

Original Article

Perception of Students and Teachers on Practice of Logbook Maintenance and its Value in Pre-Clinical Years

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ABSTRACT

Background and objectives: Logbook keeps the record of practical work done by the students throughout a year. This study was carried out to know the perception of students and teachers on the logbook maintenance and its importance during the practical examination in pre-clinical science.

Materials and methods: A cross-sectional descriptive study was done in pre-clinical science teachers (n-9) and students (n-40). A semi-structured questionnaire was used to find the (i) Knowledge and importance of logbook (ii) logbook correction and feedback (iii) logbook improvement and examination. Close ended questions data are expressed in percentage. Open-ended responses were categorized, classified according to the theme-wise and later expressed in percentage.

Results: Most of the students (70%) and teachers (100%) listed creditable advantages of maintaining the logbook. They quantified logbook: as notes for the examination, development of

dedication and habit of task completion, boost knowledge and skills, development of sense for self-evaluation, problem solver and motivates them to learn and save their time, guide for quick and precise knowledge during revision, and correct tool to practice skills. However, all teachers and 45% of students mentioned that they lack proper maintenance of logbook on regular basis. The major flaws behind it were copying from seniors/colleagues, writing without feedback and consultation with teachers or books. The other reason for students' negligence to fill the logbook is due to less quantification of marks for the logbook at the time of examination. Students suggested in updating data, paper quality and pictures of the logbook. Teachers and students emphasized to include marks in each practical class.

Conclusion: Students are lagging behind on proper maintenance of the logbook. To ensure that students have used the right techniques while practicing skills need to be monitored and guided on time. This monitoring to some extent can be assured by getting through the logbook and giving prompt feedback to them on the desk. The training on the logbook maintenance and marks allocation on each practical might enhance the perseverance learning in the students.

Keywords: *logbooks, Medical education; experiments, marks, examination, students*

INTRODUCTION

Logbook is a record or ledger containing data, events, dates, executed work evidence and document of patient-physician encounters that can be used as a legal document. It includes record of experiments, procedures,

observations, results and interpretation/inference on result. Further, it consists of some important questions and answers related to the practical sessions.

Taking notes in the academic field is really important that boost knowledge and guide students to practice their skills and improve performance in the examination [1]. Logbook, a record of practical classes in the medical field, is a crucial document to be maintained by the students in the Kathmandu University (KU). It is also a mandatory and an essential academic activity in KU curriculum. It is designed based on the curriculum by incorporating learning objectives to ensure consistent educational standards in pre-clinical or clinical training. It gives a fast overview on requirements of practical, procedures and the status of students' performance on practical throughout the year. To successfully implement logbooks into pre-clinical or clinical training, it has to be designed carefully followed by constructive feedback delivery, and providing the necessary resources [2] to students. Further, it needs timely evaluation with supplementary marks at the time of students' evaluation. Although, there are reports showing no relation between the exam performance and the data entered in the logbook [3, 4], there are reports that mention feedback learning opportunities will enhance the students' learning [5]. On a focus group discussion with some teachers in the institute, the use of logbook was found to be often deficient and neglected in the basic science disciplines. There are handfuls of students who interact with teachers. Therefore, we planned to study the perception of students and teachers on the role of logbook in learning practical skills and its value during examination. This study might draw the attention of students towards

maintaining the logbook on a routine basis and make them to involve in feedback sessions with the teachers.

MATERIALS AND METHODS

It is a cross-sectional descriptive study done to know the perception of students and teachers on the logbook maintenance and its importance during the practical examination. This study was carried out at Devdaha Medical College and Research Institute, Nepal. We enrolled the teachers of basic science faculties and pre-clinical year's students (first and second years).

a. Selection Criteria for the Study population

Inclusion Criteria

First year and second year medical students with more than 50 % attendance

Teachers involved in logbook correction with an experience of examiner

Exclusion Criteria

Teachers not involved in log book correction but worked as an examiner

b. **Sampling method/technique:** There are total 40 students in each year and chance of having low attendance was about 10-15 students/year. Therefore, 20 students/year having 50% attendances were enrolled in the study. Therefore, sample size of the study was 40 students. Further nine teachers (Basic-Science) were enrolled in the study meeting the selection criteria.

c. **Data Collection Measures:** We used self-designed questionnaires with open and close ended questions (semi-structured). The validity of the questionnaire was tested before its administration. The questionnaire was

assessed for content validity by three academic faculties who were expertise in the field of logbook development and received training on it. The comprehensiveness of the item in the statements of the questionnaire in relation to study objectives is ascertained and ensured to remove ambiguous questions. Subsequently, pretest/face validity of the questionnaires was done among 10 students and four faculties. After the pilot study, few questions were added, modified and reframed to get more comprehensive and clear opinion to meet the purpose of the study.

d. Procedure

After the ethical clearance, data was collected from the basic science faculties and pre-clinical year students by using questionnaire-I and questionnaire-II at Devdaha Medical College. Both first year (20) and second year medical students (20) were enrolled in the study. Further, nine teachers responses were documented in the study. There are 19 questions in each questionnaire. The questionnaire consists of three sections (appendix). Each section has both open and close ended questions. The first section is designed to know the knowledge and importance of logbook among participants, second section collects information about ways of logbook implementation, correction, and feedback given to students and third section consists of questions to find the role of logbook in examination and suggestions to improve the present form of logbook.

Section 1: Knowledge and Importance of Log Book

Some sample questions asked to students are:

1. The present format/content of the logbook meets the learning objectives of the particular practical sessions.

Strongly Agree Agree Neutral
Disagree Strongly Disagree

2. Do you know the importance of maintaining log book during your practical classes? Yes No

3. What are the advantages/disadvantages of maintaining logbook? List them.

Section 2: Log book correction and feedback

Some sample questions asked to students are:

4. Do supervisor gives you feedback on what you have submitted to them in the logbook?

Always Very Often
Sometimes Rarely Never

5. What sorts of feedback do you receive from supervisor/faculties during correction of your logbook? (Mention)

6. Do you plan regular information session with the concerned faculties on practical logbook maintenance? How?

- a) On the desk (face to face)
- b) in written form within the logbook
- c) through other staffs
- d) through friends for correction
- e) Others:
.....

Section 3: Examination and Log book improvement

Some sample questions asked to students are:

7. In which discipline the logbook cannot be filled on time?

8. Give your suggestions to improve the format of the log book in any discipline of basic science.

9. Do you feel that students need a training session/workshop on proper maintenance and implementation of the logbook?

Data analysis: The data was collected and its qualitative data analysis was done. The results were expressed in percentages for close ended questions. For open-ended questions, responses were categorized and classified according to the theme-wise and expressed in percentage and frequency.

RESULTS

Results

In section A, many students have brief knowledge about the log book and its criteria to fill. They are aware of the curriculum and the content of the logbook. However, few students mentioned to incorporate few more questions in some clinical skills related practical. Few students felt logbook as a less informative file to fill, suggested to mention marks and increase the updates in the content of the logbook. They suggested modifying the logbook in such a way that it will be the proper guidelines to the students during the examination.

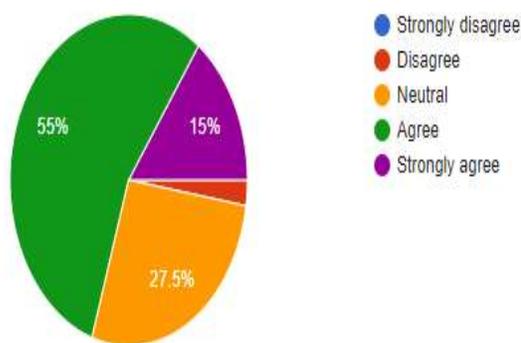


Figure 1: Logbook meeting the Curriculum objectives

Around 70% of the students (55%+ 15%) agreed that the learning objectives of the present logbook meet the purpose of the KU

curriculum figure 1. However, some students showed neutral response on it.

Further, around 60% (24/40) of the students agreed that the present format/content of the logbook meets the learning objectives of all the practical sessions in all the disciplines. All the students (100%) know the importance of maintaining the logbook during the practical classes.

Students mentioned many benefits of maintaining the log book. Some of them are listed below.

Knowledge and Skills Booster: Logbook helps in easy learning and revision of the clinical/applied part of the theory that boosted their knowledge and skills

- 1. Self-evaluation:** Helped them in boosting their learning skills and can evaluate their work by reviewing their practical skills, procedures and results
- 2. Motivation and time saving:** It is creating motivation to practice skills by observing the procedures in it and understanding in short time
- 3. Quick and precise knowledge guide for revision:** Logbook helped them to know the experiments and also easy to revise the performed practicals in it. It also helped them to memorize the work due to its revision and guidance in a short glance.
- 4. Dedication and habit of task completion:** It depicts the dedication towards the subject and creates a good habit to complete the task on time
- 5. Correct practice and efficient learning:** helps in knowing the standard and correct ways of performing the clinical case/ experiments.

6. Note book revision for examination:

performing the practical examination by the quick review of the logbook contents and practical skills done during the practical session

7. Examination improvement with better marks:

clearing the doubts learnt during the theory classes and exam preparation became easy. Further, it helped them in gaining good marks during the practical examination:

Along with the above benefits, teachers further added that logbook will create **discipline in students** towards study and help them to perform better on the examination with **good drawing of pictures (content)** and **in-depth knowledge** of the practical aspects.

Disadvantages while maintaining the logbook:

Very few (9/40) students mentioned that log book maintenance **needs time and is a tedious task**. It consumed their major portion of time which prevented them to complete their other assignment. They felt **hectic** to complete the task for example in the Anatomy discipline. They asked for a guide book for Anatomy discipline.

Logbook maintenance in regular basis:

Majority of students mentioned that they maintain their logbook regularly. However, some students (12.5%) do not maintain logbook properly, figure 2. In contrast, almost all teachers (9/9) mentioned that students maintain their logbook sometimes only.

Flaws behind poor maintenance of logbook:

Students maintain their logbook in different ways (Table 1). Very few students (6/40) maintain their logbook after consultation with the teachers. Most of them (20/40) interpret their practical class result on their observation and write after

discussion with the colleagues and the teachers. Few students mentioned that logbook is outdated and its content and methods need to be updated. Few students (7/40) blindly copy and follow their colleagues' practicals results and interpretation. However, almost all teachers reported that many students do not take serious in maintaining a log book and copy from seniors and colleagues. Further, they avoid writing their own results and interpretation obtained during the practical classes. This is being a trend without sufficient effort from students and forcing them to do task as a robot. Therefore, they lack actual knowledge and skills of the practical.

Teachers' suggestions to students:

They suggested students to improve the writing skills in the result section, avoid blind copying from other students, maintain logbook on time with addition of relevant information/data, and visit the faculties for feedback sessions.

Table 1: The mode of logbook maintenance by the students after completion of their practical

Mode of logbook maintenance	No. of students (n-40)
Following logbook of seniors	1
Following logbook of colleagues	7
Asking to teachers about the questions and confusions	6
Writing from practical books and reviews	5
Interpreting the results in the practical class and writing after discussion with the teachers and colleagues	20
Sometimes discussion, asking to teachers, reading practical books, sometimes discussing with colleagues.	1

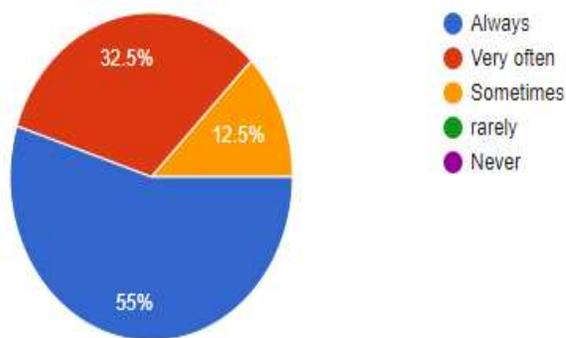


Figure 2: Percentage of students maintaining their logbook

Results on section B: Logbook correction and feedback

Almost all students admitted that they always submit their logbook for correction to their teachers and supervisors, regularly. But, few students (4/40) submit their logbook only sometimes for the correction. Almost all students (35/40) agreed that they get timely feedback from the teachers on their practical performance and writing skills. On the other hand, teachers (6/9) found that only sometimes students submit their logbook regularly for the correction.

Mode of feedback: Students receive their feedback in different ways from the teachers table 2.

Around 67.5% of students plan regular information and feedback sessions on the desk (face to face) with teachers. Some students (22.5%) receive feedback in written form within the logbook table 2.

Around 62.5% of students always review and update the logbook based on the feedback given by the teachers. Very few students (10%) have less frequency to review and update the logbook. About 57.5% of students felt shortage of blank paper in the logbook for some disciplines after the feedback sessions with the teachers.

Table 2: The mode of teachers feedback given to the students while correcting logbook.

Mode of the feedback	No. of students (n-40)	No. of teachers (n-9)
a. On the desk (face to face)	27 (67.5%)	6 (0.67%)
b. in written form within the logbook	9 (22.5%)	2 (0.22%)
c. through other staffs	1 (0.025%)	0
d. through friends for correction	2 (0.05%)	0
e. all of the above mode	1 (0.025%)	1 (0.11%)

The sorts of feedback received by the students from the teachers were listed below:

1. Write in an elaborated form and follow the standard textbooks and practical books to minimize the missing out of important points
2. Write relevant short answers to certain questions
3. Correct and write the best possible answers, and update their work/cases. To add the appropriate results according to the learning objective of the practicals
4. Positive feedbacks were given to the students when written correctly and motivated them to maintain the logbook. Motivating students to bring logbook for corrections on time
5. Let students to find and know the mistakes and re-do the experiment with the suggestions in the method
6. Teachers help students in addition of important points and provide insights in the topic..
7. The unanswered questions are highlighted and given hints on the side of logbook paper. Sometimes teachers write and explain the correct answers.

To correct questions and answers according to the laboratory procedure. To add relevant useful clinical information in logbook

Along with the above feedbacks, teachers further suggest students to improve handwriting, correct spelling errors, follow the correct practical protocols, correct the mistakes on interpreting the results, and draw a well-labeled colored diagram etc.

Disciplinary Policy of Teachers:

Sometimes students do not re-visit teachers for the correction after the feedback sessions. On such case, teachers try to convince/counsel students not repeating such mistakes and provide them proper guidance on next practical session. Further, they remind students about the feedback and encourage students to bring the assignment on time for its correction. Few teachers make students to do work on the desk on their guidance. Some teachers send students to head of department, senior faculties or administration for their negligence to follow the academic rules/policy.

Results on section C: Examination and Logbook improvement

1. Learning tool for the examination: All the students and teachers felt that logbooks are helpful tool for learning during the practical examination. It is helpful tool because they have written in a precise way about the practical with important questions in it. It helps in quick revision of the procedure and prepares them for the viva in a short span of time.

Reason: They mentioned that reading bulky books are not a choice at the time of examination due to excessive content and time-constraints. Therefore, logbook became their short note with relevant questions in it which made them recall all the important points written on their own handwriting. They mentioned that own handwritten reading build their confident and facilitate

them to understand the practical aspects, results and discussions in a better way. Further, teachers' feedback and correction helps them to enrich their focus on their mistakes and improve their contents. This led them to decrease the chance of errors in the practical examination.

2. Marks allocation for logbook

Maintenance: Almost all students and teachers emphasized to incorporate some marks on the logbook main tenance. That marks should be added in the final evaluation of the students.

Reason: They emphasized that marks incorporation leads to effective learning by the students from the beginning of the practical sessions, makes them dedicated, dutiful and disciplined, build their confidence and punctuality, increase interaction with teachers, provides justice to their time and effort while maintaining the logbook and creates holistic approach (continuous evaluation in a year) for the assessment of the students towards their work at the end of the year. Further, teachers mentioned that no marks will create gross negligence in maintaining the logbook by students.

3. Time to maintain logbook: About 92.5% (37) of students and all teachers mentioned that the present form of logbook can be maintained on the allocated time except at the time of internal assessment. Whereas, few students need more time to maintain logbook in few disciplines such as Anatomy and Pathology.

4. Suggestions to improve the format of the recent logbook

- To improve the paper quality and diagram

- To update the logbook with addition of new and relevant data
- To add discussions sessions on a regular basis
- To increase practical related questions in the logbook
- In anatomy, need of guide logbook for drawing and learning aspects
- To add extra pages in the logbook after each practical section- for note taking
- To add new relevant data in the logbook
- To add colorful pictures of some instruments and diagrams
- To add proper indexing in the logbook
- To add yearly calendar for practical activities with marks allocation

5. **Training:** About 72.5% of students expressed a training session/workshop on proper maintenance and implementation of the logbook.

DISCUSSION

We found students neglect and have less concern to maintain the logbook after their practical classes. On focus group discussion with teachers, students are not maintaining the logbook, regularly. They occasionally visit the department and escape to confront the teachers. Therefore, we planned to study the perception of students and teachers on the role of logbook in learning practical skills and importance of maintaining it on a routine basis. We collected the information between students and teachers by the questionnaires on three aspects 1) Knowledge and importance of logbook, 2) Logbook correction and its feedback, 3) Logbook use in the examination and ways to improve it.

We found that students are aware about the learning objectives and importance of the logbook in their medical education. However, they are not serious in maintaining the

logbook regularly. This might be because it carries very less marks in the examination and they lack proper knowledge on how to maintain the logbook properly on time. It is evident that knowledge-based examination performance (multiple choice questions) cannot be predicted by the volume of patients seen or recorded in the logbook [6]. However, logbook maintenance can record the sincerity, attendance, exposure, learning interest, and pedagogical development in the students. Further, it sets the learning plan for the unaccomplished work after taking short look over it.

Many students and teachers listed creditable advantages of maintaining logbook. They emphasized that logbook works as their notes for the examination, increase their dedication and habit for task completion, boost their knowledge and skills, creates a sense of self-evaluation, motivates them to learn and save their time, guide for quick and precise knowledge, and tool to practice skill correctly, makes them efficient learner. Students further found that logbook eventually improved their performance in the examination. It also helped them to confront the examiners at the time of table viva (questions-answers sessions on experiments) during practical examinations. Further, teachers added that it will build students' knowledge in-depth and makes them disciplined towards their work. Additionally, they mentioned that student's generated logbook helps teachers to evaluate students in more justifiable form during the examination. Hence, logbook also becomes a tool for continuous assessment of small group learning [7] and helps in students' evaluation.

Handful of students mentioned that maintaining logbook is tedious and time consuming. They elaborated that logbook consists of data which are outdated with poor

picture quality in some disciplines. They suggested improving the content, data, paper quality and proper indexing of the logbook. It is true that the ideal logbook should be inexpensive, feasible, and acceptable to students and should allow rapid collation of accurate, relevant data for timely analysis and feedback to the student [8]. The accurate logbook data can be used by the training programs or educationist later in many aspects. This will identify the gaps in the curriculum and improve the learning experience for the students [9]. This will also create a good patient/ subject data in a particular lab setting. This can be used in creating normal values on particular lab setup and can be utilized for the research purpose. Therefore, logbook should be updated and has to be student friendly.

We found that many students are involved in copying the results and blindly following the interpretation from their seniors and colleagues without taking proper consultation with the teachers. This will transfer many mistakes from one to next students continuously leading to poor maintenance of the logbook. The mode of feedback sessions should be on the desk (face to face) between students and teachers. This will create an interaction with teachers; minimize the chance of making mistakes in interpreting the results and clears doubts at the spot. We found many teachers and students were involved in the face to face mode of feedback sessions. However, few students are not confronting the teachers on the desk. The perseverance of the students in taking feedback with teachers was insufficient in our study. Some reports that feedback learning opportunities will enhance the students learning in a better way [5]. It is evident that students' exam performance improves when they are provided with

guided notes¹. The timely-constructive and result based discussions between teacher and students will effectively enhance students learning and improves teachers teaching skills too. Therefore, there should be a well-organized feedback sessions between teachers and students on the regular basis.

Medical students from Nepal preferred to learn more through self-study (48.0%) and lecture classes (43.0%), less through group discussion (8.0%) and PBL (1.0%). Only 5.0% use to surf the internet regularly for their study [10]. We found that students felt a need of a training session on how to maintain and implement the logbook properly. They need proper guidance and certain tips to improve their logbook maintenance. This might decrease their mental stress to maintain the logbook.

CONCLUSION

The study concludes that students are lagging behind on proper maintenance of the logbook. This may reduce their learning skills. To ensure that students have used the right techniques while practicing skills need to be monitored and guided on time. This monitoring to some extent can be assured by getting through the logbook and giving prompt feedback to them on the desk. The logbook should content a constant update in the data and should be student friendly. The training on the logbook maintenance and marks allocation on each practical might enhance the perseverance learning in the students.

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