

Evaluation of the Portfolio's Implementation in Clinical Clerkship: Students' and Staff's Perception in Egypt

Enjy Abouzeid^{1*},  Asmaa Abdel Nasser¹ 

¹Assistant Professor, Department of Medical Education, Faculty of Medicine, Suez Canal University, Egypt

Abstract

Background: Over the last two decades, the focus of curricula has shifted from the acquisition of knowledge to the achievement of competence. The challenge is to improve the assessment scheme to formatively support the development of competence in an integrated, coherent, and longitudinal fashion, and assess them in a summative fashion.

Objectives: To investigate the students' and staff's perception towards the implementation process of the portfolio in the clinical years at Faculty of Medicine, Suez Canal University.

Methods: Two different questionnaires were used to explore the students' and staff's perception towards portfolio assessment process.

Results: The students' response rate was 70%. 46.8% of the students agreed on the portfolio's complementary role to clinical teaching during rotations. They agreed that portfolio stimulated their problem solving and clinical reasoning skills by 38.5%, and 38.2% respectively. 41.1% agreed that it helped them in preparation for their future practice. However, 41% agreed that portfolio workload and time required were excessive. There was no chance to improve those aspects assessed as deficient in feedback. One of the threatening problems is copying the portfolio from others, unfortunately. 34.7% of the students agreed that this was a problem among them. Regarding the staff, they agreed that portfolio helped them to assess students' competencies and permitted multiple episodes of teaching more effectively than single observations did (75%, and 72.2%, respectively). However, 38.9% felt that it was an exhausting and time-consuming assessment process. They thought that it would be better to have enough time for review the portfolio in detail before the oral discussion, and that was fair if two examiners evaluated it rather than one (64%, and 75%, respectively).

Conclusion: The portfolio helps the faculty in assessment of students' clinical competencies in a continuous manner but for both it was exhausting and time-consuming assessment process.

Keywords: PORTFOLIO, EVALUATION, PERCEPTION

Journal of Medical Education Fall 2018; 17(4):205-214

Introduction

Assessment drives learning as it is the bridge between teaching, learning, and assessment (1). In Faculty of Medicine, Suez Canal University (FOM-SCU), portfolio was integrated in the clinical clerkship as a valid and reliable continuous assessment tool,

which can assist the improvement of clinical teaching, increase student motivation, and engagement. In the past few years, portfolio assessment has become the most pervasive and prominent alternative assessment approach. It was assumed to provide an authentic, performance-based assessment tool (2) that encourages learners to take responsibility for their own learning (3) and guides the learners to accumulate evidence of learning, while incorporating a criterion-referenced interpretation of their performance (4).

A portfolio is a systematic collection of a

*Corresponding author: Enjy Abouzeid,
Department of Medical Education, Faculty of Medicine,
Suez Canal University, Ismailia, Egypt
Phone: +2 (12) 21420010
Email: Enjyabouzeid@yahoo.com

variety of teachers' observations and student products, collected over time, which reflects a student's developmental status and progress made in the learning process in one or more areas. This collection represents a personal investment that is evident through the student's participation in the selection of the contents, the criteria for selection, the criteria for judging the merit of collection, the student's self-reflection, and personal developmental plan (5). Portfolio has been considered as one of the most innovative learning and assessment tools in the last two decades mainly because it offers many advantages in terms of learning as well as assessment (6). Additionally, portfolio is a criterion-referenced assessment tool because its contents are scored using specific and standardized criteria. These criteria may include scoring guides, rubrics, checklists, or rating scales (7). Although, portfolios are at the forefront of alternative assessment approaches and precisely as an authentic assessment method that is expected to enable teachers to get valid and reliable data on students' learning progress and achievement, it has however advantages and disadvantages.

Portfolios can indeed provide a continuous picture of students' progress, rather than a snapshot of students' achievements that single-occasion tests provide. They also permit the tracking of longer episodes of teaching more effectively than single observations do. Additionally, they encourage important connections between process and product, through bridging what goes on in teaching with how it is manifested in portfolio products. Therefore, portfolio is more likely to have a valid authentic picture of learning and cover the weaknesses of the traditional tests. (4)

In contrast, there are disadvantages and challenges that were addressed in previous studies with the use of portfolio. "Heavy lifting" effect means that all the hard work a portfolio demands really worth the effort. "Trivialization" means that people document material that does not merit reflection. "Perversion" in this situation means that the

portfolio scoring systems might objectify portfolios to the point that they lose their ability to evaluate individual competencies. "Misrepresentation" means that inside portfolio, does the emphasis on best work misrepresent the candidate's work, so as not to be a true picture of competency (3).

However, the main reason for introduction of variety of portfolios as learning and assessment tools in undergraduate medical education, over the past 10–15 years, is the shift of focus in medical school curricula from acquisition of knowledge to development of professional competencies (8). This shift involves not only the use of knowledge and skills, but also integrates attitudes, behaviours, values, and an aptitude for communication, clinical reasoning and self-reflection (9). Moreover, in line the curriculum committee in FOM-SCU, it was decided to introduce the portfolio as a learning and assessment tool in clinical clerkship years to be the first school in Egypt to use portfolio in undergraduate medical education. The portfolio was introduced in 2013, aiming for continuous and authentic assessment of a wider sample of competencies, and improvement of the clinical teaching and practice (10). The Faculty of Medicine at Suez Canal University, in Ismailia, Egypt was established in 1978 as the first school to adopt an integrated, student centred, problem- and community-based curriculum since its inauguration in Egypt. It was the first higher education institute in Egypt to obtain national accreditation in 2010 and reaccreditation in 2015 (11). The principal reason for this achievement is the implementation of innovative strategies in teaching, learning, and assessment. It has a prominent role in disseminating concepts of medical education on the national and regional levels, which has led to an evident change in the educational strategies of numerous medical schools inside and outside Egypt (10).

Accordingly, an observational cross-sectional study was designed to evaluate the implementation process from the students' and staff perspectives. Evaluation of the

implementation process is necessary so that strengths and weaknesses can be identified, and improvements made. The current study raised the following questions:

- 1- What is the students' perception towards the portfolio process, outcome, and weakness?
- 2- What is the staff's perception towards the portfolio process, outcome, and weakness?
- 3- What are the staff's suggestions for improvement?

Conceptual framework (Figure 1)

Methods

Context

At the FOM-SCU, the portfolio was introduced in phase 3 (years 4, 5, and 6) since 2013 under the supervision of the clinical teaching committee. The implementation of portfolio took place since 2014 as a prerequisite for

the final exam. Then it was upgraded in 2015 to be a part of the summative assessment and represented with a 20% of the clinical assessment mark. The implementation was preceded with series of training workshops for staff and students to introduce the concepts and principles of portfolio as a teaching, learning, and assessment tool.

Portfolio Structure

The portfolio has the same skeleton all over the clinical departments of phase three with slight variations according to the feasibility of each department. Each portfolio template was prepared according to the course intended learning outcomes. The skeleton of the portfolio was developed after consensus between the clinical teaching committee and subject matter experts for each clinical speciality.

The structure includes the following sections:

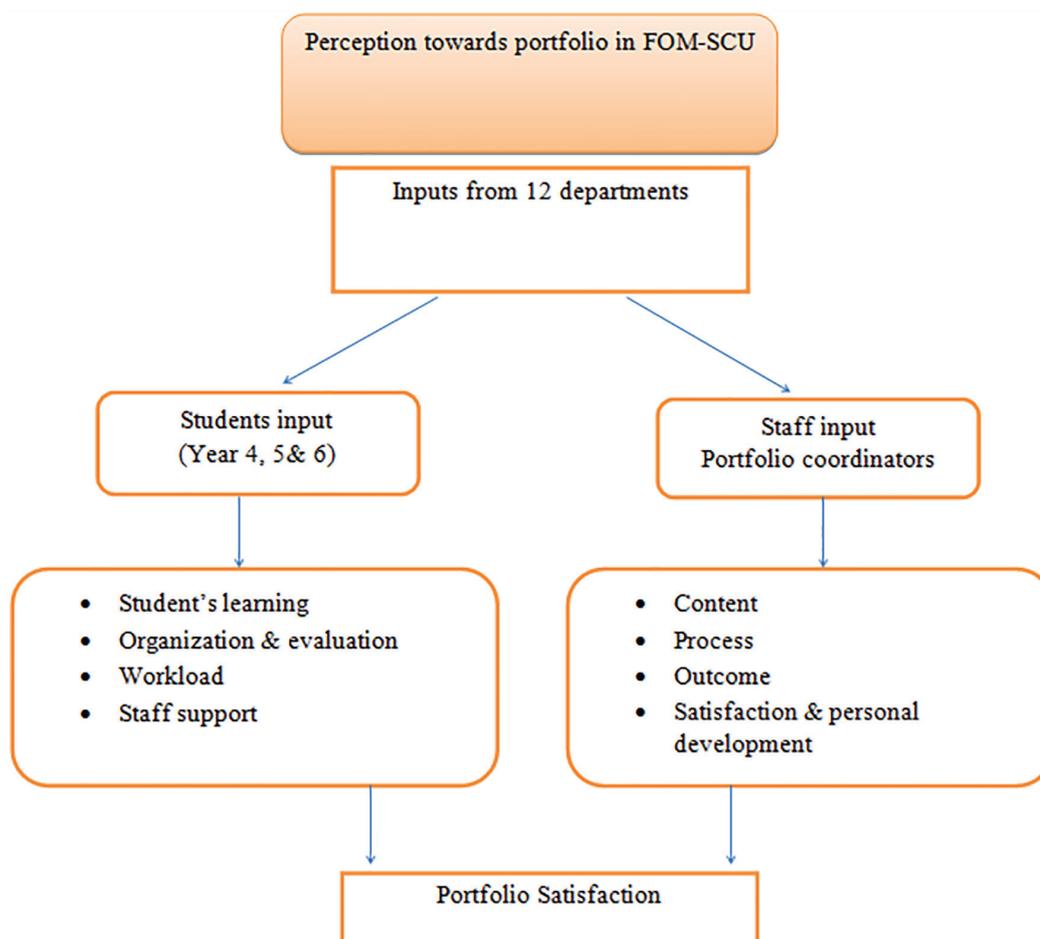


Figure 1: The conceptual framework of the evaluation process is shown

introduction to students, personal information, intended learning outcomes/topics, detailed clinical activity schedule, different assessment activities with their evaluation forms (like: Mini CEX, Work sampling, Long case, DOPS & Professionalism), student self-reflection, personal developmental plan, suggested learning resources, and portfolio scoring criteria. Each learning activity will be evaluated and signed by one of the staff members (assistant lecturers, lecturers, associate professors, or professors).

Before each clinical rotation, students receive an electronic template of the portfolio and are assigned to a mentor. Each five students are assigned to one staff member. The mentor's responsibility is to support and follow-up the student development and progress during the clinical rotation.

Scoring Criteria

The scoring of each activity is done by the attending staff. A professor or associate professor is assigned to evaluate the clinical work sampling for a number of students, oral discussion for long case, and finally overall evaluation of the portfolio. A standardized scoring criterion was developed and attached to each portfolio template. The students were aware of the scoring criteria. To accept the portfolio, it should be scored as minimum or over 60%.

Sample & Population

A convenience sample of the clinical clerkship students (years 4, 5, and 6) in Faculty of Medicine, Suez Canal University, was involved in the study together with the portfolios' coordinators from each department.

Data Collection

The evaluation approach followed level one of Kirkpatrick's evaluation model (12); perception and reaction of students and staff, and what they thought and felt about the portfolio. Accordingly, data collection was done by two approaches, students' and staff's perception.

Two different questionnaires were used, one for each approach.

Students' Perception Questionnaire

Validated 45-item anonymous questionnaire (13) was administrated to the clinical clerkship students through online survey monkey. It was designed to study students' perception of student learning, organisation & evaluation, teaching methods, teaching support, integration, and creativity. Some items were rephrased or added to suit our context. A five-point Likert rating scale was used, where strongly agree scored 5 and strongly disagree scored 1.

Faculty Perception Questionnaire

A questionnaire (14) was designed to study examiners' perceptions of the outcome framework of the portfolio process; the portfolio content, the appropriateness of the final exam format, and the examiner training. It was distributed to the portfolio coordinators at their work place. Modifications were done to adapt it to the research context. Some items were removed and others were rephrased. In addition, new sections were added to examine the examiner's satisfaction, personal development, and portfolio's factors of success (15).

Finally, a focus group was facilitated with the portfolio committee to discuss the questionnaire items and achieve consensus on the final version. The examiner questionnaire was adapted according to these focus group recommendations. The questionnaire included 45 closed-ended and five open-ended questions. The open-ended items were designed to explore area of strengths and weaknesses, and suggestions for improvement. A five-point Likert rating scale was used, where strongly agree scored 5 and strongly disagree scored 1. Once the construct was defined and draft items were written, we started collecting validity evidence. First, content validity was measured by collecting data from content experts, six medical educationists, establishing that

the questionnaire items are relevant to the construct being measured and that key items have not been omitted. They reviewed the items and provided oral and written feedback. Then the questionnaire was piloted to collect more validity evidence as internal structure, correlation with other variables, response process, and reliability.

Statistical Analysis

The data were analysed using SPSS software version 20. The mean, SD, and frequencies of each statements were calculated in both questionnaires. The correlation between the questionnaires sections were calculated by person product moment correlation. The closed questions in students' questionnaire were also subjected to principal component analysis. The items were subjected to principal component analysis with varimax rotation. However, the sample of the staff precluded item factor analysis. Regarding the open-ended questions, they were analysed using inductive approach of thematic analysis.

Ethical Consideration

The aim of the study and use of results were communicated to the participants. The students completed the questionnaire anonymously after taking their consent to contribute to the research. All the data were analysed in a confidential way. The research got approval from the Ethics Research Committee at FOM_SCU.

Results

The students' questionnaire response rate was 70% (207:300). Principal component factor analysis extracted four factors with 39 items. Based on the eigenvalues and the scree plot, student learning, organization & evaluation, workload, and staff support accounted for 72.3% of the total variance. But factor four showed weak loading and included only 2 items. Person product moment correlation showed strong correlation among the questionnaire

subscales and the questionnaires had a strong reliability of 0.98 by Cronbach's alpha. The results were divided into two sections; student perception and staff perception.

Student Perception Portfolio Process

Most of the students agreed on the organizational process of the portfolio including number of cases, clear purpose, clear rules, and the evidence to be included is identified, from the start of the process as shown in figure 2. Interestingly, most of the students agreed that the staff were motivated and developed a well-organized portfolio (49.9%, and 53.6%, respectively). Also, there was a strong correlation between the staff's motivation and the students' proudness of the final product.

Portfolio Outcome

The students agreed on the portfolio's complementary role to clinical teaching during clinical rotations by 46.8%. Additionally, they agreed that the portfolio enhanced their clinical strengths, independent learning, problem solving, and clinical reasoning by 41.5%, 38.5%, and 38.2%, respectively. Although, the students agreed that it helped them in preparation for future practice with 41.1%, only 38.2% found it focused on relevant content for professional practice. Moreover, it has been a useful tool in structuring the clinical diagnosis for 42.6% but only 38.6% agreed that it emphasized applying knowledge to the problem of their patients.

Portfolio Weakness

Most of the students agreed that portfolio workload was excessive in which, the time required was excessive; there was no chance either to improve those aspects assessed as deficient feedback, or to make the requested work. One of the threatening problems of the portfolio implementation process was copying the portfolio among peers. 34.7% of the students agreed that this was a problem among them. Finally, 41.7% recommended that

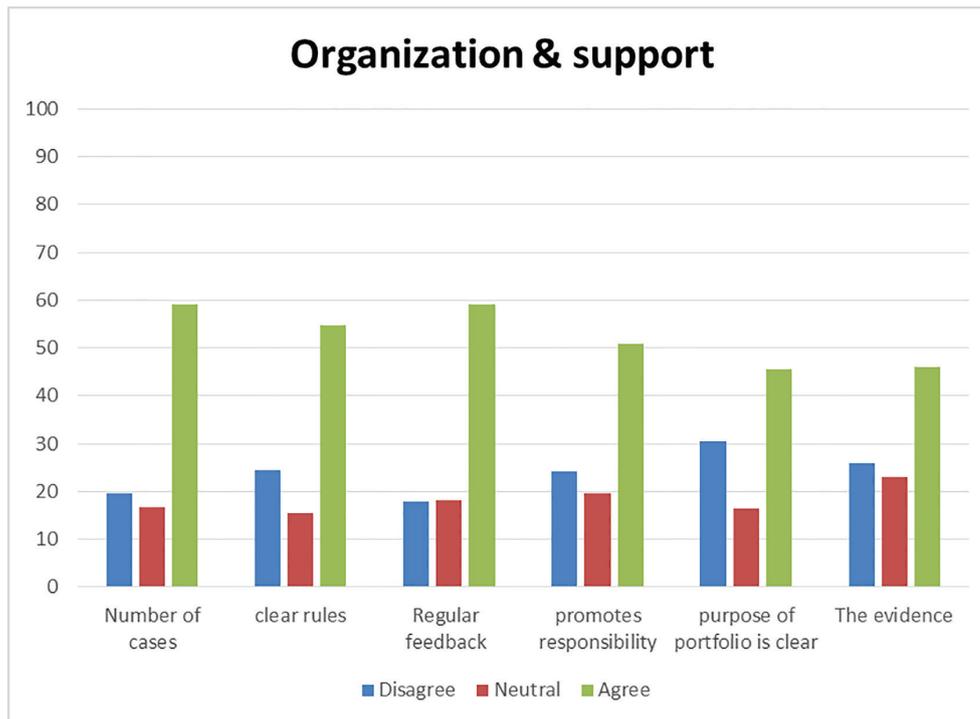


Figure 2: The students' perception regarding the portfolio process is shown

the portfolio should be eliminated next year.

Staff Perceptions Portfolio Process

Most of the staff agreed that the different components of the portfolio process were important and clear as shown in figure 3.

Portfolio Outcome

Staff agreed that portfolio was a good way for faculty to assess students' competencies, and to permit the tracking of longer episodes of teaching more effectively than single observations do (75%, and 72.2%, respectively). Furthermore, 66.6% of the staff agreed that portfolios introduced important norms, with more affinity to discuss norm by 75%. Interestingly, 47.2% agreed that portfolio shifted the learning responsibility of learning back to the student while 33.3% were neutral about that. However, 63.8% enjoyed the portfolio and 55.6% stated that it influenced their session practice. Finally, most of the staff agreed that portfolio could show positive outcomes to the students; e.g

change of the learner's view of learning and teaching, and development of students' skills, and portfolio could assess the students' fitness of practice as shown in figure 4.

Portfolio Weakness

The staff agreed that portfolio workload could be manageable by the students. But 38.9% felt that it was an exhausting and time-consuming process.

Open-Ended Questions

The analyses of the staff's answers to the open-ended questions summarized that the strength points of portfolio were: it permits tracking of longer episodes of teaching and tight observation of students. It also permits continuous assessment and development. Moreover, it stimulates self-learning, team work, clinical practice, and the students' responsibility for learning. Finally, it improves the students' clinical skills and self-reflection. However, there were several weakness points such as insufficient time allocated for the portfolio, paper work load and burden, easy

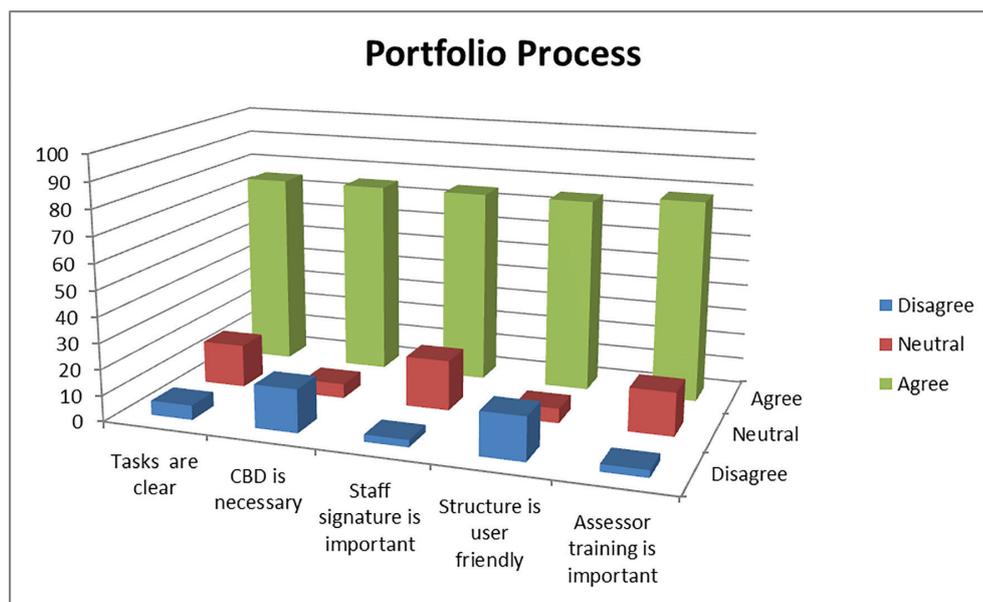


Figure 3: The staff's perceptions towards the portfolio process is shown

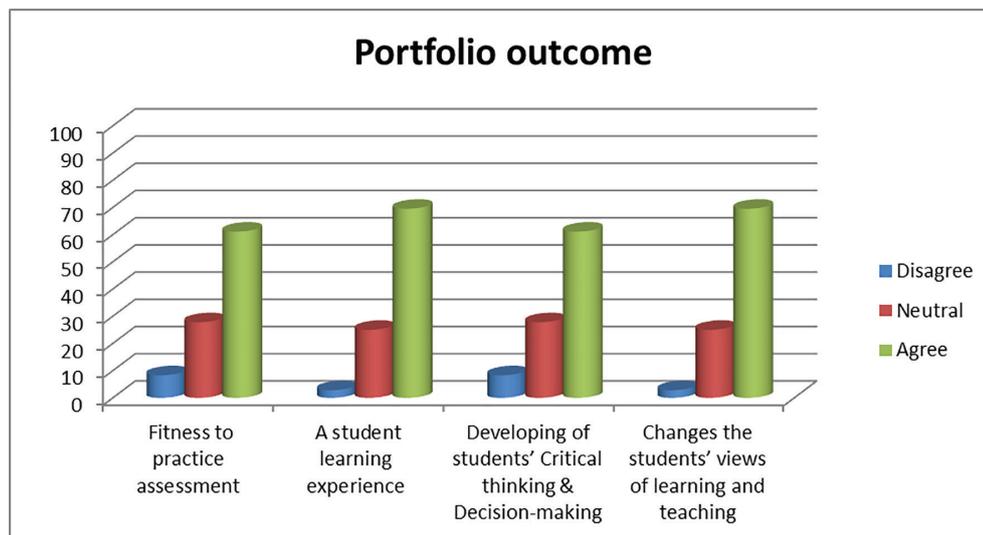


Figure 4: The staff's perceptions towards the portfolio outcomes is shown

to be fabricated, and the fact that the staff is not well trained. Additionally, they suggested ideas for improvement that can be summarized into; introduce of e-portfolio, periodical feedback report to students about their performance, declare the results of portfolio to students, and students and staff continuous orientation about the purpose, how to use, and importance of portfolio.

Discussion

Any educational change should win the hearts and minds of the people involved

in that change. Staff and students, and the quality of leadership are identified as key vital factors for educational improvement (16). In this study we explored the perception of both students and staff of portfolio implementation process as important factors that may affect the success of the implementation. In the current study, the perceptions of the staff matched those of the students in most of the points including process, outcomes, and weaknesses. In addition, the staff suggested some points for improvement.

Most of the staff enjoyed the portfolio and 55.6% stated that it influences their session

practice. In line, most of the students agreed that the staff were motivated. However, both the staff and students agreed that portfolio needed an excessive workload. This result can be explained by the role of the organization and clarity of the content and evidence (17) as the staff agreed on the clarity and importance of the most of the content of the portfolio. Additionally, the students agreed that the current portfolio was a well-organized one. Therefore, a well-organized portfolio with clear purpose and requirements have helped both the students and staff to overcome the workload. Moreover, staff was motivated for a successful implementation of the portfolio. These results can suggest that development of well-organized portfolio with clear purpose and requirements may contribute in the success of the portfolio.

Another important point is that staff highlighted the importance of the portfolio in tracking student development. Moreover, staff mentioned that portfolio could introduce new norms to the students and change their view of learning and teaching. Accordingly, students need time to familiarize themselves with the portfolio because change and internalization of values need time (18). This point indicated that it is important to introduce the portfolio at early stage of learning (17). This time may also contribute in some of the students' inconsistency in replies. Regardless of the students' agreement on some of the portfolio's advantages such as the portfolio enhanced their clinical strengths and it has been a useful tool in structuring the clinical diagnosis, 41.7% recommended that the portfolio should be eliminated for the next academic year. Therefore, these results can suggest that portfolio implementation need time, continuous monitoring, and support. Additionally, the portfolio shifts the learning responsibility back to the students and it can assess the students' fitness of practice as agreed by the staff. Moreover, the students agreed that it helped them in preparation for

future practice. Therefore, the portfolio can help the medical graduates to be a lifelong learner (19).

The workload and copying of the portfolio were the main weaknesses that have been highlighted by both the staff and students. However, the staff suggested: e-portfolio, continuous orientation about the purpose, and teaching how to use and importance of portfolio may solve this problem. Additionally, those suggestions may also solve the inconsistency in the students' responses about portfolio.

Conclusion

The effect of portfolio implementation in undergraduate studies is still debatable in literature. Therefore, the current study has added evidence regarding the portfolio's effect on both students and staff. Portfolio can motivate staff and influence their session practice. In addition, it can track the learners' development and can permit tracking of longer episodes of teaching and tight observation of students. This study also highlighted the portfolio's complementary role to clinical teaching during clinical rotations and its role in preparation to future practice. However, the portfolio is time-consuming and exhausting process that can be improved by the introduction of e-portfolio, continuous orientation, and evaluation of the implementation process.

Acknowledgment

We thank the Clinical Teaching Committee and Medical Education Department, Faculty of Medicine, Suez Canal University, who significantly facilitated the accomplishment of this study.

Declaration of interest: Only the authors are responsible for the content and writing of this article.

Conflict of Interest: None Declared.

References

1. Dann R. Assessment as learning: blurring the boundaries of assessment and learning for theory, policy and practice. *Assessment in Education: Principles, Policy & Practice*. 2014;21(2):149-66. Doi:10.1080/0969594X.2014.898128
2. 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. Doi: 10.1046/j.1365-2923.2002.01288.x
3. Lombardi J. To portfolio or not to portfolio: Helpful or hyped? *College Teaching*. 2008;56(1):7-10. Doi: 10.3200/CTCH.56.1.7-10
4. Fox J. Using portfolios for assessment/alternative assessment. In: Shohamy E, Or I, May S, eds. *Language testing and assessment*. Encyclopedia of language and education. 3rd ed. Cham: Springer; 2016.
5. Martin-Kniep GO. *Becoming a better teacher: Eight innovations that work*. Alexandria: Association for Supervision and Curriculum Development; 2000.
6. Strijbos J, Meeus W, Libotton A. Portfolio assignments in teacher education: A tool for self-regulating the learning process. *International Journal for the Scholarship of Teaching and Learning*. 2007;1(2):1-16. Doi: 10.20429/ijstl.2007.010217
7. Gomez E. *Assessment portfolios: Including English language learners in large scale assessments*. Washington D.C: ERIC Clearinghouse on Languages and Linguistics; 2000.
8. 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. Doi: 10.1080/01421590902889897
9. Epstein RM, Hundert EM. Defining and assessing professional competence. *Jama*. 2002;287(2):226-35. Doi: 10.1001/jama.287.2.226
10. Hosny S, El Wazir Y, El Kalioby M, Farouk O, Ghaly M. Role of Suez Canal University, Faculty of medicine in Egyptian Medical Education Reform. *Health Professions Education*. 2016;2(1):44-50. Doi: 10.1016/j.hpe.2016.01.007.
11. Abdelaziza A., Kassab S. , Abdelnasser A. , Hosny S. (2018) Medical Education in Egypt: Historical Background, Current Status, and Challenges. *Health Professions Education Journal* 2018: (4) 236–244, <https://doi.org/10.1016/j.hpe.2017.12.007>.
12. Kirkpatrick D. *Evaluating training programs: The four levels*. Oakland, California: Berrett-Koehler Publishers; 2009.
13. Riquelme A, Mendez B, de la Fuente P, Padilla O, Benaglio C, Sirhan M, et al. Development and validation of a questionnaire on perception of portfolio by undergraduate medical students. *Rev Med Chil*. 2011;139(1):45-53. Doi: 10.4067/S0034-98872011000100006 (Article in Spanish)
14. Davis MH, Ponnampereuma GG. Examiner perceptions of a portfolio assessment process. *Med Teach*. 2010;32(5):e211-5. Doi: 10.3109/01421591003690312
15. Tartwijk JV, Driessen E, Van Der Vleuten C, Stokking K. Factors influencing the successful introduction of portfolios. *Quality in Higher Education*. 2007;13(1):69-79. Doi: 10.1080/13538320701272813
16. Cotterill S, McDonald T, Drummond P, Hammond G. Design, implementation and evaluation of a 'generic' ePortfolio: the University of Newcastle Upon Tyne. *International Journal of Innovation in Science and Mathematics Education*. 2005;13(1):1-7.
17. 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. Doi: 10.1080/01421590600628100
18. Elango S, Jutti RC, Lee LK. Portfolio as a learning tool: students' perspective. *Ann Acad Med Singapore.* 2005;34(8):511-4.
19. Driessen E, van Tartwijk J, van der Vleuten C, Wass V. Portfolios in medical education: why do they meet with mixed success? A systematic review. *Med Educ.* 2007;41(12):1224-33. Doi: 10.1111/j.1365-2923.2007.02944.x