

Impact of note-taking on cognition during lectures

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Abstract

Background: At Melaka Manipal Medical College (MMMC) (Manipal Campus), Manipal University, India, lectures form an important part of the Bachelor of Medicine and Bachelor of Surgery (MBBS) curriculum. The faculty of the Department of Physiology at MMC uses both blackboard and PowerPoint for delivering lectures. Students are given the freedom to note down from the PowerPoint slides the content taught during a lecture. The present study was undertaken to explore the impact of note taking on students' learning and also to determine students' perceptions regarding the advantages and disadvantages of note taking.

Methods: During a respiratory physiology lecture (Lecture 1) using PowerPoint, students were allowed to take down notes. Lecture 1 was followed by an examination (Test 1). During another lecture (Lecture 2), students were not allowed to take down notes, but were asked to listen only. This was followed by an examination (Test 2). Scores of Test 1 and Test 2 were compared using paired t test.

Results and Conclusion: The mean score for Test 1 was found to be significantly higher ($p < 0.001$) compared to that of Test 2. The present study revealed that note-taking during the lecture facilitated student learning by helping them to recall better. The conscious management of the note-taking activity is more than just taking down notes, but involves concentration during the lecture and understanding the concepts.

Key words: physiology, undergraduate curriculum

Introduction

Lectures constitute an essential and predominant part of teaching and remain a useful platform for both students and teachers to update their knowledge in the field and also to fill the existing gaps in their knowledge. Research suggests that teachers can have a positive impact on the note-taking activity of students (McKeachie & Svinicki, 1994.). According to Hartley and Davies (1978), note taking has been found to have advantages such as evidence of work invested in the subject, allowing students to restructure the material at a later stage and help students in recall at a later stage.

At Melaka Manipal Medical College (Manipal Campus), India, lectures form an important part of Bachelor of Medicine and Bachelor of Surgery (MBBS) curriculum. The faculty of Department of Physiology uses both blackboard and PowerPoint for delivering the majority of the lectures. Students are given the freedom to note down or not to note down the content from the PowerPoint, taught during a lecture. The present study was undertaken to explore the impact of note-taking on students' learning and also to determine students' perspectives regarding the advantages and disadvantages of note-taking.

Method

The present study was undertaken during a 2 hour respiratory physiology lecture class on regulation of respiration, for first year MBBS students ($n=110$). During the initial 30 minutes, a lecture (Lecture 1) on the neural regulation of respiration was delivered using PowerPoint. After each slide projection, the teacher explained the concepts displayed on the slide in detail, and then allowed students to take down notes. At the end, students were given 10 minutes to read the topic both from their

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notes and from the textbook (Review of Medical Physiology by William F Ganong). Students were also allowed to discuss with each other. This was followed by an examination (Test 1) of 20 True/False type questions on neural regulation of respiration which was of 10 minutes in duration.

Students were given a break of 10 minutes which was succeeded by another lecture (Lecture 2) on chemical regulation of respiration (30 minutes), using PowerPoint. Here, students were not allowed to take down notes, but were asked only to listen. Then, students were given time to read from the text book and were also encouraged to discuss with their peers. This was followed by an examination (Test 2) similar to Test 1 (20 questions; 10 minutes duration) on chemical regulation of respiration. The test scores were compared using paired t test. Further, the students were informally interviewed (in groups of eight, after the lectures, on the same day) on note-taking; whether it should be encouraged in class and also to list out advantages and disadvantages of note-taking.

Results

The mean score for Test 1 (17.73 ± 2.52) was found to be significantly higher ($p < 0.001$) compared to that of Test 2 (15.99 ± 2.75). During the informal interviews, majority of the students opined that note-taking should be encouraged during lectures as they felt that it kept them alert and helped them revise later. Students also felt that note-taking was time consuming and they should not be asked to take down notes at the same time when teachers are explaining concepts.

Discussion

The present study suggests that note-taking during lectures (provided sufficient time is given) facilitated learning when assessed by an examination. The actual process of note-taking itself facilitates recall, which in turn facilitates learning. Involvement in note-taking helps students avoid distractions and focus on the material being taught. In the present study, students were given sufficient time for note-taking after explaining the concepts (Lecture 1). Prior to Test 1, students were given time to review their notes. This could have facilitated their understanding and recall, resulting in higher scores in Test 1. During Lecture 2, as students were not involved in note-taking, their ability to recall may have been reduced resulting in lower scores in Test 2. Geoff

(1989) recommends that lecturers should provide students with sufficient material to enable them to study the topic themselves after the lecture. This has been implemented in the present study by giving them sufficient time to take down notes from the PowerPoint, after explaining the concepts. Johnstone and Su (1994) reported a positive relationship between recording of notes and recall of information. In the present study, the accuracy of the information recorded was ensured by allowing students time to write the information on the PowerPoint slides. Deborah *et al.* (2001) suggests pacing of the lecture and cueing (verbal and visual signs of emphasis, structure and relationships) as important strategies to support note-taking. Pausing is suggested as an essential strategy to regulate the pace of a lecture. By allowing students to take down notes, a considerable amount of pausing can be done and emphasis on important concepts could also be ensured. Kiewera (1987) reported that note-taking aids the memory process alleviating the load on working memory. This probably could have resulted in a higher score in Test 1.

Conclusion

The present study reveals that note-taking during a lecture facilitated student learning by helping them to recall better and kept them alert in the class. The conscious management of note-taking activity is more than just taking down notes, but involves concentration during the lecture and understanding the concepts.

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