carefully explained to both mentors and students, and clear guidelines presented at the start of the development of the portfolio. Whilst reflection is one of the "...pedagogical aspirations..."¹¹ of the portfolio, Clarke¹¹ demonstrated in a nursing population, that this was not an inevitable effect of a portfolio. Perhaps less reflection occurs with a highly structured portfolio as other authors have reported that portfolios supported reflective practice,^{1, 4, 7, 22} and also assisted student development.^{1, 4, 7, 20}

Driessen et al.¹ suggested that a successful reflective portfolio is the product of regular mentoring, careful consideration of the portfolio structure and information provided to students and mentors, the availability of materials and experiences to reflect on and provision of constructive feedback via summative assessments. These ideas have been incorporated into the introduction of the portfolio at VU.

Ongoing mentoring, examiner training and the use of holistic rating scales are also important for achieving appropriate validity and reliability. A review of the portfolio process will be undertaken towards the end of 2012 to further refine and improve the process for subsequent years.

REFERENCES

1. Driessen E, Tartwijk JV, Overeem K, Vermunt J, Van der Vleuten C. Conditions for successful reflective use of portfolios in undergraduate medical education. *Med Educ* 2005;**39**:1230-5.
2. Tiwari A, Tang C. From process to outcome: the effect of portfolio assessment on student learning. *Nurse Educ Today* 2003;**23**:269-77.
3. Boud D, and Associates. Assessment 2020: Seven propositions for assessment reform in higher education. Sydney. Australian Learning and Teaching Council. 2010.
4. Buckley S, Coleman J, Davison I, Khan K, 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**:340-55.
5. Driessen E, Van Tartwijk J, Vermunt J, Van der Vleuten C. Use of portfolios in early undergraduate medical training. *Med Teach* 2003;**25**(1):18-23.
6. Driessen E. Portfolio critics: Do they have a point? *Med Teach* 2009(31):317–9.
7. Friedman Ben David M, Davis M, Harden R, Howie P, Ker J, Pippard M. AMME Medical Education Guide No. 24; Portfolios as a method of student assessment. *Med Teach* 2001;**23**(6):535-51.
8. Chambers D. Portfolios for determining initial licensure competency. *J Am Dent Assoc* 2004;**135**:173-84.
9. Stone C, Boud D, Hager P. Assessment of osteopaths: developing a capability-based approach to reviewing readiness to practice. *Int J Osteopath Med* 2011;**14**:129-40.
10. Webb E, Endacott R, Gray MA, Jasper MA, McMullan M, Scholes J. Evaluating portfolio assessment systems: What are the appropriate criteria? *Nurse Educ Today* 2003;**23**(8):600-9.

11. Clarke D, Cortis J, Sowter J. Pilot testing of guidelines to support good practice in the development of professional portfolios. *Nurse Educ Today* 2011;**31**(8):e70-e8
doi:10.1016/j.nedt.2010.12.028.
12. Roberts C, Newble DI, O'Rourke AJ. Portfolio-based assessments in medical education: are they valid and reliable for summative purposes? *Med Educ* 2002;**36**(10):899-900.
13. Pitts J, Coles C, Thomas P, Smith F. Enhancing reliability in portfolio assessment: discussion between assessors. *Med Teach* 2002;**24**(2):197-201.
14. Rees CE, Sheard CE. The reliability of assessment criteria for undergraduate medical students' communication skills portfolios: the Nottingham experience. *Med Educ* 2004;**38**(2):138-44.
15. Driessen E, van der Vleuten CPM, 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**(2):214-20.
16. Tochel C, Haig A, Hesketh A, Cadzow A, Beggs K, Colthart I, et al. The effectiveness of portfolios for post-graduate assessment and education: BEME Guide No 12. *Med Teach* 2009;**31**(4):320-39.
17. Michels N, Driessen E, Muijtjens A, Van Gaal L, Bossaert L, BY. DW. Portfolio assessment during medical internships: how to obtain a reliable and feasible assessment procedure? *Educ Health* 2009;**22**(3):1-9.
18. Driessen E, Overeem K, van Tartwijk J, Van der Vleuten C, Muijtjens A. Validity of portfolio assessment: Which qualities determine ratings? *Med Educ* 2006;**40**:862-6.
19. Norman GR, van der Vleuten CPM, de Graaf E. Pitfalls in the pursuit of objectivity: Issues of validity, efficiency and acceptability. *Med Educ* 1991;**25**:119-26.

20. McMullan M. Students' perceptions on the use of portfolios in pre-registration nursing education: A questionnaire survey. *Int J Nurs Stud* 2006;**43**(3):333-43.
21. Miller P, Tuekam R. The feasibility and acceptability of using a portfolio to assess professional competence. *Physiother Can* 2009;**63**(1):78-85.
22. Davis MH, Ponnampereuma GG, Ker J. Student perceptions of a portfolio assessment process. *Med Educ* 2009;**43**:89-98.
23. Dekker H, Driessen E, Ter Braak E, Scheele F, Slaets J, Van der Molen T, et al. Mentoring portfolio use in undergraduate and postgraduate medical education. *Med Teach* 2009;**31**:903-9.

-
1. Clinical information management
 2. Examination, diagnosis and treatment planning
 3. Osteopathic management
 4. Patient management
 5. Communication
 6. Primary healthcare responsibilities
 7. Professional and business activities
-

Table 1. Domains in the VU Graduate Capabilities for Osteopathic Practice.

ACKNOWLEDGEMENTS

Dr. Miriam McMullan from the University of Plymouth, UK for her permission to use the Portfolios in Nursing Education (PNE) Questionnaire.

STATEMENT OF COMPETING INTERESTS

Brett Vaughan is a member of the Editorial Board of the International Journal of Osteopathic Medicine but was not involved in review or editorial decisions regarding this manuscript.