

## STREAMLINING LEARNING PROCESS THROUGH INTRODUCTION OF LEARNER'S LOG FOR MEDICAL STUDENTS OF PRE-CLERKSHIP YEARS

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### ABSTRACT

**Objective:** To follow students' daily learning activities, ensure active participation in learning process and provide immediate feedback to students, facilitators and course directors on daily performance.

**Place and Duration of Study:** This study was conducted at Shifa College of Medicine in an ongoing module of first year medical students for a period of two weeks.

**Material and Methods:** Learner's log was developed and piloted in three study groups (n = 35) of first year medical students and facilitators (n = 9) of multidisciplinary modular team of Shifa College of Medicine (SCM), Pakistan. The learner's log focused on developing the learner as a Scholar, Communicator, Collaborator, Manager, Health Advocate and Professional (Adapted from Can MEDS Physicians Competency Framework). Students' and facilitators' questionnaires, comprising of a series of statements and an option for open comments/suggestions, were designed and distributed at the end of study.

**Results:** Analysis showed an appreciating attitude of students and mixed response of facilitators towards learner's log. Sixty percent students and eighty five percent facilitators agreed that this type of learning strategy could be a good tool for self assessment and to keep track of their progress. Fifty seven percent facilitators and fifty three percent students considered it helpful to maintain fair attendance record. A total of 70% students found it helpful in maintaining the log of daily activities whereas 57% facilitators considered it cumbersome and disagreed with its effectiveness as a timely feedback instrument for students.

**Conclusion:** The results support that effective utilization of learner's log could reflect students' performance on daily basis and provide a motivational drive to do better by reviewing their progress and giving them appropriate feedback on their performance. The apprehensions of the facilitators and students about learner's log could be minimized by training of facilitators and sensitization of students to learner's log in pre-clerkship years.

**Keywords:** Feedback, Integrated curriculum, Learner's log, Medical students, Pre-clerkship years.

### INTRODUCTION

Inspired by current global revolutionary attempts in medical education to make it more compatible and professional, undergraduate medical education in some medical colleges of Pakistan has transformed from subject-based to system-based integrated modular curriculum, integrating outcome-based and competency-based strategies<sup>1-3</sup>.

Learner's logs have been identified by different names e.g., logbook, log diary, student's log, educator's log, record books, learning portfolio and by different types e.g., handwritten, optically scanned, and electronic. These are widely used in clinical clerkships for program evaluation, curricular development

and as a self-assessment tool<sup>4-5</sup>.

Learner's log is a useful means of keeping track of daily activities of students' progress towards achieving their learning objectives, providing stimulus for active participation, productive discussion between students and their facilitators and meeting curriculum goals, hence ensuring quality in education. During the past few decades, a lot of efforts have been made to incorporate learner's log to clerkship years in undergraduate medical students<sup>6-12</sup> but the efficacy of logbooks in the students of pre-clerkship years is yet to be established.

Student participation and facilitator feedback in learning activities are very important source of information for program evaluation. It is important to regulate the nature of students' learning experiences by providing constructive and supportive feedback and identifying the students' individual needs<sup>13</sup>. Students' and facilitators'

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feedback contributes towards a better structuring of program evaluation because it can redirect the students' learning activities towards areas of improvement<sup>14</sup> and at the same time optimize the students' use of learner's log<sup>15-16</sup>.

At Shifa College of Medicine (SCM), we moved to a system-based integrated modular curriculum in 2008. The curriculum focuses on developmental and contextual competencies i.e., Scholar, Communicator, Collaborator,

and assessing the sense of responsibility in achieving their learning objectives<sup>17</sup>.

The objective of this study was to introduce to pre-clerkship medical students and facilitators, the concept of learner's log to meet their curriculum goals. This study also investigated the acceptability of learner's log as a tool for daily assessment of students.

## MATERIAL AND METHODS

This study was carried out at Shifa College of Medicine, Islamabad. Ethical approval was

**Table-1: Students' questionnaire (Total no. of respondents = 28).**

No.	Questionnaire Statements	A*		B†		C‡		D§	
		No. of respondents	%	No. of respondents	%	No. of respondents	%	No. of respondents	%
1	It has assisted me in keeping an up-to-date record of learning activities	2	7.41	6	21.43	16	57.14	4	14.29
2	It has helped me in self assessment	1	3.57	8	28.57	14	50.00	5	17.86
3	I found the facilitator's feedback useful for my progress	2	7.14	9	32.14	13	46.43	4	14.29
4	It has allowed me to review my progress in a module	2	7.14	5	17.86	17	60.71	4	14.29
5	It has helped me to plan my training and recording learning outcomes	3	10.71	13	46.43	8	28.57	4	14.29
6	Daily scoring by facilitator has assisted me to improve my learning process	4	14.29	8	28.57	9	32.14	7	25.00
7	It has helped me to identify areas of improvement	4	14.29	10	35.71	11	39.29	3	10.71
8	It has aided me to maintain fair attendance record	2	7.14	3	10.71	15	53.57	8	28.57
9	The information recorded in the Learner's Log will be helpful in writing my portfolio	6	21.43	7	25.00	11	39.29	4	14.29
10	I found no difficulty in maintaining the log of daily activities	2	7.14	6	21.43	10	35.71	10	35.71
11	I found no difficulty in getting it signed by the facilitator	1	3.57	2	7.14	7	25.00	18	64.29
12	It was a useful tool to develop and assess competencies required for a good physician (professional, communicator, collaborator and manager)	3	10.71	9	32.14	12	42.86	4	14.29

A\*= Strongly disagree, B† = Disagree, C‡= Agree, D§= Strongly agree

Manager, Health Advocate and Professional (Adapted from Can MEDS Physicians Competency Framework), which are facilitated and assessed at all levels in the curriculum through various strategies. The main teaching approach in SCM is small group discussion (SGD). These sessions need to be evaluated frequently for effective participation of learners

sought from the Institutional Review Board (IRB). Students and facilitators gave verbal consent prior to participating in this project and filling questionnaires. The 5 years undergraduate curriculum in Shifa College of Medicine is a system-based integrated modular curriculum, since 2008. As the main teaching strategy in SCM is small group discussion (SGD), a class of 100 students is randomly

divided into eight small groups. Our sample clerkship years in SCM and necessary

**Table- 2: Facilitators' questionnaire (Total no. of respondents = 7).**

No.	Questionnaire Statements	A*		B†		C‡	D§		
		No. of respondents	%	No. of respondents	%	No. of respondents	%	No. of respondents	%
1	It has assisted to keep an up-to-date record of learning activities of students	0	0.00	0	0.00	6	85.71	1	14.29
2	It has allowed students to review their progress in a module	0	0.00	0	0.00	6	85.71	1	14.29
3	It has provided an opportunity for timely effective feedback to individual students	1	14.29	3	42.86	1	14.29	2	28.57
4	Daily scoring has assisted to improve learning process of students	2	28.57	2	28.57	2	28.57	1	14.29
5	It has facilitated to identify areas for improvement	0	0.00	5	71.43	2	28.57	0	0.00
6	It has aided to maintain fair attendance record	0	0.00	3	42.86	4	57.14	0	0.00
7	It was easy to maintain the log of daily activities	4	57.14	2	28.57	1	14.29	0	0.00
8	It was a useful tool to develop and assess competencies required for a good physician (professional, communicator, collaborator and manager)	0	0.00	4	57.14	3	42.86	0	0.00

A\*= Strongly disagree, B† = Disagree, C‡= Agree, D§= Strongly agree

included three small study groups consisting of 36 students that were randomly selected in an on-going module of gastrointestinal tract (GIT) for 1<sup>st</sup> year medical students, during the year 2011. A total of nine facilitators of multidisciplinary modular team rotated among these three study groups. The duration of the study was 2 weeks.

We designed a learner's log to optimize the learning process in pre-clerkship years as multiple factors have impact on student's learning. Before introducing learner's log, extensive discussions were carried out with faculty members, their views and experiences were shared and any useful and practical suggestions were incorporated. Learners' log template was developed from logbooks used in

modifications were made appropriate for the academic level.

A series of training sessions was arranged to guide the facilitators about assessing competencies of the learner in the learner's log. The students of the three sample group and all the facilitators of the curriculum delivery team were introduced to the concept of learner's log, its significance and the assessment/evaluation methodology to be employed. The students were informed about the effectiveness of learner's log as an effective mean of record keeping, showing their progress in daily modular activities, identifying areas needing further improvement and illustrating their strengths, at the beginning of the study. Students were explained that they were

responsible for getting their entries signed and grading requirements by the facilitators.

facilitators on students' evaluation form which was incorporated into learner's log.

**Table- 3: Themes identified in the suggestions/comments from the students' and facilitators' questionnaires.**

Feedback	Few Actual Comments/Suggestions		Frequency	
	For	Against	For	Against
1. Assists in record keeping	Student: "I believe it is a good mean of evaluating one's daily academic record"	-	4	0
	Facilitator: "It does assist in keeping a record for student"	-	1	0
2. Good tool for evaluation & self assessment	Student: "Pilot project proved me an eye opener for me as it helped me assess my level of preparation for the module"	Student: "It did not help me to review my progress in the topics of that module however"	7	2
	Facilitator: "It does allow student to review their progress if they are serious"	Facilitator: "It is ineffective as it does not help the students to improve overnight"	1	1
3. Promotion of competitive environment and motivational drive of students	Student: "Somehow creates a competitive environment among the group members forcing them to work hard for good grades"	Student: "However, it is not in any way motivational"	7	1
4. Assessment of competencies (e.g., manager, collaborator etc) other than knowledge	-	Student: "I think the only thing assessed by learner's log grading system was communication skills in a group and one's participation in the SGD."	0	3
5. Grading by facilitator was standardized	-	Student: "It's just slightly discouraging when we do perform well, but still don't get a good enough grade"	0	10
	-	Facilitator: "Some students do not accept the grades and start arguing"	0	2
6. Helps in being punctual	Student: "I studied regularly plus I was punctual"	-	1	0
7. Need for improvement of grading scale	Student: "Instead of grading scale based on three letters, use a minimum 10 digit numerical scale"	-	1	0
	Facilitator: "There must be a checklist for each competency and then overall grading should be done"	-	1	0
8. Areas of weaknesses highlighted by facilitator	-	Student: "After getting grades (A, B C) we were never told about our weaknesses or any ways to improve our shortcomings which is obviously difficult because in a group there are many students and you cannot advise everyone"	0	3
	-	Facilitator: "Teachers are short of time to explain to students the ways of their improvement in grades and why are they given low/bad grades"		
9. Positive approach of facilitators towards learner's log	-	Student: "The approach of every facilitator towards this learner's log is different. It depends upon the facilitator how he manages the SGD. Preparation matters but it is secondary"	0	2
10. Incorporation in continuous assessment	Student: "I hope this is incorporated as a part of future modules"	Student: "If we were already being graded in the SGDs then what is the point of this learner"	2	1
	Facilitator: "Past experience has shown that students performed better when graded in SGD's. I strongly recommend the logbook as a tool for continuous assessment of the students"	Facilitator: "Students know what are they doing even if we do not give them grades"	1	1
11. Prompting and discouraging behavior of other students	Student: "The student is not able to participate even though he/she wants to, due to prompting by other fellow students"	-	1	0

At the end of each small group session, duly filled learner's log by each student was presented to assigned group facilitator for their evaluation. The students were assessed based on ideal physician roles by respective

Separate questionnaires were designed for students and facilitators. Medical education experts' opinion was sought to evaluate the statements and identify any concerning issues. The student questionnaire consisted of 12 statements to be rated on a 4 point Likert scale

and a section for free comments/suggestions (table-1). The questionnaire for the facilitators comprised of 8 statements and an option for open comments (table-2). These questionnaires were distributed to the students & facilitators at the end of two weeks. The responses were recorded on Optical Marks Reader (OMR) sheets. The statements of the questionnaires were framed in alignment with the usefulness of learner's log. The comments were asked to evaluate the students and facilitators concerns about learner's log and suggestions to further improve its effectiveness as a learning tool. Any ambiguities regarding the statements were removed at the time of distribution of questionnaires.

Descriptive statistics were obtained using the Sekonic SR 3500® Optical Mark Reader (OMR). The responses to the statements on OMR sheets were analyzed in terms of percentages of respondents by Remark classic OMR 2.5.3. Qualitative data analysis of the comments/suggestions from the students and facilitators was done by study authors independently.

## RESULTS

Out of 36 students, 28 responded to questionnaire statements whereas 7 out of 9 facilitators recorded their respond to statements. Response rate of students and facilitators was 74.3% and 77.8%, respectively. The descriptive data analysis of the students and facilitators questionnaires' is given in tables 1 & 2, respectively. Most of the students appreciated the introduction of learner's log whereas facilitators' response was varied. A total of 85% facilitators and 60% students agreed with the utilization of learner's log as an effective tool for self assessment and reviewing their progress. Fifty three percent students and fifty seven percent facilitators regarded it a means of keeping record of attendance. Seventy percent students found no difficulty in maintaining the log of daily activities whereas fifty seven percent facilitators considered it burdensome. A total of 60% students rated facilitators' feedback useful for their progress whereas more than 60% facilitators disagreed with its utility to guide students about areas of

improvement by giving well-timed feedback. Majority of students considered it helpful to develop and assess competencies required for a physician. The information collected through open comments was independently analyzed and each researcher identified broad themes. The data was triangulated through discussions among the researchers and commonalities of themes in students and facilitators comments were identified and are shown in table-3.

## DISCUSSION

The results of the study revealed appreciating attitude of students and mixed response of facilitators towards this learner's log but at the same time highlighted the areas needing improvement. Our inspiration for designing learner's log in pre-clerkship years came from its use in clerkship years. It was to make students active participants in small groups to achieve their daily learning objectives, record keeping<sup>18</sup> and to take on the responsibility for their learning. The process of exploring the benefits of learner's log to students prior to intervention helps to break down the students' barriers to active participation and interaction with their facilitators. It also helps to link students' learner's log to educational resources and improve compliance<sup>4</sup>.

In our study though students and facilitators agreed that learner's log helps in record keeping, the students' response was more favorable. Most of the students found it useful in keeping an updated record of daily activities. They did not encounter any problems in getting it signed by their concerned facilitators on a daily basis. Surprisingly, the facilitators found it more cumbersome as one facilitator commented "Daily scoring is difficult, time-consuming and becomes a fill in the blank exercise". Nearly half of the facilitators had concerns about students' forgetfulness to carry learner's log daily in the sessions and found it difficult to maintain the log of daily activities.

Literature has shown that the feedback provided through the learner's log is highly useful and can provide timely and appropriate remediation<sup>19</sup>. However some students had

concerns about the effectiveness of the feedback as it was not always specific and useful to improve their shortcomings.

Facilitators gave a mixed response about the utility of learner's log as a tool for evaluation, self-assessment and tracking the progress of students. Moreover they found it difficult to discuss the learners' learning difficulties in detail and provide them with effective feedback due to shortage of time. One facilitator suggested that the students be observed for an adequate period of time and then graded. However, this aspect can be addressed if facilitators are further trained and instructed to give students timely and accurate feedback. Students showed a mixed response on OMR sheets regarding the usefulness.

However, in open comments most of the students appreciated this aspect of learner's log as one student stated "pilot project proved to be an eye opener as it helped me assess my level of preparation for the module: "Some students and only one facilitator suggested the incorporation of learner's log in future modules as a part of continuous assessment.

Even though the learner's log has been advocated and proven to be a highly useful strategy, it was a totally novel concept in our set up. The lack of buy-in of the facilitators and apprehensions of the students about learner's log had a major impact on their perceptions and hence our results. In short, the sensitization and conditioning of students to learner's log in pre-clerkship years can improve competency-based strategies in the learning process and accelerate the quality of clinical learning in clerkship years.

## CONCLUSION

Introduction of the learner's log was well received by students of first year and their facilitators and its use can be advocated successfully in pre-clerkship years of undergraduate medical curriculum overall. If effectively utilized, the learner's log can consolidate and organize daily learning activities and make students active and responsible partners in learning process. The setbacks can be addressed through formal

training of trainers. Monitoring and an ongoing evaluation of the process can help ensure that the intervention is effectively employed.

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## CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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