Review Article

Journal of Advances in Medical Education & Professionalism

Reflection for the undergraduate on writing in the portfolio: where are we now and where are we going?

MOHAMED H AHMED[1*]

[1]*Department of Medicine and HIV Metabolic Clinic, Milton Keynes University Hospital NHS Foundation Trust, Eaglestone, Milton Keynes, Buckinghamshire, UK*

Introduction: The portfolio can be seen as a tool for assessment of a variety of learning activities that differ in content, usage, and assessment. The portfolio not only meets the learner's educational needs but also the political and public reassurance demand that the health professional has achieved the required competency of the curriculum that allows him or her to practice safely with or without supervision in the health organization.

Methods: An in-depth search on Google Scholar, Medline and PubMed was conducted using the terms "reflection and portfolio" with especial emphasis on undergraduates. All the manuscripts collected were critically reviewed regardless of the date of publication.

Results: Even though the systematic review showed the limited effect of the educational impact of the portfolio on the undergraduate, numerous benefits can be seen, e.g. improvement in the relationship between students and tutors, an increase in general knowledge, awareness and reflection. Reflection for medical undergraduates in portfolio per se was associated with improvement in communications skills, professionalism and better achievement in postgraduate studies and increase in experiential learning. Interestingly, the portfolio was shown to be useful for undergraduate and tutors in filling the gaps of learning in clinical surgery, urology and geriatric medicine. In addition, for dental and nursing students it was associated with an increase in professionalism, clinical competency, and self-confidence. Lack of integration of reflection throughout the curriculum of the medical school was considered one of the main problems.

Conclusion: Further research is needed to address the following questions (i) it will be of interest to assess if there is any difference in reflective portfolio between students from problem-based learning (PBL) curriculum and those from traditional curriculum. (ii) Assess the difference in reflective portfolio between community-oriented and PBL curriculum and PBL and traditional curriculum (iii) if there is any difference in the reflective portfolio in these three curriculums, it will be of interest how this can alter the evidence base of the educational effects of the portfolio. In other words, is there any curriculum that will consistently produce evidence based educational effects of the portfolio?

Keywords: Medical education, Reflection, Portfolio

******Corresponding author:*
Mohamed H Ahmed,
Department of Medicine and HIV Metabolic Clinic,
Milton Keynes University Hospital NHS Foundation Trust,
Eaglestone, Milton Keynes, Buckinghamshire, UK
Email: elziber@yahoo.com

Please cite this paper as:
Ahmed MH. Reflection for the undergraduate on writing in the portfolio: where are we now and where are we going? J Adv Med Educ Prof. 2018;6(3):97-101

Received: 15 May 2018
Accepted: 29 May 2018

Introduction

Definition of portfolio

Challis defined Portfolio as "collection of evidence to prove that learning has taken place". It is different from the logbook in the sense that portfolio deals with the recording of all learning, reflection, and future learning in one place. The portfolio is widely used by other colleges like art and fashion and design. Since 1970, there was a switch of emphasis in medical education from testing only knowledge, clinical examination and clinical procedures to testing professionalism, attitudes, self-assessment and reflection (1). Therefore, the portfolio can be seen as a tool for assessment of a variety of learning activities that differ in content, usage, and assessment. Portfolio not only meets the educational needs of the learner but also the political and public reassurance demand that the health professional has achieved the required competency of the curriculum that allows him or her to practice safely with or without supervision in the health organization. Driessen et al. showed that the increase in trend of competency-based medical education could be one reason for the wide increase in the use of portfolio in undergraduate medical education as a tool of learning and assessment (2). Furthermore, another reason for the increase in the use of portfolio is the fact that health regulatory bodies recommended that health professionals need to have the ability to reflect and to learn how to reflect besides other competencies required for doctors (3). It worth mentioning, portfolios are widely used not only by undergraduate nursing but also by nurses and midwives. From a social point of view, the introduction of portfolio allows many health care professions to work part-time and progress with their careers and at the same time also looks after family and children. The use of electronic portfolio comes with many advantages (i) user-friendly for both students and tutors (ii) quick review of the current and aggregated materials (iii) ability to archive different materials (iv) easy assessment and feedback.

Despite the fact that portfolio is widely used and is popular, Buckley et al. in the systematic review showed that the educational effects of the portfolio for undergraduate is limited (4). However, the authors recommended that the improvement in quality papers published after the year 2000 showed several benefits of the portfolio. Among them is an improvement in knowledge and understanding among undergraduate, increased self-awareness, increased engagement in reflection and improved student-tutor relationship. The authors argued that the increase in publication of high-quality papers in the future may help improve the quality of the evidence-base about the portfolio. It is almost one decade since the conduction of the research of Buckley, and it is reasonable to conclude that there is a need for another systematic review to assess whether the evidence for the educational effect of portfolio emerged or not. Harden and Laidlaw mentioned several advantages of portfolio (i) it emphasises the importance of student-centred approach to the curriculum (ii) it is a tool for learning and assessment (iii) it focuses more on what the student can achieve not like other tools of assessment with a more standardised approach like best of five questions (iv) it allows the tutor to make fair assessment of the student as portfolio can contain quantitative and qualitative evidence. (v) Collection of evidence over the years allows a holistic approach for the assessment of the competence of the student (5). According to Driessen et al. the main objective of the portfolio is reflection on learning performance which will lead to the development of competencies, monitoring progress and assessment of competency development (6).

Buckely et al. Driessen et al. and Tochel et al. suggested that success in the portfolio mainly depend on good mentoring and coaching (2, 4, 7). Other factors related to success in the portfolio are feasibility (electronic portfolio provides quick access to achievements and this helps mentors to provide quick feedback) and perceived usefulness of the portfolio (learners experience the direct benefit of the portfolio). Due to the diversity of portfolio, different contents such as a published paper or case report, PowerPoint presentation, feedback about teaching or lecture, feedback from tutor like a direct observation of procedural skills (DOPS), and patients discharge letters or patient management plan can be uploaded. Video and Photo can also be uploaded to the portfolio. Reflection represents an important component of the portfolio. It will need to be supported by evidence from other materials uploaded in the portfolio, and the learner needs to give more detail for how he or she achieved this level of competency. Importantly, reflection and feedback were linked to different educational and learning theories (8-15). Therefore, portfolio will remain important tool for assessment of reflection. Its important that mentors should promote reflection among undergraduates as mean not only of developing therapeutic relationship with patients but also as way to acquire deep knowledge.

Assessment of reflection

Reflection is commonly assessed by writing in the portfolio or through the use of self-assessment questionnaire (16, 17). Another way of assessment is through verbalization in interviews. One concern raised about the assessment of reflection is the fact that you may be testing the ability to introspect more than reflection (18). Therefore, assessment depends on the ability of the individual to have descriptive and interpretive skills. The validity of the assessment is achieved when the test measures what it intends to measure, while reliability refers to the consistency in the result of the assessment. As reflection is a meta-cognitive function and it has to be written or verbal this may decrease the validity of the assessment. The bias in assessment may be attributed to the fact that the assessment is already determined by the questions asked in portfolios or it can also have confounded by introspection ability of the candidate. Therefore, it was suggested that narrative reflection (semantic skills) might have the advantage of asking clarifying questions. In my own opinion, in problem-based learning, there is an ample opportunity to do narrative reflection and enhance semantic skills. Bourner suggested that assessment of reflection can be based on content, process and the ability to generate learning goals (19). Although it is difficult to assess reflection by portfolio, undergraduates in different medical schools continue to use portfolio for reflections in clinical and reflective cases and as statement about the learning outcome. Perhaps to make it easier for the reader, Dundee medical school curriculum is the best example of reflection in the portfolio. Furthermore, the Dundee portfolio is used not only for assessment of student performance in clinical placements but also to enables assessment of higher order skills such as self-reflection, critical thinking and clinical reasoning (20). This ultimately indicates that portfolio is the core part of the curriculum outcomes and its summative focus is on the assessment of professionalism. This may suggest that reflection may have a high educational impact. To support this notion, reflection is an important part of a considerable number of adult learning theories. For instance, the experiential learning cycle of Kolb included 4 phases: learners' experience, reflection following abstract conceptualization and finally acceptance or rejection of the experience (21). The motivational models in adult learning are largely based on two important elements, motivation and reflection, and the self-determination theory is the best example of this model (12). Taylor and Hamdy developed the adult learning model, where they defined the role of the learner and the teacher. In this model, reflection is important for the teacher and for the learner. For example, the reflection of the teacher in the learning experience will help reflection in action and reflection on action to provide the best feedback for the learner while reflection will help the learner in the consolidation phase of the knowledge and experience (11). Taken together (experience of Dundee Medical School and high impact of reflection on adult learning theories), it is plausible to suggest that reflection has a high educational impact. Also, reflection for undergraduate using portfolio is feasible, acceptable and with low cost. From Van der Vleuten and Schuwrith equation, it will be using portfolio for reflection is good utility assessment tool and fits assessment (22). In my own opinion, despite the fact we have not yet had the robust mean to assess reflection, it is important to encourage and promote reflection among the undergraduates in medical schools.

Reflective use of the portfolio

Koole et al. have shown that undergraduate dental students' competency significantly increased in social dentistry and oral health promotion and this can be predicted by the reflection scores in the portfolio (23). Buckley et al. in the systematic review have shown that the use of portfolio for undergraduates was associated with greater educational benefits and also help them to improve the relationship with their tutors (4). Furthermore, Rees and Sheard showed that students with a positive approach about reflective portfolio were likely to be more confident building another portfolio, achieve better grades in portfolio assessment and likely to rate their reflective skills as good (24). It is possible to suggest these students will be successful in building another portfolio in their postgraduate studies. Ticha and Fakude showed that for nursing students in South Africa, reflection increased their clinical and procedure competence and boosted their self-esteem, confidence and critical thinking (25). Importantly, Driessen et al. showed that certain conditions have to be met for successful reflective use of portfolio (6). These are a well-structured portfolio, clear assessment methods and provision of new experiences and materials. The most important factor in the successful portfolio is good mentoring and coaching. Interestingly, the portfolio was shown to be useful for undergraduates and tutors in filling the gaps of learning in clinical surgery, urology and geriatric medicine (26-28). Interestingly, some studies suggested the potential benefit of summative assessment of

communication skills for undergraduate medical students (29, 30). The above studies clearly reflect the importance of reflection for undergraduate students during the university and during their work in the hospitals and as lifelong learners. However, lack of engagement with reflection is a common problem; few of the students reflect well in their portfolio and some of them are not motivated to do it. In my own opinion the lack of interest in reflection may be attributed to the following: (i) Students find completing portfolio time consuming and therefore this may detract them from engaging in reflective writing in their portfolio. As reflection is an informative assessment many students may not deal with it in the same way as other summative methods of assessment like achieving pass score in exam. (ii) Reflection as a subject was not taught in undergraduate levels (no handouts explain what refection is, its benefit, and importance in lifelong learning). (iii) Many students will assume that reflection will take place after the lesson (not realizing that reflection can be before and during the lesson). (iv) It is worth mentioning that in a busy organization like the university hospitals many educational supervisors will struggle to read what is written in reflection.

In my own opinion reflection can also work as a cognitive behavioural therapy (CBT) for health professionals and restore the confidence of the organization in the competence of the health professionals. For example, reflection about a procedural error by an experienced physician may enhance skills of the physician to the source of the error and also get the organization or the hospital to work with him to avoid future mistakes.

Perhaps one important problem related to reflection is lack of integration of reflection in the curriculum of the medical school. The experience of writing this review and also the reflection on my undergraduates' experience generated the following questions and reflections (i) assessing if there is any difference in reflective portfolio between a student from PBL curriculum and those from traditional curriculum. (ii) Assessing the difference in reflective portfolio between community-oriented and PBL curriculum and PBL and traditional curriculum (iii) in case of any difference in the reflective portfolio in these three curriculums, how this can alter the evidence base of the educational effects of the portfolio. In other words, is there any curriculum that will consistently produce evidence-based educational effects of the portfolio?

Conclusion

Further research is needed to establish whether reflective portfolio can help the student in choosing medical specialty, resilience, and teamwork. Certainly, the use of reflection and portfolio is associated with a high educational impact. Therefore, tutors should encourage medical undergraduates to use portfolio for reflection. Importantly, there have not been enough high-quality papers published on the educational effects of the portfolio for undergraduates. Therefore, it is plausible that more time is needed for evidence to emerge.

Acknowledgement

The author would like to acknowledge the support of his wife and his two sons during the preparation of this manuscript.

Conflict of Interest: None declared.

References

1. Challis M. AMEE Medical Education Guide No.11 (revised): Portfolio-based learning and assessment in medical education. Med Teach. 1999;21:370-86.
2. Driessen EW, Muijtjens AM, Van Tartwijk J, Van der Vleuten CP. Web- or paper-based portfolios: is there a difference? Med Educ. 2007;41(11):1067-73.
3. General Medical Council. Tomorrow's Doctors [internet]. London: GMC; 2011 [accessed Mrch 25th 2018]. Available from: HYPERLINK "http://www.gmc-uk.org/TomorrowsDoctors_2009.pdf_39260971.pdf" http://www.gmc-uk.org/TomorrowsDoctors_2011.pdf_39260971.pdf.
4. Buckley S, Coleman J, Davison 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(4):282-98.
5. Harden RM, Laidlaw JM. Essential skills for a medical teacher. Second edition. UK: Elsevier. 2017; 15-6 p.
6. Driessen EW, Van Tartwijk J, Overeem K, Vermunt JD, Van der Vleuten CPM. Conditions for successful reflective use of portfolios in undergraduate medical education. Med Educ. 2005;39(12):1230-5.
7. 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):299-318.
8. Harden RM, Laidlaw JM. Be FAIR to students: Four principles that lead to more effective learning. Med Teach. 2013; 35(1): 27-31.
9. Miller GE. The assessment of clinical skills/competance/performance. Acad Med. 1990;63: S63–S67.
10. Bloom BS, Engelhart MD, Furst EJ. Taxonomy of educational objectives: The classification of educational goals, Handbook I, Cognitive domain. New York: Longmans Green; 1956.
11. Taylor DC, Hamdy H. Adult learning theories: implications for learning and teaching in medical education: AMEE Guide No. 83. Med Teach. 2013;35(11):e1561-72.

12. Ryan RM, Deci EL. Self-determination theory and facilitation of intrinsic motivation, social development and well being. Am Psychol. 2000; 55: 68–78.
13. Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. Lancet. 2001; 357: 945-9.
14. Boud D, Keogh R, Walker D. Reflection: Turning experience into learning. London: Kogan; 1985.
15. Mamede S, Schmidt H. Correlates of reflective practice in medicine. Advances in Health Sciences Education. 2005;10(4): 327-37.
16. Kember D, Jones A, Loke A. Determining the level of reflective thinking from students' written journals using a coding scheme based on the work of Mezirow. International Journal of Lifelong Education. 1999; 18(1): 18-30.
17. Kember D, Leung DYP, Jones A. Development of a Questionnaire to Measure the Level of Reflective Thinking. Assessment and evaluation in higher education. 2000;25(4): 381-95.
18. Atkins S, Murphy K. Reflection: A Review of the Literature. Journal of Advanced Nursing. 1993;18(8): 1188-92.
19. Bourner T. Assessing reflective learning. Education+Training. 2003;45(5):267-72.
20. University of Dundee. Learning Medicine in Dundee: Curriculum Handbook [internet]. UK: Admissions and Student Recruitment; 2018 [accessed 2018 May 7]. Available from: https://medicine.dundee.ac.uk/sites/medicine.dundee.ac.uk/files/pagefiles/Dundee%20Curriculum%202014.pdf.
21. Kolb DA. Experiential learning: Experience as a source for learning and development. New Jersey: Prentice Hall;1984.
22. Van der Vleuten CP, Schuwirth LW. Assessing professional competence: from methods to programmes. Med Educ. 2005;39(3):309-17.
23. Koole S, Vanobbergen J, De Visschere L, Aper L, Dornan T, Derese A. The influence of reflection on portfolio learning in undergraduate dental education. Eur J Dent Educ. 2013;17(1):e93-9.
24. Rees C, Sheard C. Undergraduate medical students' views about a reflective portfolio assessment of their communication skills learning. Med Educ. 2004;38(2):125-8.
25. Ticha V, Fakude L. Reflections on clinical practice whilst developing a portfolio of evidence: Perceptions of undergraduate nursing students in the Western Cape, South Africa. Curationis. 2015;38(2):1-8.
26. Zundel S, Blumenstock G, Zipfel S, Herrmann-Werner A, Holderried F. Portfolios Enhance Clinical Activity in Surgical Clerks. J Surg Educ. 2015;72(5):927-35.
27. Amsellem-Ouazana D, Van Pee D, Godin V. Use of portfolios as a learning and assessment tool in a surgical practical session of urology during undergraduate medical training. Med Teach. 2006;28(4):356-9.
28. Supiano MA, Fantone JC, Grum C. A web-based geriatrics portfolio to document medical students' learning outcomes. Acad Med. 2002;77(9):937-8.
29. 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.
30. Rees C, Sheard C. Undergraduate medical students' views about a reflective portfolio assessment of their communication skills learning. Med Educ. 2004;38(2):125-8.