

Mentorship/Portfolio Program in Early Medical Years, Is it the Perfect Twinning?

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ABSTRACT

Objectives: Compiling the portfolio in the early years of medical study is considered an important educational instrument for fostering change in the medical education curriculum in Egypt. This study assumed that adding the mentorship may boost the effectiveness of this program. This study was conducted at the Faculty of Medicine, Suez Canal University in early years of medical study with the following objectives: assessing the effects of mentoring portfolios on students and staff, exploring how mentors and students perceived the mentorship/ portfolio program, and determining any suggestions to improve the program

Methodology: This is a cross-sectional study, sample included a total comprehensive sample of year 1 students (n=260 students) and Seventeen mentors. Two questionnaires were used: Students' perception questionnaire and Mentors' perception questionnaire.

Results: Mentorship has helped in the implementation of the portfolio as all mentors agreed that mentorship improved the final product of the portfolio and facilitated the process of the portfolio. The twinning has supported the students academically and professionally. Academically as students agreed that their mentors assist in portfolio understanding, 68.3%, provide constructive feedback 67.4%, and follow the fulfilment of all the portfolio inputs 65.6%. It helped them to develop personally and professionally through the development of their reflective skills, 59.6% and the concept map 64%.

Conclusion: The study concluded that the mentorship may help improvement of the final product of the portfolio in the early basic years. Moreover, it assists the academic support to the students and helps them to develop their reflective skills.

Keywords: Mentorship, portfolio, reflective skills, Mentoring portfolios.

INTRODUCTION

It is a difficult mission to shift the minds of freshman students from spoon feeders to active learners. The current views on learning and societal developments have led to a transition from knowledge-based to competency-based curricula in medical education [1,2]. One of the major characteristics of competency-based curricula is that students learn to actively plan, monitor and evaluate their own learning processes. In other words, students should be self-directed learners [3].

With adoption of the adult learning theory, this study focused on the personal development of the students and prepared them for the national and international competencies that are required by the end of their training through designing, implementing and evaluating a mentorship portfolio program for the basic sciences.

Portfolio is an effective tool for learning as it provides authentic, performance-based assessment and encourages learners to take responsibility for their own learning. Being a systematic collection of student products collected over time, it reflects a student's developmental status. This collection represents a personal investment that is evident through: student's participation in the selection of the contents, the criteria for selection, the criteria for judging the merit of collection, student's self-reflection, and personal development plan[4]. However, its student-centered core may have some drawbacks such as "Misrepresentation" which means that the evidence selected does not represent the best evidence or "Trivialization" which means that the evidence selected did not merit reflection. Additional potential weaknesses are the time-consuming nature of assessment, the need for an active feedback culture and acceptance by the users [5].

Portfolios have been used in many settings including nursing, Medicine and pharmacy school curricula [6,7]. With balancing the importance and challenges of portfolio, the study assumed that adding mentorship to the portfolio program may help students to overcome these challenges and increase the benefit of portfolio on different aspects of the learning process and student development.

Regarding mentorship, the Mentoring history is almost as old as the man himself, who emerged in medical education in late 1990. The simplest definition was that developed by the Standing Committee on Postgraduate Medical and Dental Education (SCOPME) in London, 1998: "A process whereby an experienced, highly regarded, empathetic person (the mentor) guides another (usually younger) individual (the mentee) in the development and re-examination of their own ideas, learning, and personal and professional development [8].

Mentoring plays a key role in teaching and assessment of professionalism in medical curricula. Hence, Medical Education role-modelling is necessary to cultivate professionalism. This led to more emphasis on: deliberate teaching alongside online learning, new teaching and assessment methods in which mentors were introduced to assist and counsel students, as well as serving as role models. Therefore, teaching and assessment of professionalism has now been integrated into formal medical school curricula in developed countries.

Several studies have widely acknowledged this new recipe of adding mentorship as an essential ingredient for portfolio learning [9-11]. Moreover, Mollahadi et al highlighted the importance of a mentor- student relationship in a portfolio and the necessity of strengthening this relationship[1² Meanwhile, the study added that mentoring alone may not be helpful unless used in combination with a portfolio. However, there is still a need for further studies to measure direct changes in student knowledge, skills or attitudes/behaviors in addition to further exploration of the development of students' reflective skills. Assessing and evaluating both mentorship and portfolio and indeed the twining of those two important activities need further research work as well [13,14].

Thus, the current cross-sectional study took the advantage of examining the process and effect of this twinning on medical students' academic support, personal development and psychological support. It also examined the effect of this twining on the mentors and explored their perceptions towards the program. Additionally, the study introduced suggestions for improvement for future use of this twinning in early years of the medical study. The study raised three questions:

- What are the effects of mentoring portfolios on students and staff?
- How mentors and students perceived the mentorship/ portfolio program?
- What are the suggestions for improvement?

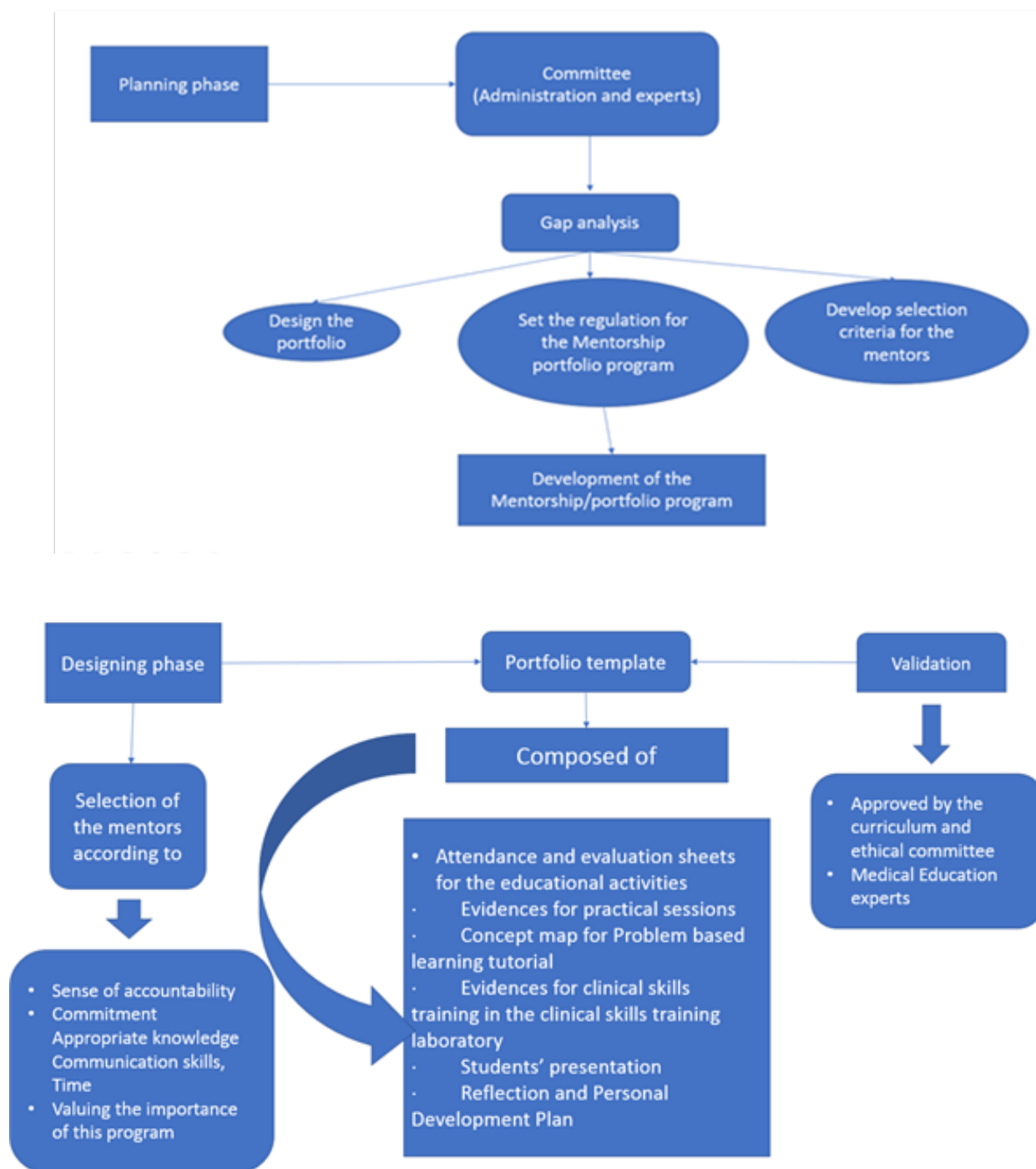
METHODOLOGY

Context

This cross-sectional study was conducted at the Faculty of Medicine, Suez Canal University. The study sample included a total comprehensive sample of year 1 students (n=260 students). Sventeen mentors were also included in the sample

Description of the intervention

This study aimed to implement a Mentorship program to follow the portfolios of year 1 students in early basic science years. The study process is divided into four phases; planning, designing, implementation and evaluation as shown in figure 1.



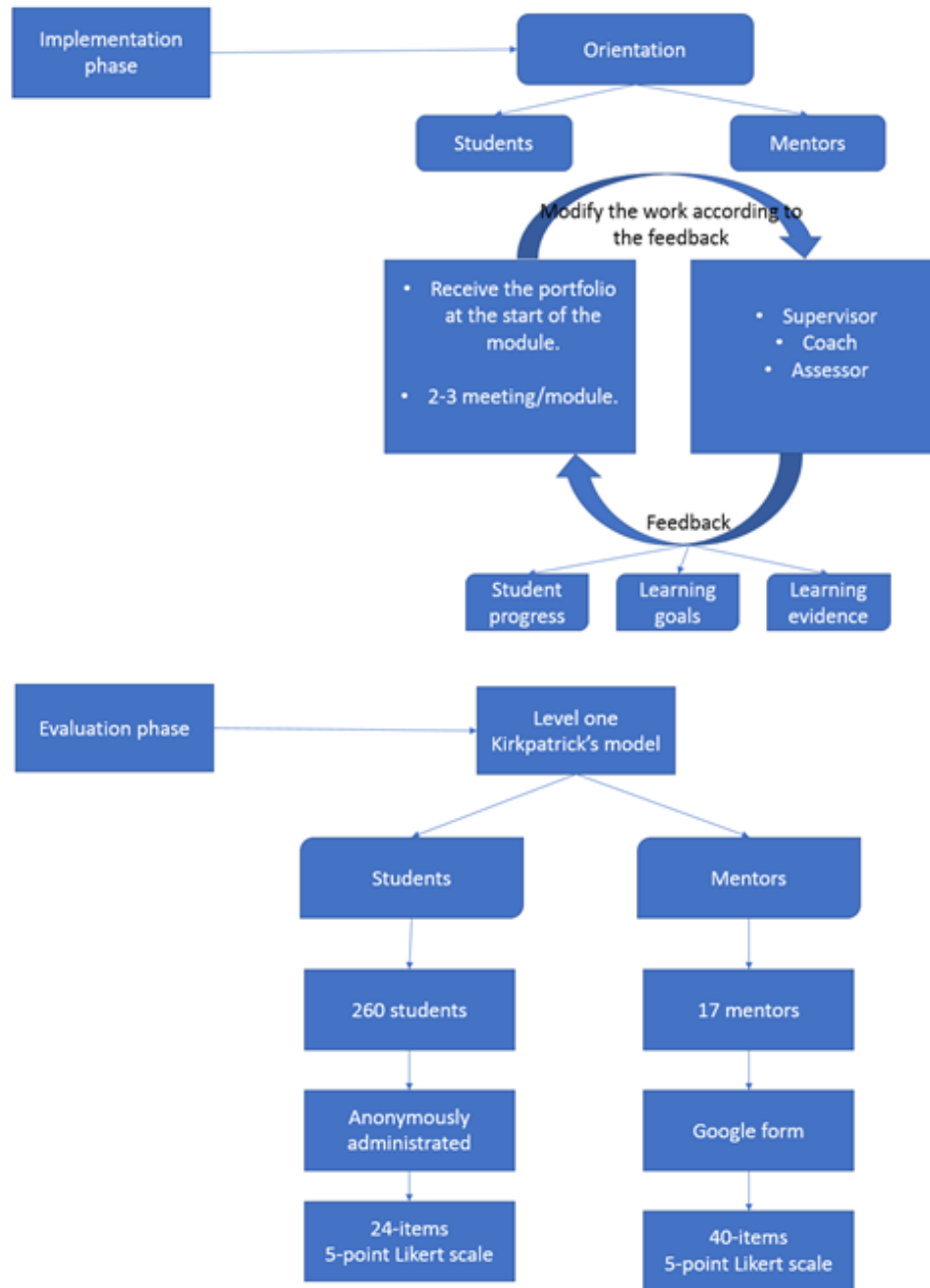


Figure 1: the conceptual framework of the study

Phase 1: Planning

The planning for this intervention started six months earlier than the start of the academic year. A Portfolio committee was recruited, and it was headed by the Vice Dean of Education and Students' Affairs together with medical education experts, phase 1 coordinator, and subject matter experts. The committee organized several meetings to reach a consensus about the final form of the portfolio. The role of the committee was to conduct a gap analysis by reviewing the assessment practices, actual performance and desired assessment practice that should be fulfilled with the

newly implemented portfolio, defining the purpose of portfolio assessment, identifying the required competencies to be achieved by the portfolio and specifying the activities that should be covered in the portfolio.

Another important role of the committee was setting criteria for the selection of the mentors that will be involved in the intervention. As the aim of this twining was providing support and guidance in order to facilitate the implementation of the portfolio. The Mentors were selected according to several criteria; their accountability and commitment to the assigned role in the program, having appropriate knowledge of the portfolio and mentorship process, Communication skills, Time availability to undertake effective supervision, their personality and valuing the importance of this program. Therefore, seventeen mentors were selected; each mentor is assigned for 14 students.

Phase 2: Designing

A literature review was conducted in order to develop a comprehensive portfolio template that can fulfil its aim. The used portfolio is a paper based, flexible learner centered portfolio format with directions & instructions. Students have the right to select their portfolio evidence. According to the identified competencies, several versions of the portfolio were developed till the committee agreed on a final one. The final portfolio template consists of 6 sections. The structure of the first-year portfolio is as follows:

- Attendance and evaluation sheets for the educational activities
- Evidences for practical sessions
- Concept map for Problem based learning tutorial
- Evidences for clinical skills training in the clinical skills training laboratory
- Students' presentation
- Reflection and Personal Development Plan

The final version was prepared and revised by members of the Medical Education Department to check its fitting for purpose and being user friendly.

Phase 3: Implementation

The aim of the implemented portfolio was fostering learning and helping in personal development of the students. Therefore, the template focused on student responsibility, reflection, self-assessment, development plan and feedback, which are fundamental to portfolio learning

Students and mentors orientation

Introductory sessions for year 1 students were done. The Students were presented with (1) The purpose and goals of using portfolios, (2) A summary the portfolio Mentorship system, (3) Content of the portfolio (4) A summary of Experiential Learning Theory (ELT) and explanation of its importance, and (5) A discussion of reflective learning.

The role of the student is to receive the portfolio template at the start of each learning module. The student should document all the learning activities and evidence. Then, it is the student responsibility to select the best work to be included in the portfolio. During the module, the student should meet with the mentor 2-3 meetings per each module. In this meeting, they should discuss the student's progress, learning goals and learning evidence. Finally, it is requested from

the student to modify the work according to the mentor's feedback and submit the portfolio to the mentor by the end of the module for summative assessment.

Mentor's role

Several roles were assigned to each mentor in the current study; being an academic supervisor, coach and assessor. Academic supervisor as they should oversee the learning progress considering the selected educational evidence. In each meeting, the mentor should set ground rules, set a way of communication, discuss the student progress, review the updates in the portfolio and recommend actions for improvement. He should be a coach that focuses on a learner's goals and encouraging self-reflection.

At the end of the year the portfolios were judged in a summative holistic assessment procedure based on the (global) criteria. Students' work was judged by criteria that will specify the level of their academic achievements and will determine their progress. Standards for students' evaluation were developed in the form of scoring criteria.

Thus, Faculty development workshops were conducted for the mentors. The mentors received formal training in the form of workshop and orientation sessions. The training aims to create awareness of the importance of portfolios, portfolio sections and responsibility of the mentors and students. It was important to highlight the different roles that are expected from the mentor.

After the portfolio was approved by the curriculum and ethical committee, it was introduced to year 1 Medical Student in the academic year 2018-2019. The portfolio booklets were then distributed to the students, who were instructed to submit the requested evidence, along with reflections on their experiences. The portfolio coordinator follows up the progress and proper implementation of the program.

Phase 4: Evaluation

The evaluation was conducted on level one of Kirkpatrick's evaluation model; students and mentor satisfaction towards the program.

The evaluation was done at the end of the academic year by using two questionnaires; students and mentors. The questionnaires were developed by the Medical Education Team. Then they were reviewed for content validity by the opinions of ten experts. They also judged them in references to clarity, relevance, simplicity, breadth, Length and appropriateness. Then, final versions were modified according to the comments.

Students' perception questionnaire

Anonymous questionnaire was used for assessing students' perception towards the program. The questionnaire was administered to the students during their learning activity. The questionnaire was administered to 260 students. The questionnaire is composed of 24-items in a 5-point Likert-type scale from totally disagree (1) to totally agree (5).

Mentors' perception questionnaire

Another questionnaire was sent to 17 mentors through Google forms. All the mentors that were involved in the program were included. The questionnaire is divided into four sections including open and closed ended questions.

The mentors' questionnaire is composed of 40-items that aim to explore their perception towards the intervention. The process, mentorship/portfolio program, overall satisfaction was evaluated by a 5-point Likert-type scale from totally disagree (1) to totally agree (5). While, the open-ended questions asked about their positive, negative striking events and suggestions for improvement.

Statistical analysis

The responses of the questionnaire were analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0. Internal consistency reliability testing was conducted using Cronbach's Alpha statistics and descriptive analysis of the data was conducted.

Ethical consideration

Prior to starting the study, ethical approval has been obtained from Suez Canal University Ethics committee. The participants were informed about the purpose of the study and its relevance to the field of medical education. Written informed consent has been given and received from study participants. Only those who agreed to be involved in the study were included. The questionnaires were anonymous, and participants were informed that any information they included in the questionnaires would be treated with confidentiality. However, students have the right to participate and withdraw themselves at any time without any consequences on their learning progress.

RESULTS

The response rate of the students was 88.4 %, meanwhile, mentors' response rate was 100%. The results are represented into three main headings; Mentorship/portfolio process, students in the Mentorship/portfolio program and mentors in the Mentorship/portfolio program. The questionnaires showed high reliability, Cronbach alpha was 0.98 for the student questionnaire while 0.91 for the mentors questionnaire.

1. Mentorship/portfolio program:

The majority of the mentors' responses showed that mentors agreed that the components of the portfolio were comprehensive (99%), all subjects were representable (85%) and provided a variety of evidence (88.2 %). Moreover, they agreed that the portfolio reflects their study experience and ensures high quality of evidence 88.2%, 76.4% respectively. However, 53 % of mentors agreed that mentees are responsible for the selection of the portfolio evidence.

Most of the mentors agreed that the Mentorship /portfolio twining helped in the implementation of the portfolio as reported by 94.1% of them, all of the mentors agreed that mentorship improved the final product of the portfolio and facilitated the use of the portfolio and gave value to the portfolio. Additionally, they agreed that the most important effect of the mentorship on portfolio was avoidance of copying and plagiarism 69.1% as shown in figure 2.

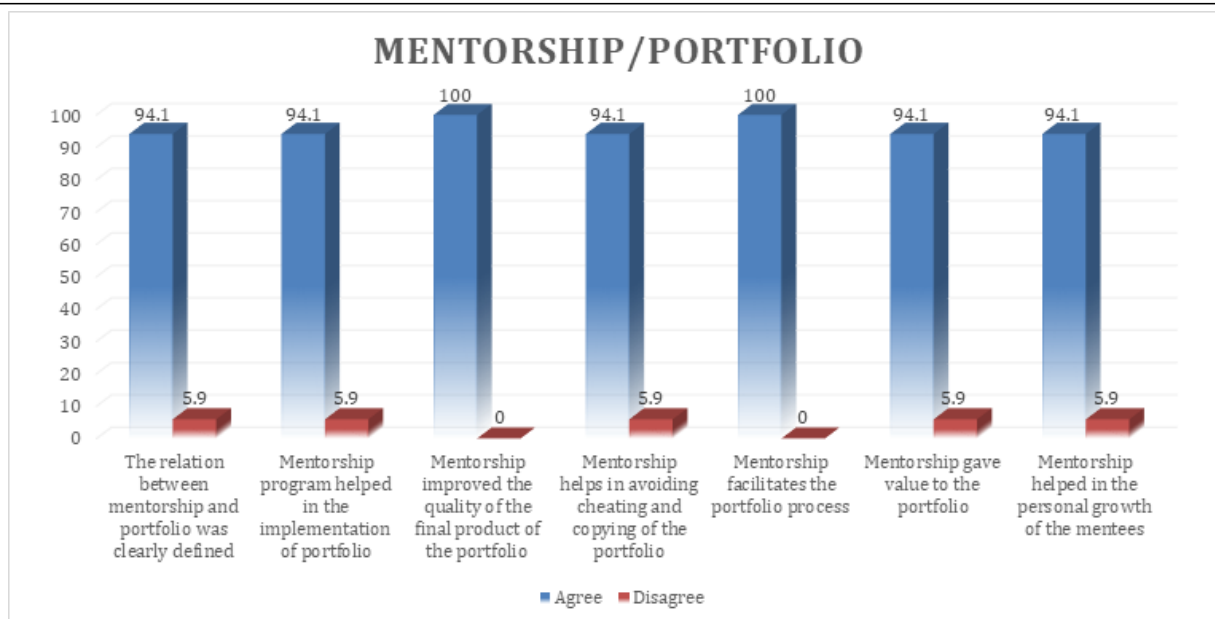


Figure 2: The relationship between mentorship and portfolio programs (mentors' views)

Students have added that the relation between the mentorship and portfolio was clearly defined for 56.7% of them and helped 68.5% of them to understand the portfolio. Also, 67.4% of the students reported that the mentorship gave them the opportunity to receive constructive feedback after each session and advice to improve their academic performance. In line, 65% of the students claimed that mentors assisted them to fulfill the portfolio inputs as seen in figure 3

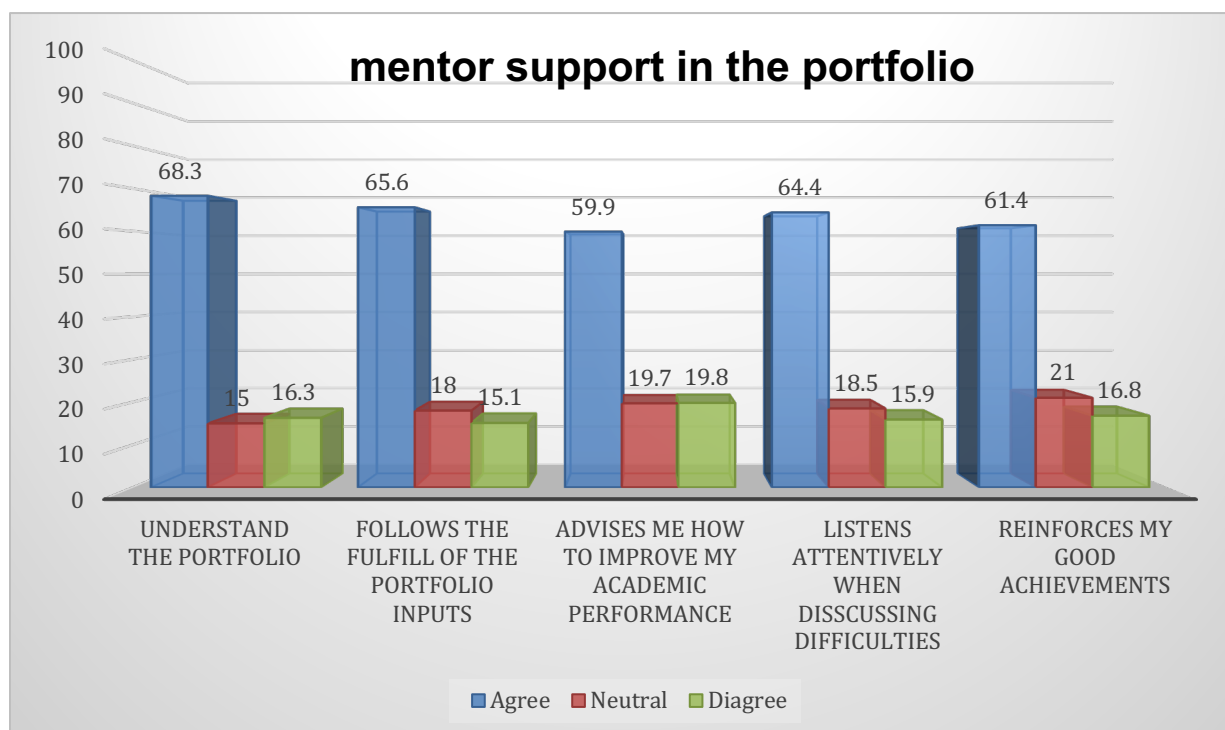


Figure 3: The relationship between mentorship and portfolio programs (Students' views)

On the other hand, mentors had suggested some actions that may improve the program two aspects; portfolio and mentorship. For the portfolio aspect, most of their suggestions (47%) were related to the process, for example: allowing more time for discussion and providing training for the students and mentors. Additionally, they had provided suggestions regarding the portfolio content (23.5%) for example: modification of the tasks to be more interactive, extend the duration of some tasks and allow the students to create. Finally, the mentorship aspect, the mentors suggested modifying the mentors/mentee ratio and training of the mentors with total (23.5%).

2- Students in Mentorship/portfolio program:

Regarding benefits of Mentorship/portfolio program on the students, students agreed on the importance of the Mentorship/portfolio program in helping them to develop a positive attitude towards their learning 55.4%. In line, 94.1% of the mentors agreed that the Mentorship/portfolio program helped in the development of the mentees. Both students and mentors agreed that the program had helped the students to acquire different skills as shown in figure 4.

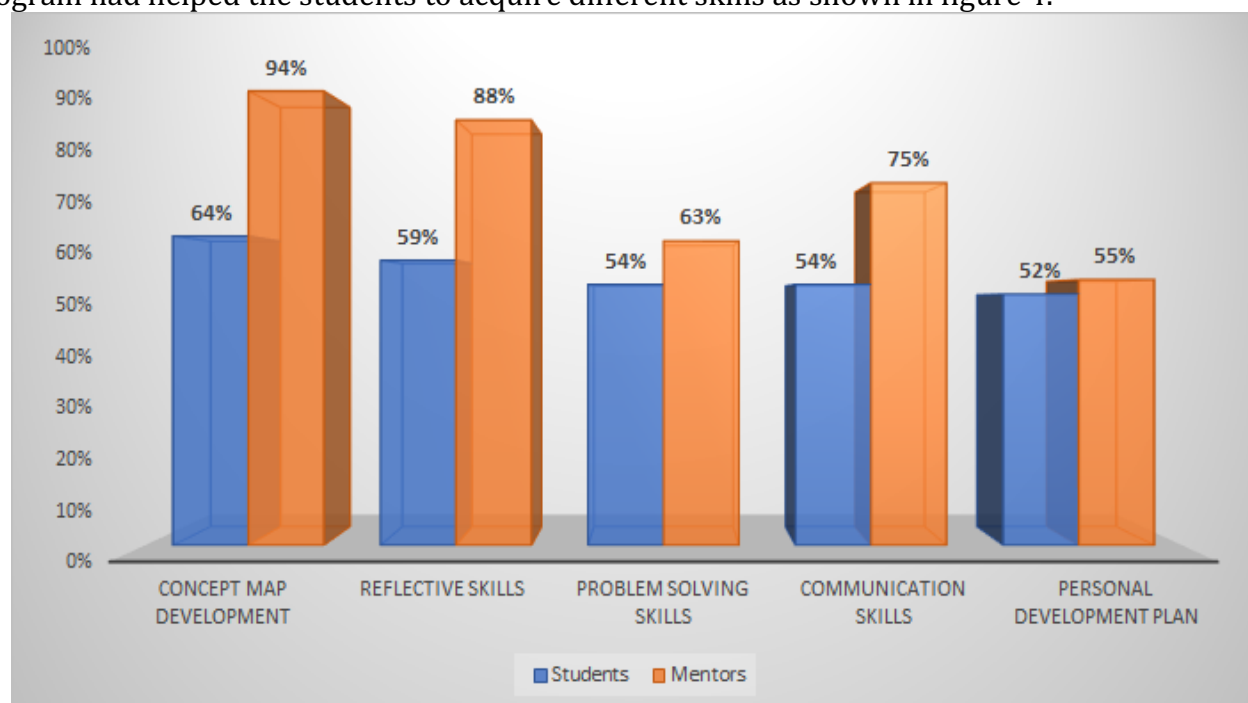


Figure 4: The benefits of twinning program (Students' and mentors views)

Although, most of the students 64.4% agreed that the mentors listened attentively to them while discussing their difficulties and reinforced their good achievements as reported by 61.4%. However, only 51 % of students declared that the mentors helped them to identify their strengths and weaknesses or improve their learning deficiencies. Also, mentors were provident of positive role models for only 51.5%.

3- Mentors in the Mentorship/portfolio program:

Mentors showed different expectations to the program. However, **the most frequently mentioned expectations of mentors** about their role in the program were providing good opportunity for help and follow up of the students (58.8%) followed by creating a bond with the students (23.6%) and raising the sense of responsibility towards mentees (17.6%). One of the

mentor's expectations was **'Transfer my experience and knowledge to the students. The aim was to direct them in their beginning'**

Although mentors had positive perceptions towards the Mentorship/portfolio program and felt that the program had impacted them positively 94.1%, they have reported various experiences that impacted them positively and others impacted them negatively. However, The most frequently mentioned striking events that impacted the mentors positively were: 41.1% of the mentors reported that they had learned many educational tools and new knowledge about the learning process and student's needs, while 35.2% of the mentors highlighted the role of the program in building bonds and relationships with the students. Accordingly, one of the mentors mentioned **'Being closer to the mentees forms good communication with the mentees to know their major worries, stress. I like this positive relationship'**. Moreover, mentors have also reported that it helped them to be useful and change the students' perceptions towards learning. According to one of the mentors, ***'It has given me good and strong relationships with my students. Some of them contacted me not just for scientific materials but also for their personal aspects.'*** Finally, a minority of them (23.5%) have reported that the ability of mentees to improve their performance progressively and obvious progress of responsibility seen in the mentor's reflection.

On the other hand, the striking events that impacted them negatively were: 58.8% reported some students' negative attitude shown in lack of interest and plagiarism. Moreover, 41.1% found the process time consuming due to the repetition of some activities and inappropriate number of meetings.

DISCUSSION

The current study took the advantage of examining the role of mentorship in the implementation of portfolios. Additionally, it explores the effect of twinning the mentorship and portfolio programs on medical students' academic achievement, personal development and psychological support. According to the best of our knowledge, this study is one of the few studies trying to explore the merits and drawbacks of this twinning. It is considered an addition to this research area and it can pave the way to others for further research points.

1- Mentorship role in the implementation of the portfolio.

The current study has added evidence that mentorship programs have a positive impact on portfolio programs. This was supported by students' responses who agreed that their mentors assisted them in understanding the portfolio, following their fulfillment of all the portfolio inputs and improving the final product of the portfolio. This could support our initiative and reflect valid implementation of the twinning of the mentorship and portfolio program.

Mentorship has improved the role of faculty in the portfolio. According to mentors' perception, their roles varied among providing good opportunity for help and follow up of the students, creating a bond with the students, and raising the sense of responsibility towards mentees. This could also be referred to adequate training prior to the implementation that may prepare them for their role, which is supported by evidence that training portfolio mentors is vital to the success of twinning[15,16]. Mentors' perception is reported in similar studies as they were generally positive about their roles in the support of portfolio development in group sessions [17]. We could explain

that whenever appropriate training and planning were practiced, it will be reflected on mentors' perception and performance. However, well planned training is required to cope with mentors' busy schedules.

Moreover, adding mentorship to a portfolio can overcome the commonly reported drawbacks of the mere use of portfolio alone such as misrepresentation and trivialization. This was evident as the majority of students agreed that mentorship helped them in avoiding copying of the portfolio evidence [18]. Another important impact of this twinning is that the mentors had agreed that the Mentorship/portfolio program had impacted them positively, improved their performance through helping them to understand the portfolio, promoting reflection and developing personal development plan. This positive impact also reflected on the students' satisfaction with their mentors' roles.

2- Mentorship/ portfolio effect on academic support.

The current study found that the mentorship can help in the development of a positive attitude towards learning. This is because the mentors assisted the students to accomplish important tasks and develop skills that may be challenging for them. Students have confirmed that the mentors assisted them to develop concept maps, communication skills and problem solving skills. All these skills may have enriched this positive attitude towards learning which in turn supported the students academically [19]. Moreover, the mentors were keen to provide constructive feedback after each session. The latter has been supported by the widely evidenced views that it is the driving force for improvement. This goes with similar findings in a study that showed a positive increase in attitudes of students in comparison to their peers who received little or no mentoring during the portfolio development process [20]. This was also congruent with similar studies that reported the importance of feedback on portfolio as one of the frequently mentioned aims of mentoring portfolio [21-23].

3- Mentorship/ portfolio effect on emotional and psychological support

Twinning of mentorship and portfolio has created communication channels between the staff and students. This channel may have positively supported the students emotionally and psychologically. As mentioned by one of the mentors, ***'Being closer to the mentees forms a good communication with them to know their major worries, stress'.***

'It has given me good and strong relationships with my students. Some of them contacted me not just for scientific materials but also for their personal aspects' was another mentor quote about the relationship with the students. The same point was supported by majority students' responses who agreed that their mentors listened attentively to them while discussing their difficulties, gave encouragement and support for the challenges faced. These findings can be evident for the positive impact of this twinning on emotional and psychological support. Banister et al. have reported that mentorship programs are designed to help new graduates coping with the challenges they will face during their first year of practice[24].

Despite the positive impact of the twinning on students' emotional and psychological support, only fifty percent of students reported that their mentors were positive role models. This may be due to the busy schedules of some mentors, the materialistic relation between some students and their mentors were due to the situational, in which the mentors were assigned only to follow one

aspect of students' achievement, which is the portfolio. It may also be too early for students to visualize their mentors as role models [25].

4- Mentorship/ portfolio effect on personal and professional development

The twining of mentorship has proven an effect on the personal development of the student. As most of the students and mentors agreed that the program helped the students to develop reflective skills through self-assessment. This finding for the first instance could be expected, as portfolio is one of the crucial elements in developing reflective and self-directed skills [26]. This is agreed with Er et al who supported the use of reflective portfolios in the training of pharmacists to become reflective practitioners [7]. Moreover, students perceived that the portfolio helped with their personal and professional development. However, some studies have concluded that the use of portfolios alone does not necessarily result in reflection. Furthermore, it was proposed that the mentor – mentee relationship is more effective in stimulating reflection than the portfolio itself [15]. Moreover, Ramani et al discussed the role of mentoring in the cultivation of medical student professional development which in turn is an integral part of the portfolio components [27]. Therefore, adding mentorship to the portfolio is crucial as mentorship is a cornerstone in developing a good reflective portfolio [17,28].

Additionally, we cannot attribute these reflective skills to mentoring system alone, as research had highlighted other factors fostering reflection in this context such as: the importance of peer discussion for reflective learning and the assessment of portfolio [29]. The latter may have been contributed to the development of the reflective skills of the students which is supported by research evidence [30]. This could be explained by students will exert their effort to enhance the quality of submitted evidence and reflection. They will work all through the process to finalize the best pieces ready for assessment and highly graded. However, it needs to be handled with caution as grades/ summative assessment may hinder reflection. In other words, students may hesitate to mention their weaknesses because it may affect their grades. Again, the twining may help to solve this dilemma as it gives the mentor the chance and channel to clarify to the students what is really meant by reflection and how to write a good reflection. Moreover, the open discussion with the mentor may help the students to actually identify their strengths and weaknesses. However, only 53 % of mentors agreed that mentees are responsible for the selection of the portfolio evidence. A possible explanation for this result is that it was the first time for the students to encounter such experience, This may lead them to seek help from the departments or the mentors in the selection of the evidence. Hence, it needs further clarification and training of the students to take more responsibility about their learning. As it was one of the main objectives of implementing this program to prepare them to be a life-long learner and self regulated learner.

To summarize, this twinning impact was evident all through our study findings as reported by students and/or mentors:

- The Mentorship/portfolio program has impacted the students and mentors positively.
- Mentorship helped in implementation of portfolio, improve the final product of the portfolio and facilitate the process of the portfolio
- Mentorship/portfolio leads to personal and professional development of mentees

Acknowledgement: A special thanks goes to Suez Canal university stakeholders at the faculty of Medicine as well as mentors and students who participated in this study.

Conflict of interest declaration: The authors have no conflict of interest

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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Rania Alkhadragy: The author had made substantial contributions to the conception, design of the work, the acquisition, analysis, interpretation of data. She has drafted the work and substantively revised it. Finally, she has approved the final version of the manuscript.

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