

“Question of the Day”: Impact on learning and retention

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ABSTRACT

Background

Studying regularly has been a known method for better memory and long term retention of a subject. Getting students to study on a regular basis has been tried in many ways and its impact is increased if they understand the importance and value the efficiency of it.

Objectives

With large number of students, it would be a time consuming process to follow one on one interactions or study sessions. Hence, we introduced a new strategy, the “Question of the Day”, which is interesting, challenging and most of all; it has produced positive influence on the examination performance of the students who performed this task. Main objective of this study was to make students answer questions related to the topics taught every day.

Method

Regular studying and updating the subject knowledge was provided through Question of the Day (Annexure-1). The students were given the questions on a regular basis during dissection classes and were asked to document the answers for those questions.

Result

The students who worked on the “Question of the Day” scored significantly higher in the exams than those who did not. The results of the opinion survey clearly indicated that this exercise was liked by most of the students.

Conclusion

“Question of the day” did have a positive influence on the student’s performance. Most of the students felt that this exercise had a positive impact on their study methods, interaction with peers and teachers, retention and recollection of the knowledge.

KEY WORDS

Anatomy, medical education, questions, self-directed learning, student learning, teaching-learning.

INTRODUCTION

Students have always been a victim of distraction and to keep their concentration in place has been a herculean task; for teachers as well as students themselves. Everyday learning can always guide the students towards proper understanding of the subject and better performance in the examination.

Well designed and planned self directed learning has been proved to give the students a better understanding of the topics learnt and this method of learning is also advised to be extended for a life time learning process.¹ These days even technology has paved way for self directed learning where computer software comes handy and helps in learning.² There are even e-learning portals for most of the subjects available these days which provide students with the opportunity to study on their own and improve knowledge in their field of interest.^{3,4} The option of flashcards, is a very useful tool for recalling and everyday practice.

According to the curriculum, in first year of medicine at Melaka Manipal Medical College (MMMMC), the syllabus for anatomy is divided into four blocks of ten weeks each, where nine weeks would be teaching and the last week would be their examination week (Block examination). The students would have to answer an essay component for 60 marks and an MTF (Multiple True or False) component containing 120 statements in this examination.

What is “Question of the day” (QOD)?

QOD (Annexure-1) contained a total of 10 clinically oriented MTF questions and 1-2 restricted response type of essay questions representing a sample of the block examination question paper. We aimed to motivate all the students to develop a habit of being up to date in their studies by answering the QOD.

METHODS

This study is a retrospective qualitative study done at Melaka Manipal Medical College (Manipal campus), Manipal University, Manipal, Karnataka, India. The participants were first year medical students from two different batches at Melaka Manipal Medical College (Manipal campus), Manipal, Karnataka, INDIA. As this was totally a voluntary involvement of participants, any clearance from the ethical committee was not required.

At first, the first year Medical students of batch 30 (March 2012 admission) and the batch 31 (September 2012 admission) were brainstormed about the question of the day. The batch 30 students were in their second semester (senior students) and the batch 31 students were in their first semester (junior students). The students of both batches were informed that they would be given question of the day on all days when they have dissection classes. They were asked to prepare the answers for the questions

on the same day and document them. They were informed to discuss with their peers, teachers or refer text books to find the answers to the QOD. However, answering the questions was made optional and no special incentive was declared for those who prepare the answers on a regular basis. When we started this study, the batch 30 students were in the beginning of their third block and the batch 31 students were in the beginning of their first block. After the completion of the respective blocks, the students of each batch were separated into two groups; the ones who worked on the QOD regularly and the ones who did not work on the QOD. The marks of these two groups in the subsequent exams (Block 3 exam for batch 30 and block 1 exam for batch 31) were compared. A questionnaire consisting of 8 open ended questions was given to both the groups (those who did the QOD and those who did not do the QOD) and their opinions on this exercise were collected and compiled. The results were compiled and analysed using Microsoft® Excel and SPSS v 16.0 statistical software.

Fifty three students of batch 30 (seniors), worked on the QOD regularly and 51 students did not work on QOD. 184 students from batch 31 (juniors) worked on QOD regularly and 37 students did not work on QOD.

RESULTS

In the senior batch (batch 30), the mean of the block 3 Anatomy examination scores of those who worked on the QOD was 66.96 ± 13.8 (Mean \pm SD); that was significantly higher ($p < 0.05$) when compared to the mean scores of the group who did not work on the QOD, with the mean of 60.99 ± 13 (Mean \pm SD).

Further in block III scores (post intervention test) of the students who worked on the QOD had significantly higher Anatomy examination scores [66.96 ± 13.8 (Mean \pm SD)] as compared to their own performance in Block II (pre intervention test) [62.25 ± 18.25 (Mean \pm SD)]; ($p < 0.01$). These results indicate that QOD significantly improved the performance of these students.

In the junior batch (batch 31), the positive impact of QOD was still more evident. The mean of the block 1 Anatomy examination scores of those who did the QOD was 64.53 ± 13.74 (Mean \pm SD); which was significantly higher ($p < 0.001$) than those who did not work on the QOD with a mean score of 55.86 ± 12.65 (Mean \pm SD).

Since the junior batch students were in their first block in first semester or MBBS, we were not able compare their pre and post intervention as they did not have any block examination before the intervention.

The summary of the opinions of the students (result of the questionnaire survey) is given in the following graphs. In the graphs, Group A refers to those who worked on the QOD and Group B refers to those who did not work on the QOD.

GROUP A: (Those who worked on the QOD)
(QUESTION 01: Did you like answering the QOD)
[Q1 – Question, 30 & 31 Batches, A – Those who answered QOD]

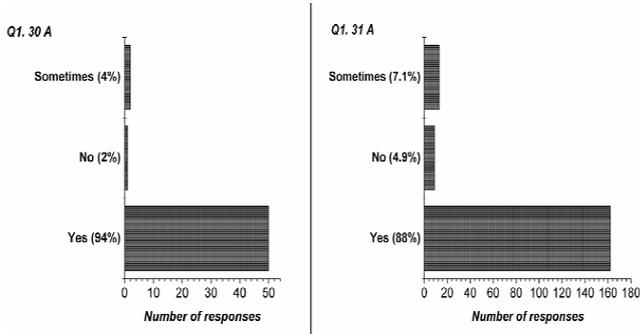


Figure 1. The above figures are the graphical representation of the data obtained for their liking towards answering the QOD.

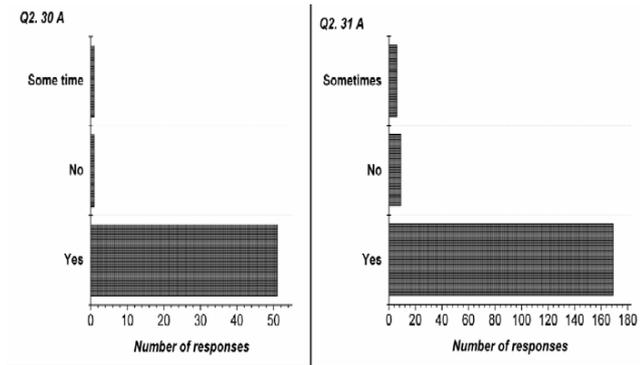


Figure 2. The above figures show the graphical representation of the responses regarding QOD keeping the students up to date with their topics of everyday study. **(QUESTION 02: Did the QOD help in keeping you up to date with studies?)**

[Q 2-Question, 30 & 31 Batches, A- Those who answered QOD]

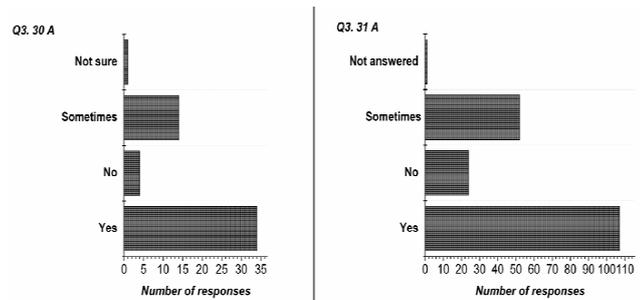


Figure 3. The above figures are the graphical representation of the students' opinion regarding the challenging nature of the QOD.

(QUESTION 03: Were the QOD challenging?)
[Q3 – Question, 30 & 31 Batches, A – Those who answered QOD]

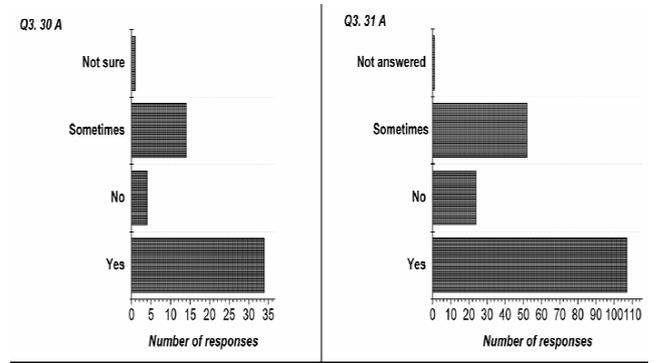


Figure 4. The above graphs represent the ways used by the students in finding out the answers for QOD.

(QUESTION 04: How did you prepare the answers for the question?) **[Q4 – Question, 30 & 31 Batches, A – Those who answered QOD]**

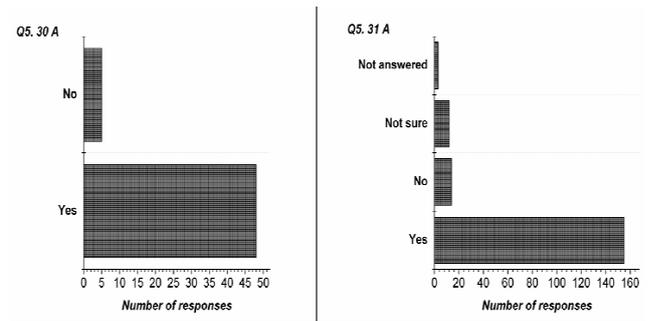


Figure 5. The above graphs represent the opinion of students regarding the ability of the questions testing the prior knowledge of students before answering the QOD.

(QUESTION 05: Did the questions test your prior knowledge?)

[Q5 – Question, 30 & 31 Batches, A – Those who answered QOD]

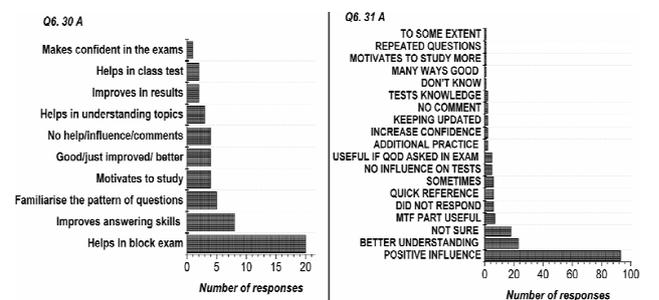


Figure 6. The above graphs represent the influence of QOD on the students performance in the block examinations

(QUESTION 06: In what way did the question of the day influence your test/ block exam results?)

[Q 6– Question, 30 & 31 Batches, A – Those who answered QOD]

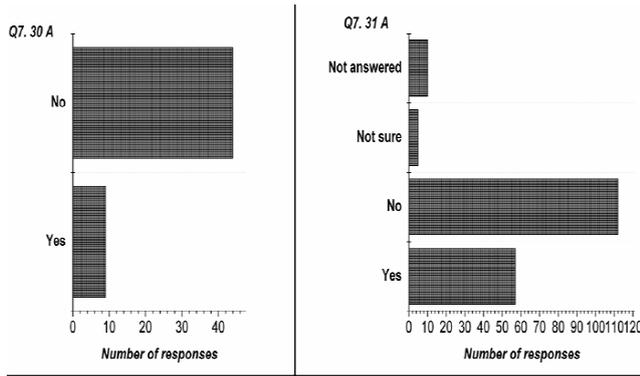


Figure 7. The above graphs show the existence of drawbacks (if any) with respect to the question of the day.

(QUESTION 7: Is there any drawback regarding the question of the day?)

[Q7 – Question, 30 & 31 Batches, A – Those who answered QOD]

QUESTION 8: Can you give any advantages or disadvantages of the questions of the day?

ADVANTAGES:

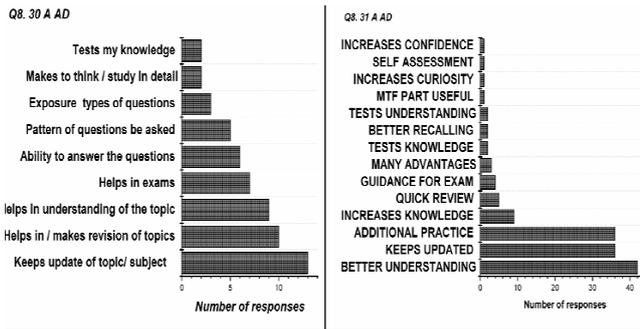


Figure 8. The above graphs show the advantages of QOD according to the students.

[Q8 – Question, 30 & 31 Batches, A – Those who answered QOD]

DISADVANTAGES:

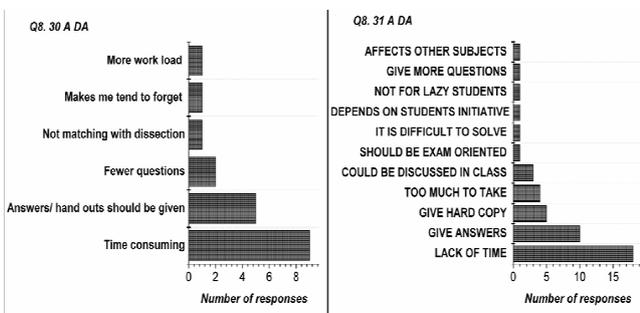


Figure 9. The above graphs show the disadvantages of QOD according to the students.

[Q8– Question, 30 & 31 Batches, A – Those who answered QOD]

GROUP B: (Those who did not work on the QOD)

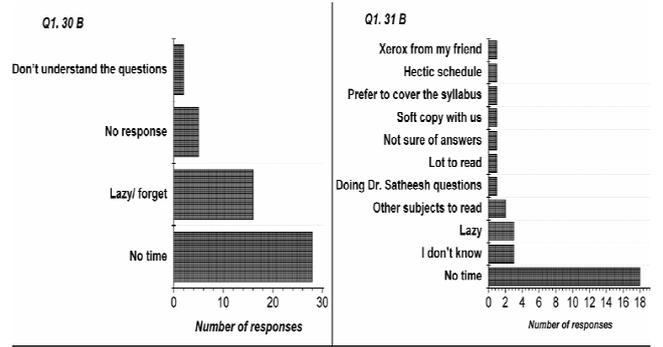


Figure 10. The above graphs summarize the opinion of students for not taking up the QOD.

(QUESTION 01: What was the main reason for not answering the question of the day regularly?)

[Q1– Question, 30 & 31 Batches, B – Those who did not take the QOD]

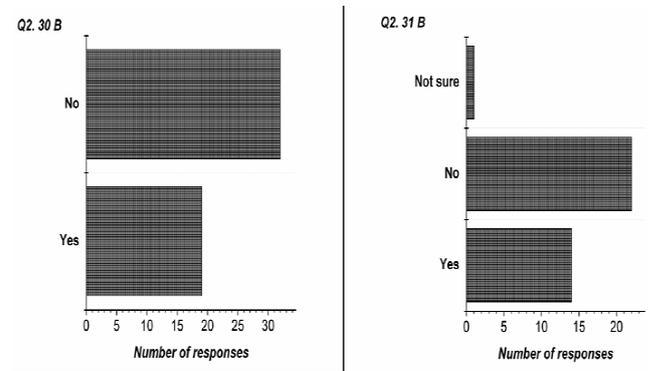


Figure 11. The above graphs represent the student’s opinion of QOD having any adverse effects on their studies.

(QUESTION 02: Did it have any adverse effect on your studies?)

[Q2 – Question, 30 & 31 Batches, B – Those who did not take the QOD]

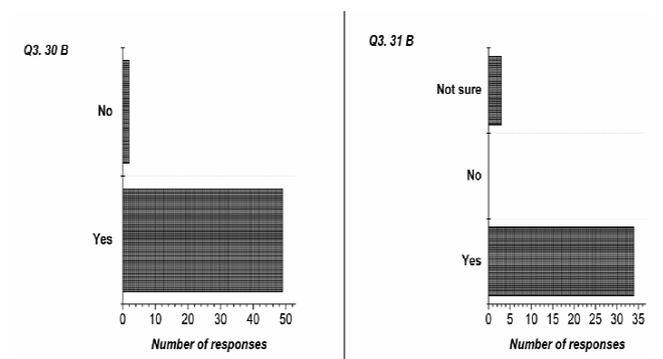


Figure 12. The above graph summarizes the opinion of students, if QOD improved their learning.

(QUESTION 03: Do you think answering the question of the day can improve your learning?)

[Q3– Question, 30 & 31 Batches, B – Those who did not take the QOD]

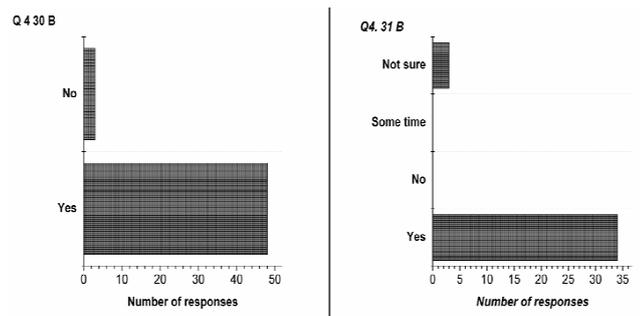


Figure 13. The above graph provides the summary of student’s opinion, if their performance would have been better if they had worked on the QOD.

(QUESTION 04: Do you agree that if you had worked on the question of the day it could have improved your exam scores?)

[Q4 – Question, 30 & 31 Batches, B – Those who did not take the QOD]

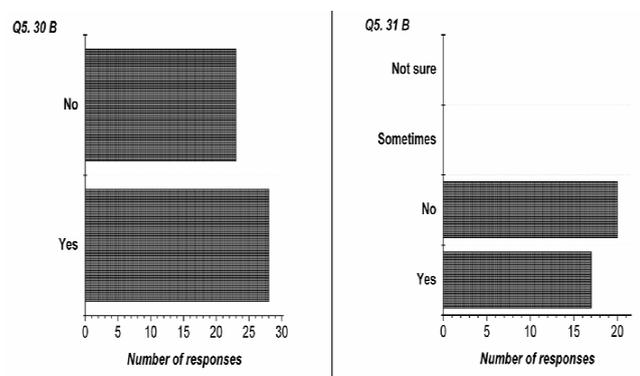


Figure 14. The number of students who did or did not collect the QOD everyday is represented in the above graph.

(QUESTION 05: Did you collect the question of the day every day?)

[Q5 – Question, 30 & 31 Batches, B – Those who did not take the QOD]

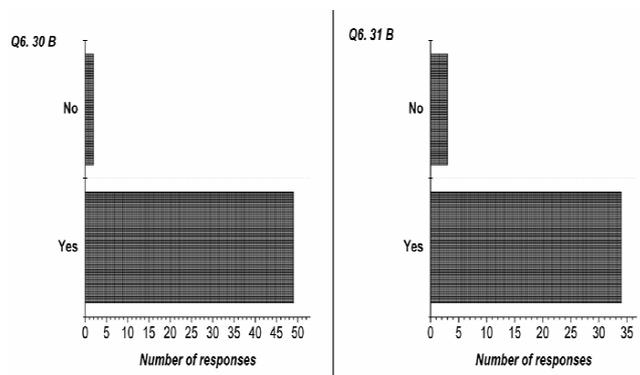


Figure 15. The above graph represents the numbers of students who had worked on the QOD at least once.

(QUESTION 06: Did you work on the question of the day at least once?)

[Q6 – Question, 30 & 31 Batches, B – Those who did not take the QOD]

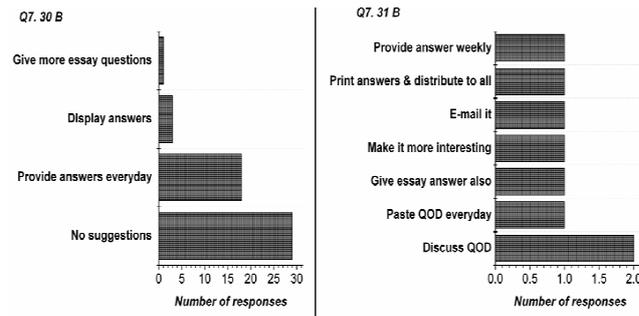


Figure 16. Student’s suggestions to the teachers regarding the QOD have been summarized in the above graphs.

(QUESTION 07: Do you have any suggestions to the teachers regarding the question of the day?)

[Q7 – Question, 30 & 31 Batches, B – Those who did not take the QOD]

QUESTION 08: OTHER COMMENTS

• No comments – This was the response from most of the students.

Some of the other comments were (sorted in ascending alphabetical order):

- Check answers every day and discuss during dissection class
- Continue giving question of the day
- Display answers for essay questions
- Do not give the questions everyday
- Don’t know anything regarding who wants it or not
- I hope the QOD will remain
- I love QOD
- Its problem on our side – 2 students
- Keep it up
- Make it compulsory
- No one informed me. I have been discriminated

DISCUSSION

It has been known since ages that practice makes a man perfect. But practicing in the wrong direction can be a waste of valuable time (especially for students) as well as resources. Proper guidance has played an important role in every student’s life. With this in mind, two batches of students were provided with “Question of the day” (QOD), where they received a set of questions from human Anatomy, for them to solve. The structured questionnaire consisted of 8 questions with a slight difference for those who worked on the QOD and those who did not. However, the same pattern was maintained for the two groups in both the batches during the collection of the feedback.

Usually, students have the tendency to postpone the day's topic for the next day and this habit, pushes them into the final days before the examinations where they fail to cover the topics leading to their under performance. In this study, an attempt has been made to reverse this adverse habit. This study shows that by regularly working on the QOD, students were able to perform better in their block examinations in addition to the improvement in their learning and understanding capabilities of the subject. Most of the students did like working on the QOD (Figure 1). The significant improvement in the performance of students in their block examinations proves that the QOD has been effective in improving the learning abilities of students and improved on their searching for answers using different modes of approach rather than the conventional text book only method (Figure 4). It has also provided a proper guidance for their understanding of the subject which is essential in a profession such as medicine (Figure 3). The higher significance levels of performance seen in the juniors could possibly be due to their nascent stage in the understanding of the methods of studying the subject that has been efficiently molded by working on the QOD. Whereas, the senior who have already completed two blocks, were possibly more familiar than the fresher with respect to the studying pattern and understanding the questions. Despite the familiarity of the seniors with the subject and the examination pattern, QOD was effective in improving their overall scores in the block examination when compared with those who did not work on the QOD.

Case based studies have been one of the studying methods that can increase the curiosity of the students. Hunting for the unknown facts and looking for answers in a case based study, is a good way of increasing a student's curiosity of the subject. Most of the students have enjoyed the QOD and have taken interest in finding out the answer except for a few who experienced it the other way round (Figure 1). Those who did not choose to work on the QOD primarily felt they would lack time for it. Other reasons were their own laziness and the load of other subjects that could make working on the QOD a burden for them. From the responses, it is clear that they did not see any precise demerits for working on the QOD and most of the reasons from their own perspective (Figure 8,9). If these students had pushed themselves a bit hard, they could have probably worked on the QOD and also reaped its benefits like the other group who worked on the QOD (Figure 13). This is seen from majority of them finding no drawbacks with working on the QOD (Figure 7) and those who did not work on the QOD also did not see any adverse effects on their studies by working on it (Figure 11).

Updating their knowledge in the field of anatomy was a major factor seen while working on the QOD by the students themselves. This is a major point when it comes to medicine, as the knowledge of Anatomy is very essential for being a doctor. It has always been a tedious task for students to keep themselves updated in this field and QOD

would be an additional way of improving their knowledge regularly (Figure 2).

Challenges and mysteries have always attracted anyone. Students especially, have the keen urge to learn more and when the studies themselves are challenging, it attracts more of their attention. Most of the students felt that the QOD was challenging. Even those who had not worked on the QOD felt and have agreed that working on it would improve their learning process (Figure 12). The response from the students who did not work on the QOD shows no negative remarks on it, but it is mainly the lack of time which had hindered their working on the QOD (Figure 10). They wanted to work on the QOD and they also understood the positive influence of QOD on their performance in the examinations (Figure 13). Still, the lack of time and other minor interferences in their thought process had kept them from solving the QOD. A little bit of training those with time management would promote their efficiency in utilizing the hours in a day, which could provide room for working on the QOD.

Acquiring knowledge these days has become many a fold easier compared with the olden days. Here in this study the students were not restricted to any kind of source for the answer and were free to explore the vast areas of information for the answers to the questions in the QOD. Most of the students had referred to the text books, notes and also teachers (Figure 4). There is this digital intervention in any aspect of life and even in finding the answers to the question the involvement of the internet was evident.

Everyday reading has the best effect on the learning and memory aspect of students. Our main motto in this study was to pass on a strong message to the students that the above said sentence would really make a lot of difference in their understanding and learning process. The response from the students shows that the message has been passed on to them successfully and most of the students had taken it seriously by solving the QOD every day. This continuous effort from the students had benefited them in their study process and also had a positive influence in their examinations. Apart from the examination point of view, the knowledge perspective had also seen betterment (Figure 5). The fact that, even those who did not prefer to work on the QOD on a regular basis also worked on the QOD at least once shows that this has been an interesting learning experience for the students and the message has been passed on to the whole batch (Figure 15). The curiosity and the eagerness to learn had taken them towards that first step in trying the QOD at least once by most of them. Even among those who did not work on the QOD, most of them had chosen to at least collect the questions for their reference purpose and did not ignore it as a whole (Figure 14).

Providing answers to the questions could probably reduce the effectiveness of the QOD. The search done by the students can lead to many different ways of learning

process. This could also be seen as a point of increasing the interactions between the students themselves and also their interactions would be more often with the teachers if their peer discussions result in confusions. The hunt for the answers would lead them to many ways of getting to the answers and the same if suitable for them, could be useful in the long term. The responses show that apart from the interesting aspect and the knowledge developing perspectives of QOD, some students would like to have the answers (Figure 16). Giving the answers would help them or reduce their interest in solving their questions, remains a point of debate at the moment.

Apart from the questionnaire response summarizing, the results of these students in the block examinations were analyzed and it was clearly seen that those who worked on the QOD had outperformed the other group of students. This clearly indicates that the implementation of QOD has been successful and contributed in the improvement of student performance. On a whole, QOD increased their understanding of the subject, made daily reading a habit and finally provided them the ability to score more in the examinations.

Students have their own abilities and potentials. It is when they understand and explore their potentials to reach their goals, they gain more confidence and motivate themselves towards success.⁵ There are various methods by which students do their learning activities and there are various methods of motivation, which vary from individual to individual. There are various interventions that have been tried out by teachers and there are studies that have been conducted to assess the impact of these various teaching methodologies.²⁻¹⁵ In all these aspects of teaching and

intervention, the main motto was to try to improve the students' knowledge and guide students towards success. Our method is one of the new interventions executed in the development and education process of first year medical students. The results and performance of the students in the block examination speaks for itself about the impact of QOD on the learning process of students. This along with a bit of more self motivation from the students would be a good method for learning human Anatomy.

CONCLUSION

In conclusion, our intervention, the use of QOD to the students has had a positive effect on both juniors as well as seniors. This shows that the QOD was efficient irrespective of the students' prior knowledge about the subject. The significant improvement in the examination scores of the students proves that this method had served its purpose of increasing the depth of understanding of the subject and also has significantly contributed in the increase of their retention capabilities for their better performance in their final examinations. Though in the current study, this strategy has been tried only in Anatomy, it could be tried in all other subjects/disciplines of Medical curriculum.

ACKNOWLEDGEMENTS

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REFERENCES

1. Harvey BJ, Rothman AI, Frecker RC. Effect of an undergraduate medical curriculum on students' self-directed learning. *Acad Med*. 2003;78(12):1259-65.
2. Kelly DR, MacKay L. CELT: a computerised evaluative learning tool for continuing professional development. *Med Educ*. 2003;37(4): 358-67.
3. Harden RM. E-learning-caged bird or soaring eagle? *Med Teach*. 2008;30(1):1-4.
4. Harden RM. E-learning and all that jazz. *Med Teach*. 2002;24(2):120, 225-6.
5. Burgoon JM, Meece JL, Granger NA. Self-efficacy's influence on student academic achievement in the medical anatomy curriculum. *Anat Sci Educ*. 2012;5(5):249-55.
6. Alhaqwi AI. Importance and process of feedback in undergraduate medical education in Saudi Arabia. *Saudi J Kidney Dis Transpl*. 2012;23(5):1051-5.
7. Amorosa JM, Mellman LA, Graham MJ. Medical students as teachers: how preclinical teaching opportunities can create an early awareness of the role of physician as teacher. *Med Teach*. 2011;33(2):137-44.
8. Azer SA. Facilitation of students' discussion in problem-based learning tutorials to create mechanisms: the use of five key questions. *Ann Acad Med Singapore*. 2005;34(8):492-8.
9. Chang HJ, Lai MY, Lee CH, Chang CM, Chou P. [A feasibility study on teaching evaluation system in medical education]. *Zhonghua Yi Xue Za Zhi (Taipei)*. 1990;46(5):271-84.
10. Cliff WH, Wright AW. Directed case study method for teaching human anatomy and physiology. *Am J Physiol*. 1996;270(6 Pt 3):S19-28.
11. Dolmans D, Schmidt A, van der Beek J, Beintema M, Gerver WJ. Does a student log provide a means to better structure clinical education? *Med Educ*. 1999;33(2):89-94.
12. Elliott ES, Dweck CS. Goals: an approach to motivation and achievement. *J Pers Soc Psychol*. 1988;54(1):5-12.
13. Hammoud MM, Barclay ML. Development of a Web-based question database for students' self-assessment. *Acad Med*. 2002;77(9):925.
14. Jamkar AV, Burdick W, Morahan P, Yemul VY, Sarmukadam, Singh G. Proposed model of case based learning for training undergraduate medical student in surgery. *Indian J Surg*. 2007;69(5):176-83.
15. Wilson AB, Petty M, Williams JM, Thorp LE. An investigation of alternating group dissections in medical gross anatomy. *Teach Learn Med*. 2011;23(1):46-52.

Annexure: 1.**MBBS – BATCH 31
QUESTION OF THE DAY****ESSAY QUESTION:**

1. Nelson, a 55 year old man was admitted in the hospital. He had jaundice, and vomiting. There was a palpable mass in the upper right quadrant of his abdomen just below the right lobe of the liver. Radiological examination revealed widening of the duodenal loop and distorted duodenal cap.

A. Name the diseased organ

B. Explain the relations and development of the diseased part of the organ

(1+4 = 5 marks)

TRUE/FALSE QUESTIONS:**Regarding the portal vein**

1. It is formed behind the neck of the pancreas at the level of L2 vertebra
2. It is formed by the union of superior mesenteric vein and splenic vein
3. Portal hypertension causes caput medusae, oesophageal varices and piles
4. It divides into right and left branches
5. It runs in front of the first part of duodenum and bile duct

About the pancreas

1. Its tail is situated in the gastrosplenic ligament
2. Removal of its tail during splenectomy may result in diabetes mellitus
3. Splenic artery runs along the inferior border of its body
4. Head of the pancreas surrounds the second part of duodenum in a condition called 'annular pancreas'
5. Posterior surface of its body is related to the splenic vein