INTRODUCTION

Logbooks are commonly used in medical education in order to structure clinical clerkship for documenting, grading and evaluating undergraduate curricula. Their design and structure may be based on the pre-defined learning objectives, as well as the mode of issuing affirmations, or the format (handwritten, optically scanned or electronic). Learning objectives may be defined as compulsory, core or optional, thus offering different ways for students to document what they have experienced. CanMEDS framework in Canada, Accreditation Council of Graduate Medical Education (ACGME)'s accreditation program in USA and GMC's tomorrows doctor are a few examples of competency based residency programs.1-6

Residency Program is a structured full time educational activity comprising a series of graduated learning experiences designed to help trainees attain competencies required for the practice of a particular specialty. Students record their professional, clinical experience based on the objectives in the Logbooks, which facilitate and monitor students' learning, provide a reward system based on competition among peers, encourage immediate and ongoing interaction between the tutor and the students, provide continuous and objective assessment.7 The student's performance with reference to learning objectives may be assigned by the teacher,8 in the immediate setting or entries in the Logbook may be made after a discussion between the teacher and the student.

Logbook can assist in reaching educational and clinical goals,9 and also it can provide feedback to students and teachers. Conventional Logbooks were being used by the CPSP until the introduction of E-Log in 2011 and were only presented at the end of the training. This contributed to non-uniformity and sub-optimal monitoring of the training program. This new intervention for monitoring is part of improvement towards the CPSP's STAR residency framework. The project was conceptualized in 2009 to improve the in-training monitoring and feedback tool is based on SQL server and is being run through internet across the country. A salient feature of E-Log is the opportunity to provide formative feedback. Importance of timely and positive feedback can never be underestimated. It helps to bridge the gap between current and the desired understanding. Formative feedback provides insights help the learner to do timely corrections and show

ABSTRACT

Objective: To record residents' perspective about the utility of newly introduced E-Log system at the College of Physicians and Surgeons Pakistan (CPSP).

Study Design: Sequential mixed method design using survey questionnaire and in-depth interviews.

Place and Duration of Study: CPSP, Regional Center, Lahore, from March to June 2014.

Methodology: Data was collected from registered trainees through a web-based survey questionnaire on a scale of 1 to 7 about the utility of E-log system. In-depth interviews were conducted with 7 students using non-probability purposive sampling. The interviews were tape recorded and subsequently transcribed. Quantitative data was analyzed using SPSS version 20 and qualitative data was analyzed using content analysis by identifying themes and patterns.

Results: A total of 4399 responses were received. Motivation was 4.61 ± 1.98; 4.33 ± 2.00 remained acknowledgment of control of one's training by the new system. Ease of use got a mean score of 4.56 ± 2.15.

Conclusion: The overall acceptance of the students regarding E-Log system was high. Scheduling IT workshop at the start of training will add to the student satisfaction regarding utility of E-Log system.

Key Words: E-Log. Medical education. Training.

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improvement. Formative feedback should be given frequently and timely to make sure that the learner has adequate time to do corrective measures.

This study was designed to assess resident's opinion for usefulness of the system and seek their opinion to improve the software.

**METHODOLOGY**

A cross-sectional survey was conducted at the CPSP, Regional Center, Lahore, from March to June 2014. Residents’ perspective about utility of E-Log was determined by administering a structured questionnaire to students electronically across the country. Participants were assured regarding confidentiality and anonymity. They were informed in writing that answering the questionnaire will automatically be considered as their informed consent. The participants were asked to rate the six given statements on an agreement scale of 1 - 7 where 1 represented “strongly disagree” and 7 represented “strongly agree”.

Feedback was designed in PHP language and given to trainees in E-Log system. Each trainee had the opportunity to fill this questionnaire only once and it could not be revisited once submitted. Online monitoring was available along with real time status, which is a feature of CPSP E-Log system.

Data was entered and analyzed in SPSS version 20. Mean and standard deviation was calculated for each question separately. Qualitative data was analyzed using content analysis by identifying themes and patterns.

**RESULTS**

A total of 4399 residents filled the questionnaire about E-Log system. Mean score of question one (E-Log system motivating in timely completion of training-related tasks) was 4.61 ± 1.98. When asked about whether E-Log system gives them control on their learning, the mean score was found to be 4.33 ± 2.00. E-Log system ease-to-use and internet facility ease-to-access, got a mean score of 4.56 ± 2.15 and 4.34 ± 2.20 respectively. E-Log as a useful exercise for learning, had a satisfactory score of 4.34 ± 2.03. A mean score of 4.85 ± 2.08 was observed in response to question about the role of supervisors' feedback in their learning.

The numbers marked for each question are given in Table I.

Five main themes were carried forward from quantitative data questionnaire for an in-depth review by interviewing 7 students. Subthemes were identified later during interviews. Main themes and subthemes are presented in Table II. Some students identified handicaps with computer proficiency and need for seniors' guidance. Others suggested incorporation of educational material and time-frame defined boundaries.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Timely completion of training-related tasks</td>
<td>a. Organization</td>
</tr>
<tr>
<td>B. Easy to use</td>
<td>a. Teething period</td>
</tr>
<tr>
<td>C. Internet accessibility</td>
<td>b. Average time to get comfortable</td>
</tr>
<tr>
<td>D. Useful learning exercise</td>
<td>c. What I did</td>
</tr>
<tr>
<td>E. Supervisor's feedback</td>
<td>d. what else could have been done</td>
</tr>
<tr>
<td>F. Suggestions for improvement</td>
<td></td>
</tr>
</tbody>
</table>

![Figure 1: Frequency distribution of rater scales for five themes from participant response.](image)

**Legend:**

A. Timely completion of training-related tasks.
B. Easy to use.
C. Internet accessibility.
D. Useful learning exercise.
E. Supervisor’s feedback.
F. Suggestions for improvement.

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-log book motivates me in the timely completion of required tasks.</td>
<td>501(11.4%)</td>
<td>281(6.4%)</td>
<td>445(10.1%)</td>
<td>718(16.3%)</td>
<td>783(17.8%)</td>
<td>561(12.8%)</td>
<td>1110(25.2%)</td>
</tr>
<tr>
<td>E-log system gives me control on my learning.</td>
<td>560(12.7%)</td>
<td>414(9.4%)</td>
<td>502(11.4%)</td>
<td>734(16.7%)</td>
<td>760(17.3%)</td>
<td>543(12.3%)</td>
<td>886(20.1%)</td>
</tr>
<tr>
<td>E-log system is easy to use.</td>
<td>640(14.5%)</td>
<td>388(8.4%)</td>
<td>420(9.5%)</td>
<td>485(11.0%)</td>
<td>627(14.3%)</td>
<td>644(14.8%)</td>
<td>1215(27.6%)</td>
</tr>
<tr>
<td>Gaining access to internet is easy in my setup.</td>
<td>778(17.7%)</td>
<td>402(9.1%)</td>
<td>422(9.6%)</td>
<td>526(12.0%)</td>
<td>586(13.3%)</td>
<td>576(13.1%)</td>
<td>1109(25.2%)</td>
</tr>
<tr>
<td>I find it a useful exercise for my learning.</td>
<td>606(13.8%)</td>
<td>374(8.5%)</td>
<td>518(11.8%)</td>
<td>692(15.7%)</td>
<td>752(17.1%)</td>
<td>537(12.2%)</td>
<td>920(20.9%)</td>
</tr>
<tr>
<td>The feedback given by the supervisor helps to improve my learning.</td>
<td>540(12.3%)</td>
<td>269(6.1%)</td>
<td>324(7.4%)</td>
<td>522(11.9%)</td>
<td>667(15.2%)</td>
<td>670(15.2%)</td>
<td>1407(32.0%)</td>
</tr>
</tbody>
</table>
E-log system: trainees' perspective

DISCUSSION

In a structured program, an effective Logbook acts as a scaffolding to ensure that nothing is missed in the construct of a trainee while going through that program. It infuses uniformity of learning outcome in knowledge, skills and attitudes. It is an important tool, which not only guides but also monitors the progress of a trainee through a training program. The ideal Logbook should be practical and economical for students with ability to collect exact and relevant data for providing timely feedback to the student and clerkship director.

Time is an important resource. Engaging learners into specified challenges but achievable tasks promotes motivation and learning. Appropriate and timely maintenance of E-Log empowers and motivates a learner. Students have shared that entries in E-Logbook keep them on track and helps to amend the deficiencies in time. Logbooks help to identify the gaps in education and training. The Logbooks provide focus during the experiential learning cycle. This persuades the students to build up qualities of accountability and reflective practice.

The E-Log software was generally considered friendly and majority were comfortable with it. Those who had experienced of any difficulty were able to overcome it in a very short time. The electronic Logbook has maximized the analyzing abilities. Students found it user-friendly and easier to carry around. Students in this study pointed towards need for prior training to use E-Log system, earlier the better. It is desirable to explain the functions of Logbooks to students at initial stages of their training to clarify any misunderstanding. As students have to move around, they require a handy database that is easy to use.

It is interesting to note that lack of internet accessibility was mentioned by few trainees as a constraint. This observation points to the inherent inconsistencies in facilities provided by public sector hospitals and institutions.

Majority of students regarded E-Log system as a very useful exercise for their learning as it not only increases the motivation level and interaction with the supervisors but also provides a chance to revise the important concepts. Logbooks encourage direct and constant interaction between supervisors and trainees and it offers a feedback circle for assessment of learning activities. A value ranging from 3 to 3.6 was shown on a scale of 1 - 5 in different specialities when students were asked to rate the help provided by Logbook in defining and structuring their attachment.

A strong point in CPSP E-Logbook is the specific option of providing specific and timely feedback as opposed to the informal feedback usually given by supervisors. This is important as students may not regard the latter as feedback and this, in turn, would be less likely to influence their learning. Logbooks are helpful in attaining clinical and educational objectives. They are a useful source of getting feedback from students and teachers.

The trainees were very aware of the importance of a specific and timely feedback and were keen towards hearing more from their supervisors. However, a significant proportion reported as being deprived of the feedback. Majority of students showed a positive attitude towards feedback culture and believed it had strong impact on their clinical skills but more than 50% of the fifth and sixth year students did not get the feedback in clinical clerkships. Students stressed upon the need of concerted efforts to develop a learning environment where a timely and specific formative feedback becomes a norm or culture.

CONCLUSION

The overall acceptance of students regarding E-Log system was high. Scheduling IT workshop at the start of training and promoting specific and timely feedback culture will add to the student satisfaction regarding utility of E-Log system.

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REFERENCES


