

Enhancing Reflective Writing through E-Learning in Undergraduate Medical Education

Nurulhuda Mat Hassan, Norwati Daud, Harmy Mohd Yusoff, Hassan Basri Mukhali, Siti Norazlina Juhari

Family Medicine Unit, Faculty of Medicine, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia

Corresponding Author: nurulhudamh@yahoo.com

DOI: 10.6007/IJARPED/v6-i3/3172 URL: <http://dx.doi.org/10.6007/IJARPED/v6-i3/3172>

Abstract

Introduction: Reflective learning is an important tool in the practice of medicine and are central to medical education and a career in medicine. Reflective writing was introduced in family medicine rotation in undergraduate medical students and e-learning was used to enhance its effectiveness.

Objectives: To evaluate the usefulness and effectiveness of e-learning to enhance reflective learning via reflective writing to increase the performance of medical students undergoing family medicine rotation in Universiti Sultan Zainal Abidin.

Methods: Students were given guidance for reflective learning and had to produce 4 writings throughout the 6 weeks of health clinic attachment starting from Semester 1 2016/17. Initially done manually by the first 2 groups of students, the reflective writing guidance, submission and feedback were done via E-learning starting from Semester 2 (another 2 groups). The mean marks of the groups (used and did not use E-learning for Reflective Writing) were calculated and the significance derived via t-test. An objective and subjective feedback on the usefulness of the utilization of E-learning in enhancing the reflective learning was also done.

Results: Mean marks for reflective writing increased from 6.37 (0.72) to 6.94 (0.60) [mean(SD)], $p=0.031$. All students found the reflective writing to enhance their learning, and prefer it compared to conventional case write-ups. Students who used E-learning prefer it compared to manual submission. The students especially appreciate the feedback from the supervisors submitted online to improve their reflective learning experience.

Conclusion: Reflective Writing can be enhanced using e-learning as a medical education strategy for undergraduate medical program (MBBS) and it is deemed useful and effective.

Keywords: *E-Learning, Reflective Learning, Medical Education, Family Medicine*

Introduction

E-learning can be defined as the use of electronic technologies to aid student to increase their knowledge and improve performance of specific subjects (Rosenberg 2001). E-learning in medical education in Universiti Sultan Zainal Abidin is still considered to be in an infancy stage as only one course in Faculty of Medicine achieved blended learning status in the 2016/17 session. Although e-learning tools have been used in many settings for quite a long time (Ken 2016), the evidence of their use and effectiveness in the pre-service education of medical

professionals previously in low and middle income countries has been limited (Rosenberg 2001).

Reflective learning and practice is an important tool in the practice of medicine (Sandars 2009) and are central to medical education and a career in medicine (Ménard 2013). It is defined as the process of examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self and in relation to the world, and which results in a changed conceptual perspective (Thorpe 2004).

For undergraduate medical teaching, writing of clinical cases reports is usually done in a conventional manner, either written via hand or computer and printed out and submitted for assessment. However, this form of writing has little and minimal reflective practice and usually students are unable to receive feedback regarding their writing. Therefore, implementation of reflective writing of clinical case reports was done to enhance reflective learning and e-learning was used to enhance its effectiveness. This paper seeks to answer how e-learning may be used to enhance reflective learning via reflective writing and evaluate whether its usage is acceptable and usefulness to the students, and lastly its effectiveness in increasing undergraduate medical students performance in reflective writing.

Materials and Methods

Universiti Sultan Zainal Abidin (UniSZA) uses Moodle platform for e-learning called 'Knowledge and E-learning Integrated Platform (KeLIP)'. Family medicine unit of Faculty of Medicine, Universiti Sultan Zainal Abidin (UniSZA) Terengganu designed an assignment: 'Reflective Writing with submission through E-learning' in the KeLIP portal.

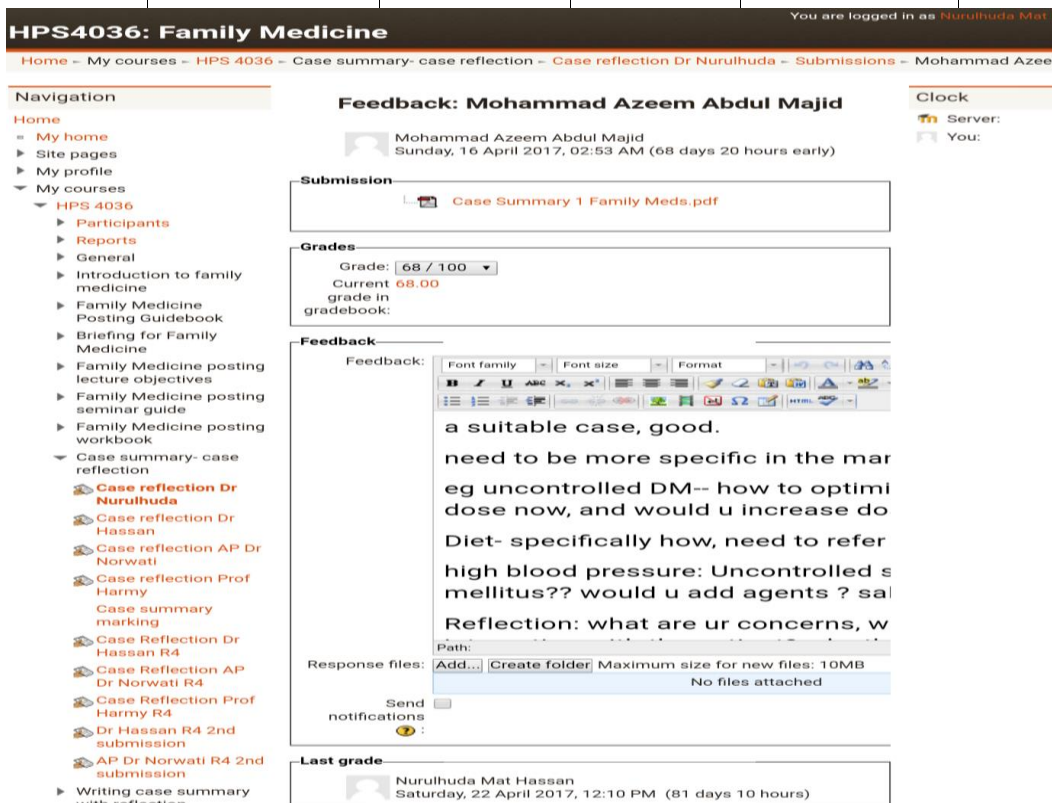
Reflective Writing was implemented for the 2016/17 session as part of our unit's teaching component to encourage reflective learning among medical students during family medicine rotation in their clinical years. The online submission allows students to receive feedback from the supervisors regarding their reflective writing and guide them through their reflective learning. It is an activity in the E-learning which contributes towards the course having a blended-learning mode, and currently the only course in Faculty of Medicine achieving the status.

The undergraduate year four medical students were grouped into four groups of 14 to 17 students and underwent the family medicine rotation one group at a time. Students were given a briefing guide on reflective writing and expected to produce 4 writings throughout the 6 weeks posting starting from Semester 1 2016/17. The first two groups which did the posting during Semester 1 submitted the reflective writing manually. At the start of the second semester, the reflective writing submission and feedback were done via e-learning using the 'Assignment' function in the 'KeLIP' portal. Students can access the feedback of their writing via the portal (Picture I). The 'Assignment' was designed so that students learn from the feedback can resubmit their first two reflective writings within the time period before the due date of the final submission. A special assessment rubric to assess the reflective writings was designed and could be accessed by the students in the same section in the portal (Table I).

Table I: Assessment rubric to assess the reflective writing

Unsatisfactory	Less than satisfactory	Satisfactory	Good	Excellent	Total marks
Clinical Summary	0 – 5 marks Minimal to none	6-14 marks Insufficient	15-20 marks all the elements but lacks some	21-25 marks Comprehensive	26-30 marks Comprehensive & detail.
Assessment Problem lists	0-2 marks Wrong assessment	3-4 marks Incomplete	5-6 marks Adequate	7-8 marks Complete	9-10 marks Complete, clear and critical
Management	0-5 marks Not correct, do not integrate the unique needs	6- 9 marks Presence of improper management does not tailored to the patient need	10-15 marks Relevant to patient problems but does not tailored to the patient need	16-18 marks Good management. Intergrated and tailored to the patients' need	19-20 marks Good and evidence based and Integrated and holistic and relevant to the need of patient.
Reflective ideas	0-5 marks No evidence of deliberate appraisal of concepts / ideas.	6-14 marks Very minimal evidence, less than awareness stage.	15-20 marks Evidence of awareness : Discomfort, Excitement & Curiosity.	21-25 marks Critical analysis level, from simple description to levels that require deep thinking and sound effort.	26-30 marks Evidence of change from the initial awareness and reflecting to a new state of being informed, and finally, to a new perspective regarding that concept or

Layout/ Spelling/gramm ar	0-2 marks Poor presentation,t oo many errors	3-4 Marks Fair presentatio n but repetitive writing error	5-6 Marks Some errors	7-8 Marks Free of errors	9-10 Marks Clear & Neat and free from errors.
---------------------------------	---	--	---------------------------------	------------------------------------	---



Picture I: Example of feedback given by a lecturer through the KeLIP platform.

The mean marks of between the groups (used and did not use E-learning for reflective writing) were calculated and compared, with the significance derived via t-test. Objective and subjective feedbacks on the usefulness of the utilization of E-learning in enhancing the reflective learning was also done. The objective section consist of 8 questions as indicated in Table II. Students were instructed to give response based on 10 point Likert scale indicating 0 as strongly disagree up to 10 as strongly agree.

Table II: Questions and keywords of the objective feedback

Question	Keyword
Reflective writing enhances my learning process.	Learning
I prefer reflective writing rather than conventional case write-up	Preference
Submission of reflective writing through e-learning is easier than conventional method.	Ease
Submission of reflective writing through e-learning is more time efficient(Saves time) than conventional method.	Time
Submission of reflective writing through e-learning is more cost efficient than conventional method.	Cost
Feedback from supervisor through e-learning is beneficial to enhance my reflective learning.	Feedback
I prefer submission through e-learning than conventional method. (Manual)	Submission

Results

Mean marks for reflective writing increased from 6.37 (0.72) to 6.94 (0.60) [mean(SD)], $p=0.031$.

From the objective feedback, all students found the reflective writing to enhance their learning, and preferred it compared to conventional case write-ups (Figure 2). Most students find that the submission through e-learning is time-efficient, cost-effective and prefer it compared to manual submission. The students especially appreciated the feedback from the supervisors submitted online to improve their reflective learning experience.

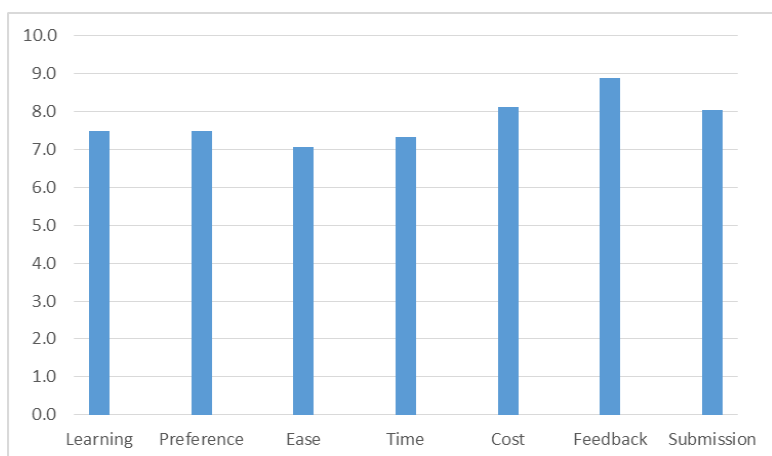


Figure 1: Average points for objective feedback on Reflective Writing and submission through E-learning.

Table II. Subjective feedback on submission through E-learning (KeLIP)

Subjective feedback on submission through E-learning (KeLIP)

1. Enhances learning process mainly through the comments and remarks given by the lecturers
2. Submission through E-learning overall better provided there are easy fast Internet access and smooth running Kelip website.
3. Reflective learning helps in my learning process when it includes the study about the patient and the disease itself rather than about feelings and expression for the patient
4. I don't really like reflective writing as I already get used to the case write-up method from all other postings
5. Sometimes I don't really know what to be included in the case reflection. But it's a nice experience because we can see the case from other perspective thinking
6. Case reflections are good for enhancing the learning process but 4 is like too much for 6 weeks posting

Discussion

The results showed that E-learning is effective in enhancing the reflective learning of the students with the significant difference between the means of the group who used E-learning for the submission of the reflective writing and the group which did not use E-learning. This may be mainly via the feedback and guidance the students received through e-learning.

It is not surprising that students found that reflective writing enhance their learning experience as clinical year students learn mainly by experiential learning. Experiential learning is a process by which learning occurs by having an experience. This is the concept applied during clinical apprenticeship throughout the clinical years of undergraduate medical training by attachment to the hospitals or health clinics. However, experience alone is not sufficient for learning to occur. The experience must be interpreted and integrated into existing knowledge structures to become new or expanded knowledge. Reflection is crucial for this active process of learning (Ken 2016). The use of reflection in education and training for professional development has been prominent within the literature for nursing, teacher education and social care, and more recently in the training of doctors (Boud 2010). The process of reflection and reflective competency are powerful for deep and lifelong learning, and for achieving higher levels of responsive professional practice in a medical career (Ménard 2013). This gives us a reason to continue to reflect on our actions and teach our medical undergraduates to reflect.

However, reflective practice still has not received the prestigious position it deserves our undergraduate medical education and especially in an E-learning environment. E-learning can be defined as the use of electronic technologies to aid student to increase their knowledge and improve performance of specific subjects (Rosenberg 2001). Utilizing e-learning can result in greater educational opportunities for students while simultaneously enhancing faculty effectiveness and efficiency (Boud D, 2010). However, this potential of e-learning assumes a certain level of institutional readiness in human and infrastructural to ensure the alignment of new tools to the educational and economic context. As mentioned by our student in the subjective feedback, fast Internet access was needed to ensure the submission through the portal is better compared to manual submission (Table II). Limitations of infrastructure include

limited access to computers (Erah et al 2008) and limitation of bandwidth which resulted in low quality low quality of videos or visual outputs (Obura T et al 2011).

For undergraduate medical teaching, writing of clinical cases reports is usually done in a conventional manner, either written via hand or computer and printed out and submitted for assessment. However, this form of writing has little and minimal reflective practice. It is only when conscious awareness of learning is connected with recent performances in order to improve or rectify future performances, this writing becomes a reflective practice. Besides that, conventional submission also lacks the interactive features which can enhance reflective learning.

Electronic use is shown to increase the frequency of reflection. Moreover, creation of a record for useful in ongoing self-assessment, mentored reflection, evaluation of progress within and across multiple domains, and inclusion in a portfolio or maintenance of certification program (Aronson 2011). Moreover, when used to submit an assignment, it also has the benefit of cost-effectiveness and ease of submission compared to manual submission (Figure I), as the students did not have to print out the assignments and go to campus to submit them.

As teachers, our experience from using e-learning as a tool in teaching, especially in reflective writing, was that it saves our time. We did not have to meet the students to collect the assignments or to give feedbacks as feedbacks can be given anytime. We could also access the assignments from wherever we were without having to refer to the hardcopies of the assignments. Problem with keeping all the assignments is solved as space is limited. Using e-learning is also a way to save all the assignments online where problem of missing assignments can be prevented. At anytime any hardcopy is needed, it can be printed out from the portal.

However, the challenges remain that students were not used to having reflective writing and submission as voiced by one student (Table II). Therefore we made sure that enough exposure and examples regarding reflective writing were given in the fourth group and continuous efforts needs to be done to ensure students have adequate skills to utilize the e-learning and adequate information given regarding the reflective writing.

Our pilot efforts show that enhancing reflective writing via e-learning in medical education with good institutional readiness in human and infrastructural support is indeed achievable and useful with good acceptance and benefits in the undergraduate medical students.

Conclusion

Reflective Writing can be enhanced using e-learning as a medical education strategy for undergraduate medical program (MBBS) and it is deemed useful and effective. Further study need to be conducted to explore the required skills and functions to optimize e-learning use for reflective writing for future students.

Acknowledgement

We would like to thank the Faculty of Medicine, *Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia* and all year four students of MBBS programme, session 2016/17 for their contribution in this feedback survey.

References

- Aronson, L. (2011). Twelve tips for teaching reflection at all levels of medical education. *Med Teach*; 33:200-5.
- Boud, D. (2010). Relocating reflection in the context of practice. In Bradbury, H, Frost, N, Kilminster, S. & Zukas, M. (eds.), *Beyond reflective practice: New approaches to professional lifelong learning*, Routledge, Oxford.
- Erah, P.O., Dairo, E.A. (2008). Pharmacy students perception of the application of learning management system in patient-oriented pharmacy education: University of Benin experience. *Inter J Health Res.* 1 (2): 63-72.
- Rosenberg, M. (2001). *E-Learning: Strategies for Delivering Knowledge in the Digital Age*. New York: McGraw Hill.
- Ménard, L. & Ratnapalan, S. (2013). Reflection in medicine: Models and application. *Canadian Family Physician.* 59(1):105-107.
- Obura, T., Brant, W.E., Miller, F., Parboosingh, I.J. (2011). Participating in a community of learners enhances resident perceptions of learning in an e-mentoring program: Proof of concept. *BMC Medical Education.* 11: 3-10.1186/1472-6920-11-3.
- Sandars, J. (2009). The use of reflection in medical education: AMEE guide no. 44. *Med Teach.* 31:685–695
- Thorpe, K. (2004). Reflective learning journals: From concept to practice. *Reflective practice,* 5(3), 327-343.