A tale of two partnership program: the story of implementing e-portfolio and mentoring program

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Abstract: This paper presents the findings of a two partnership program, e-portfolio and mentoring that was developed at KSAU-HS in 2012 to allow students to take a close look at their progress and analyze achievement in the personal and professional domains. In particular, this article highlights the rationale for involving students in this program and impact of two programs on students' satisfaction. All the undergraduate students of basic medical sciences were expected to create and submit e-portfolios under the mentorship of faculty mentors as an evidence of mastery in general competencies. In addition, the article discusses challenges that effect effective implementation of e-portfolio and mentoring program.

1. Introduction

This article tells the story of why and how two partnership program, e-portfolio and mentoring developed at KSAU-HS, what we learned during the process and what we believe need to be modified and done differently in future. In particular, this article will give our readers a clear understanding that implementing both programs in health profession education is enormous and challenging but consistency, stake holders and faculty members' support can make them successful and effective for students.

Professional development is an important aspect every medical student is expected to achieve during medical school. It provides students with opportunities to develop regime that matches initiatives in the health service. Through Professional development planning students can be supported in developing as professionals capable of taking responsibility for their continuing professional development. The college of medicine at KSAU-HS places emphasis on the students to better understands the local health care challenges and positively advances health care policy in response.

The College of Medicine (COM) at KSAU-HS places high expectations on their graduates to be competent practitioners, demonstrating professionalism, appropriate attitudes towards colleagues and patients, and towards continuous learning and improvement.

The undergraduate medical curriculum at the COM includes the Personal and Professional Development (PPD) theme, a longitudinal course that spans across blocks and curricular phases and focuses on student awareness of concepts such as self-directed learning, leadership, organization skills, etc. In such curriculum, it was imperative to developed e-portfolio, the only effective way to evaluate the students understanding of these themes.

The introduction of student portfolios provided this opportunity through its requirement that students reflect on aspects of their education and provide evidence of their achievement. Students could now be accountable for their professional development and faculty could objectively assess what used to be a difficult-to test area. As what Schön (1983)[1] stated in his article that an e-portfolio showcase evidence of accomplishment and enables students to record reflections about the evidence thus supports the growth and development of the “reflective practitioner”.

The KSAU-HS mentorship program that is closely linked to the student e-portfolio resulted from the realization that, in addition to an assessment tool, not only e-portfolios shall provide our student a better learning opportunities through feedback from mentors, it would allow students to get more benefit from the guidance and experience of role models with this new program. Literature suggest that giving constructive feedback to mentees improve students' performance and ability to assess themselves accurately[2] provide a sources of validating students’ knowledge and competence.[3]

Subsequently, in 2012 serious investigation for a formal e-portfolio that is integrated with student mentoring program was started. In this Program, all undergraduates PHASE II students (from first to third year medical years) were expected to build and submit an electronic portfolio as evidence of personal and professional growth in identified domains required to achieve by each student
(Appendix 1). We considered two main goals of this program from an institutional perspective:
- to help students to gain the skills and confidence
- to make them responsible for their own personal and professional development.

Theoretical Framework

Over the past decade the use of digital portfolios and mentorship in medical education has been increased. We noted that an effective e-portfolio and mentoring program should be based on a coherent learning theory that provides a descriptive framework for understanding and improving process of learning. This program is based on the social development theory by Lev Vygotsky\(^5\) that advocates people learn and develop through social interactions with more knowledgeable others. It is based also on communities of practice theory by Jean Lave and Etienne Wenger\(^5\) that described that group of people sharing goals, activities and experiences in the context of a given practice.

Method and Procedure

Formation of Task Force Group
In an attempt to make students a lifelong learners who can reflect on their understand of the core competencies of the curriculum being implemented in KSAU-HS and to develop a most successful and effective e-portfolio and mentoring program, it was late 2011, a task force group was formed and announcements were made at the same time that got faculty’s attention and interests. The task force group was comprised of experienced medical educationist who had expertise in the design and development of tools and standards that support learning and assessment within medical training and professional practice. They were made responsible for the strategic development of policies and procedures, strategies and functions for inclusion in the students’ e-portfolio and mentorship and to identify potential factors of e-portfolios and mentoring implementation across the University.

The task force started discussion with IT staff of college and senior faculty on the merits of such program from an institutional perspective: (Appendix 1). We considered two main goals of this program from an institutional perspective:
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We recognized that developing a program that the faculty, institution and all students considered it useful was not easy at the college. Clearly we needed a realistic framework for guiding students and faculty and appropriate planning of the IT services. After evaluating e-portfolio use in the college and researching e-portfolio and mentoring models used at other institutions both nationally and globally, the task group corresponded that implementing a centrally supported e-portfolio infrastructure by KSAU-HS is an imperative for the growth and maturation of integrative and lifelong learning, reflective practice as well as professional and workforce development of the medical students. Based on feedback from different sources the rationale of the program was to build a system that focus on supporting student learning, especially opportunities for integrative and reflective learning. Subsequently, stakeholders showed the broader need of the program in terms of program assessment and institutional accreditation.

Strategy
A formal, on-going program through which each student had assigned a mentor from faculty limited to no more than five students in the college to guide him/her in achieving the college’s learning goals was initiated. After one year of debate, a pilot program initiated with graduates in their internship year in fall 2012. Mentors were recruited from current faculty members. This mentoring service was voluntary with no benefits associated with the services. Nominations were made after sending official letter from the program director regarding their interest to serve as a mentor. Mentors were asked to schedule face to face thirty to sixty minutes meetings with students for the purpose of advising and to address student’s issues or concern every second week in the block schedule other than email conversation. Training about the e-portfolio and mentoring requirement, use of e-portfolio on blackboard was provided every month to mentors and mentees who are new to the program. For students training was done in the class time and attendance was made compulsory. We also developed a mentoring committee to oversee concerns of mentors and mentees. All materials and instructions were posted on the blackboard for students and mentors for their understanding and access whenever required. Based on student and mentor feedback received after the pilot program of portfolio use and mentoring, numerous changes were made prior to the start of formal program in 2013. The program met our expectations and we expanded our program and included Phase II students who were in first year medical course.
Phase 1: Developmental Phase

With the increasing use and advancement of technology, the electronic portfolio (e-portfolio) is emerging as a viable option to the traditional paper portfolio.[6] Initially at KSAU-HS, we were concerned about the selection of content for inclusion in e-portfolio on blackboard and also for mentoring. Key indicators for portfolio, multimedia component and evaluation strategies were identified after doing meetings with faculty, staff, administrators, IT directors and student academic officer. The task group in this phase developed a manual outlining the e-portfolio objectives, central role of mentor throughout the process of e-portfolio, assessment and policies and procedure document which was also presented to the undergraduate curriculum committee for approval of implementation. The organizational chart was designed to define roles and responsibilities (fig: 1).

A frequently asked question was what is e-portfolio? We in e-portfolio manuals for mentors and mentees defined e-portfolio as a digital means that creates an active, personal venue for demonstrating self-directed lifelong learning including evidence of the acquisition of skills and knowledge, individual accomplishments, service, and personal growth. In an article on e-portfolios: Go Big or Go Homer, researcher pointed out that “It is an oversimplification to say that e-portfolios cannot be used simultaneously for learning and assessment, but such use requires the integration of e-portfolio activities across the curriculum at a scale almost never attempted by programs invested only in meeting the demands of external accountability.”[7]

Meanwhile, in our program that focuses on assessment as a tool for learning we were confident that several benefits can be attained.

Instrument used

Modified version of E-portfolio software on the blackboard was developed and installed. We continued use of our existing curriculum management blackboard system to form their e-portfolio because we believe that it is easy to use for all the students and the faulty members. IT department tried to make it sufficient to meet the needs of all. Students were required to complete the Self-Assessment Questionnaire (SAQ) and student reflection page in order for mentor to review and send back their feedback. Students must develop the e-portfolio page on blackboard (Appendix B).

Various workshops and training sessions were conducted with the stakeholders, mentors and the mentees to make them familiar with the objectives, uses, and assessment of e-portfolio both continuous and summative. Practice sessions on how to use e-portfolio on blackboard was also carried out separately on regular basis. Manual on e-portfolio and mentoring program covering the objectives, organizational chart, descriptions of the domains, assessment methods and rubric system for assessment was also shared with the participants to give them comprehensive understanding of the program and practical use of e-portfolio on the blackboard system.

Phase II: Implementation of e-portfolio and mentoring program

In fall 2012, a director to oversee the overall program was recruited. She met frequently with students and faculty members to get the opinion regarding the effectiveness of program. Several issues were identified that was required to be discussed. Few of them were:

Table 1 Key features identified by the faculty and students

- Support of mentors and their knowledge of personal professional development themes
- Improve concept of self-directed learning through discussion with mentors
- Constructive feedback on managing time more effectively
- Application of e-portfolio for various users and audiences
- Support of blackboard in all file types; documents, slides
- Enhance learning on how to write a good reflection
- Positive role of feedback on e-portfolio documents in understanding

Table 2 Related concerns reported by the faculty and students

- Lack of trained mentors
- Inappropriate feedback from mentor
- Inconsistent mentor and mentees meeting
• Additional work for faculty members to analysis and direct students
• Lack of motivation of students for the mentoring and to create e-portfolio
• Overall not understood the concept of mentoring and e-portfolio program
• Load of administration responsibilities including submitting information, getting e-portfolio, and organization of e-portfolio

Table 3 Suggestion for improvement by the faculty and students

• More involvement of mentors in the process of learning
• More practical sessions to improve understanding of the two programs
• More rationalization on the benefits of e-portfolio and mentoring for learners and faculty.
• Sessions with faculty members on the skills necessary for effective mentoring is highly required.

The issues and suggestion provided were stimulating in redesigning the fundamentals of the program. This becomes a continuous practice as we continue to correct related problems identified as they occur.

Outcome

Phase III: Assessment and Evaluation of two partner programs

Once students finished and uploaded their reflections document with evidences of achievement on blackboard, the assessment process begins. In our program, a rubric system was developed and implemented based on recommendations from the taskforce. The taskforce developed a triangular system to get of assessment plan where formative assessment and summative assessment were included. The purpose was to develop a holistic system that should be valid, to enhance students’ capability to review and reflect on their reflections.

The rubric scoring developed for each competency, the work is scored on 1-10 scale to indicate how well student has displayed the competency.

Continuous assessment

We believe that an e-portfolio and mentoring program based on learning approaches should have a mechanism of formative feedback. Although the process of feedback and e-portfolio evaluation requires a lot of time and is difficult to implement successfully in any system, but it is essential to encourage growth and reflection practice and improvement in making their goal achievable.

The formative assessment from mentors to mentees is an essential part of our program. We noticed that this feedback enables students in understanding their weakness and strengthen areas and help them in recognizing the value of e-portfolio. In our program formative assessment has 40% weightage of all assessment. Training on how to provide feedback and how to fill the rubric was provided to each mentor on regular basis.

Summative assessment

Mentoring and e-portfolio committee consisted of associate dean, director and faculty members from various basic and clinical fields conducted a summative assessment of student e-portfolios in this program. An invitation was sent to all members to participate in summative assessment of e-portfolios. After their acceptance training on how to assess a reflection documents objectively by using rubric system and provide practical session to discuss with them the inter-rater reliability on artifacts is provided. Once they learn the process and reliability, assessment is carried out (Figure 2).

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faculties, we have encountered a range of challenges that we still try to resolve.

**Teacher and student motivation**

One of our main challenges was lack of motivation of both mentor and mentee. It was really hard to get students and faculty acceptance for both programs. Mentees reported the additional work required by the students, lack of faculty support and understanding of the program. They opined that if university want to implement then more training sessions for faculty members should be done and protected time for such activities should be stated. Additionally, faculty does not take this program seriously and always complained about the working load and lack of incentives. We take motivation issues very seriously, and even though we work hard to deal with them, they remain a consistent challenge that we deal with every year. We also received responses that purpose is not clear to them even why we want to assess it. Although we pointed out many time the purpose, benefit and use of assessment but this excuse is also a barrier in achievement.

**Plagiarism**

A second issue was dealing with plagiarism. It was really difficult to know who has done original work. To deal with this issue a safe assignment program on blackboard to pick the plagiarized material was introduced. We have requested our mentors that they should get to know the writing style of their mentees and should question the mentee if they see any change in their writing style.

**Blackboard as an unfriendly user**

Our third main challenge was the accessibility of blackboard system. Most of the time mentor and the mentees cannot open or upload their e-portfolios or feedback due to the lack of accessibility or technical problem with the program. We are still searching suitable e-portfolio software that will be user friendly and easy to access.

**E-portfolio assessment**

We have also faced the challenge of how we can incorporate summative assessment grades in their final grade sheet. Because there is no weightage of the score in their final grades, this may also a one of a reason for lack of interest and motivation. Strategies have been developed and will be submitted for final approval of the University Council.

**Insufficient staff for partner program**

Lack of sufficient staff is another challenge we are still facing. The director and the coordinator are the only people who are coordinating and overseeing the whole program. Additionally we have very limited trained faculty member. It is really difficult to manage the program and provide feedback to students who are randomly assigned to mentors which several times frustrate both mentoring and e-portfolio committee and the mentees.

**Discussion**

Our experience with both program suggest that students are quite positive about the e-portfolio and mentor role. Although the access of blackboard was not user friendly as most of them reported but they considered the software quite simple to use. Additionally, students and faculty members suggested support and more time to know about the program and skills required for effective implementation of program. Students also opined that mentor should know the purpose, their role and overall benefit of the e-portfolio and mentoring to learners. This will require tutors to demonstrate how the learning tool can be related to students’ learning in specific subject area. It is felt that guidance, support and training are required for mentors to grasp the many aspects of e-portfolio and mentoring program.

**Conclusion and recommendations**

The proposed program is essential in achieving COM’s mission as it provides student with the needed skills for personal and professional growth. This program is based on solid learning theories and takes into consideration evaluation and assessment of competencies. Leadership support is a crucial part of implementing and maintaining such program. For future recommendation, it is suggested that protected time within the curriculum will be given such activities to motivate faculty members, the use of integrative learning e-portfolios can be promoted through professional development events and workshops, experiences of previous students should be discussed in open forums and work with faculty to encourage the adoption of e-portfolios for Promotion & Tenure. Moreover, offering to faculty members the opportunity to give input into the program’s design by providing feedback after each session and modifying the program based on evaluation results are also recommended.

**Acknowledgement**

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**References**

Appendix 1
Domains and content of E-portfolio program at KSAU-HS

After a thorough literature search, discussion with experts and need assessment survey six domains were identified and included in the program to assess the acquisition of skills during undergraduate medical training:

1. Self-directed learning and metacognition
2. Leadership and teamwork
3. Management and organization
4. Research and educational advancement
5. Communication and professionalism
6. Coping with stress

The content included in the e-portfolio and mentoring is consisted of:

1. CV in which student provides a short introduction of himself/herself;
2. Completed self-assessment questionnaire fill by the student using his e-portfolio in the beginning of the program to get the understanding of his strengthen areas and areas that need improvement;
3. Portfolio reflection document consists of four separate pages student shares to their mentors: student reflection page along with mentor feedback page, action plan page, summary of progress of meting page and reflection on achievement page.
4. Block summaries includes the student’s reflection on the block, lesson learned, strength of the facilitator of PBL and areas for improvement.
5. Clinical case summary seen during rotation with lessons learned.
6. Clinical supervisor feedback forms.
7. Mini CEX/ Case based discussion feedback forms.

Appendix 2
STEPS to develop e-portfolio on blackboard

1. Sign in to the Blackboard system your access name and password
2. Under ‘My courses’ click the “Batch Portfolio” link
3. Click the tab ‘Course portfolio’ to access links to the documents and pages you need to develop.
4. Click on the Course Portfolio link
5. Blackboard will take you to a screen that includes ‘My Portfolios’ and ‘Received Portfolios’
6. Click on ‘My Portfolios’ then click on the tab ‘Create Personal Portfolio’ (upper right corner)
7. In the next page, a default layout theme has been chosen; you can keep these settings → Save and Continue tab
8. The next page will be where you develop the different sections of your document. Instructions are available.
9. Mark this section as ‘in progress’ if still in draft form or ‘complete’ if the document is complete → ‘Save and Continue’ tab
10. Chose appropriate options on the next page → Submit
11. Go to the ‘Share Portfolio’ link on the next page and specify persons you will share it with. An email will automatically be generated and sent to the person you are sharing your portfolio with.