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The impact and significance of small and large group teaching and learning in medical curriculum

Polly Lama*, Jyoti Kulkarni, Binod K Tamang, Pranoti Sinha
Department of Anatomy, Sikkim Manipal University, Sikkim Manipal Institute of Medical Sciences, 5th mile, Tadong, Sikkim, India

*Corresponding Author
Email: pollylama@smims.smu.edu.in
Telephone: +91 8159081183

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Abstract

For every educator/teacher adopting effective teaching and learning strategies forms an area of importance as it redresses academic integration. Teaching in medical setting not only requires transfer of basic level information but the skills/techniques required to learn and retain effectively has to be passed to the pre-clinical students at an early stage, the knowledge disseminated has to be simple but effective for developing further connections and representations. Pre-clinical educators are thus associated with not only teaching but enabling students to learn on how to progress, retain, and apply what has been already taught. Therefore, drawing upon many previous works, in this study we explore the role of small and large group teaching and learning in first year medical undergraduate students in promoting the most meaningful teaching and learning experiences for medical anatomy. Our results, suggest both small and large group teaching has its advantages and disadvantages, but the impact left by small group teaching and learning is far greater as it is observed that through

this process the student remain more focused on the problems they encountered or didn't understand while learning. Small group teaching sessions were also highly interactive and enabled further discussion on complex topics. In conclusion, large group teaching and learning is essentially a one way process, while small group teaching is more focused, interactive, and leads to the development of concepts/principles.

Keywords: Small and large group, teaching and learning, anatomy, medical students

Introduction

"Learning and teaching should not stand on opposite banks and just watch the river flow by; instead, they should embark together on a journey"..... Loris Malaguzzi (1920–1994)

Every educator today is expected to deliver exceptional teaching to undergraduates, allied health professionals and postgraduate students. The present day demands for exceptional teaching involves imparting knowledge and skills to students who often seem to memorize and mimic what has been taught, a sense of understanding usually lacks in many students which sharply contrast with the theory of meaningful teaching and learning process. It has been suggested that meaningful learning involves the acquisition of useful knowledge because 1) it is stored in such a way that it can be accessed from different starting points, 2) it is well integrated with previous knowledge, and 3) it is accompanied by the building of multiple representations (mental models) connected to other models for many other phenomena that involves retaining transfer of acquired knowledge and skill for further implement [1,2]. Meaningful learning is suggested to be accompanied by meaningful teaching process [3]. However, in the past, teaching was considered to be a skill that one was expected to possess or acquire. Being an effective, motivated and passionate teacher were some of the essential qualities required to deliver exceptional teaching [3]. But today, teachers face more complex demands as it's no longer enough to simply transmit information that students memorize and store for future use. Education today focuses on helping students learn how to learn, in short transfer of skills between teachers and students are expected [4]. Therefore, the main aim of this study was to understand the best way to achieve transfer of skills and knowledge between teacher and students that could contribute towards meaningful teaching and learning experiences for medical anatomy.

The specific objectives of this study were to focus on small and large group teaching and learning process, and to rationalize which teaching and learning process is most effective. Observations were made during the study and limitations noted.

Methods and study groups

This study was carried out at the Department of Anatomy, Sikkim Manipal Institute of Medical Sciences (SMIMS), and incorporated ninety four undergraduate first year medical students, junior and senior faculties involved with demonstrating and lecturing medical anatomy topics to the undergraduates students.

During routine dissection demonstrations at the anatomy lab, ninety four undergraduate students were divided into four smaller groups consisting of twenty three students approximately in each group. Further, the same students attended lecture classes in a larger one unifying group and they were given lectures on anatomy topics by junior and senior faculties of the Department of Anatomy. A feedback form filled by the students were collected after upper and lower limb, thorax and abdomen sessions to record their free responses, but the chief criteria for assessment of the responses were as follows:

- Clarity and precision of the subject taught.
- Processing of information provided (transfer of skills).
- Reconstruction of ideas provided (meaningful thinking provoked).
- If the teacher was able to - explain, engage and enthuse the listeners.

Results

Small group teaching (Dissection demonstration): One of the key features of small group teaching was perhaps the ease that developed between the teacher and the students over the course of time which enabled the students to centre on driving questions which lead them to encounter and develop concepts or principles. Questions asked by many undergraduates involved inquiries but inquires made the students responsible for framing or designing a concept. Question asked also kept the students focused towards the problems they encountered or didn't understand. Small group teaching sessions were highly interactive and made both the educator and the students communicate effectively and freely when the

problems were based on complex topics. Models, charts and demonstration on cadaveric specimens greatly enhanced the overall understanding capabilities of the students. For the educator (including ourself) such tools greatly aided the delivery process of information.

However, there were limitations to small group teaching. The first one of them was, when some of the students choose to remain silent and seemingly unengaged whilst others seems to be active, and attempts to get the silent ones to become engaged fails. One of the reasons for such differences within the same group according to our observations was due to hyperactivity demonstrated by some students and a fear of being deride and compared with the active students. But however not all the silent students were the same as for some choosing to remain silent was the way they learnt, by observing others. The best way to evaluate the extent of involvement of each student within the same group was achieved by asking group question without triggering a specific student. Often, hyperactive ones were the first to answer, but even after hearing there answers chances were given to other students in the same group to speak about what they thought could be the correct answer, this method always proved to be a good way to get the silent ones engaged. The second problem was the ability of over enthusiastic students to sidetrack the teacher. The students in this case being either over interested in the topic being discussed or had completely misunderstood the topic. To overcome the problem faced the strategy adopted was proper time distribution and attention between individuals students and stressing on the importance of understanding the subject they read, making them realise that working hard is essential for good grades, and being interactive not just with the teacher but among themselves is important for developing effective communication skills and being well-informed.

Large group lecturing: Since the ancient times lecturing has been one of the most relevant methods of imparting knowledge to undergraduate and postgraduate students, but those were the days when the total number of students enrolled in any course would not exceed forty. Individual attention could be given to the entire class. But, in today's world the number of students have and will continue to increase and so will the class sizes, making it impossible for the lecturers to even recall the names of individual students. Obviously, by lecturing one can address a large number of students and is a way of disseminating information quickly and explicitly [5] and is cost effective in the present day economic situations but if all the

students appreciate and follow the lectures seems to be somehow understated. During a typical lecture class all the students receive same level of information. Listening to a lecture may be a meaningful process for some of the students who have an interest or background knowledge in a particular subject. Conceptual thinking as well as understanding is provoked in these students. However, not all (especially first year) undergraduate students always have the same experiences as many students complain about lack of understanding, as they are introduced to whole new range of information and anatomical terminologies and words during the first year. Lectures for some students thus remained meaningless and thought provoking for those students wasn't achieved as many of them struggled to understand the basic concepts, thus large group teaching was a one way communication process [6]. Students also experience powerful feelings of alienation and envy during large group lecturing when they see someone else in the same class respond or understand the subjects clearly than others [7]. The answer to the questions if large group teaching is meaningful thus varied and depended on individual students/listeners.

In our own attempt to answer the questions if lectures are better than small group teaching, after completing each unit in the dissection demonstration e.g upper limb, lower limb, thorax and abdomen, accompanied with the lectures classes, a feedback form was filled by each student. The results were highly subjective, as only 60 % of them commented on the pace, slides shown and if the talk was understandable. The remaining 40% had no problem understanding the lecture as those students had greater interest and background with medical studies, thus they found it easier to understand. Lecturing was also found to be much about how much an individual listener or students was willing to accept, and results varied and depended on individual listeners. Lecturing session was also observed to be one-way delivery process and didn't involve interactions between a teacher and a student (due to time constraint) so it is acceptable that not all the students/listener may fully understand a lecture session and this is where the importance of small group teaching was felt, as student teacher interaction is maximum in small group teaching. This process of evaluation helped us also acknowledge various ways in which we could improve our teaching skills.

Discussion

Reflection on observations

A growing body of research suggests that students learn more deeply and perform better on complex tasks if they have the opportunity to engage in more "authentic" learning projects and activities that require them to employ subject knowledge to ask questions and solve problems. Studies have shown a positive impact on learning when students participate in lessons that require them to construct and organize knowledge, consider alternatives, engage in detailed research and analysis, and enabling them to communicate effectively [8]. Apart from this information's through the course of this study it was also observed that effective skills needs to be involved especially for explanation of difficult topics, and such teaching skill greatly aids in supporting students in learning efficiently and effectively. Thus, how well a teacher explains a topic can have a dramatic effect on how easily the student learns it. It was also observed that until and unless the students don't take the initiative to learn themselves after a class or session not even the best teacher can help them. A meaningful teaching and learning process therefore depends on abilities and effort of both teachers and the students.

Small group teaching and large group lecturing both have its own advantages and disadvantages, but both the teaching style shows that learners at some point gain meaningful understanding of concepts but outcome varies and depends on many factors. Though there is now a great deal of evidence that lecturing is a relatively ineffective pedagogical tool for promoting conceptual understanding (reviewed in National Research Council, 1999), but it can't be understated that lectures has been one of the most effective tools in delivering information without the students having to go through piles of paper or books. Large group lecturing therefore saves times and manpower. However, our observation suggests that higher level of critical thinking, understanding and engagement between teacher and students is only possible during face to face discussions as suggested by Bucy, M.C., 2006 [9]. It can be understood that large group lecturing is therefore ideal for disseminating basic level information's on the subject which can act as a guide line for future reading, but in order to provoke deeper interest and understanding face to face communication is essential. Thus it

can be suggested that, both small group teaching and large group lecturing are essential elements for meaningful teaching and learning, and both the teacher and students should be actively engaged in this process.

Teaching and Learning in small groups has been and can be considered to play a valuable part in the all-round education of students. It allows the students to negotiate meanings, to express themselves in the language of the subject as well as on how well they have understood it [10]. Small group teaching also helps to establish more intimate contact with academic staff than more formal methods permits. It also develops the more instrumental skills of listening, presenting ideas and persuading [11].

Being involved with both small group and large group teaching for the first year undergraduates, in our opinion, small group teaching involves effective transfer of knowledgeable skills between the educator/teacher and the students and also promotes social integration that enables the students to communicate freely and makes the teacher more involved with individual students. A meaningful teaching and learning process with transfer of skills is delivered to the fullest within small group teaching, in comparison to large group lecturing, which is often a one way communication process, but assists in ideal dissemination of basics level of information.

Conclusion

The demands of a knowledge economy have prompted a renewed focus on learning and teaching. Due to this continuous demand and rapid development in all the fields of educations many alternative pedagogical models are being devised and implemented. The main focus for such changes has been on development of the most effective way for transfer of skills between teacher and students. A observational study on small and large group teaching done in the course of this study shows that both the forms of teaching have its own advantages and disadvantages that can be debated. The study process helped us understand our own weakness and strengths as a teacher, and we hope by sharing our observations we are able to construct knowledge and understanding on the cognitive and effective aspects of teaching and learning.

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Authors Column

Dr. Poly Lama did Ph.D. from the Centre for Comparative and Clinical Anatomy, Faculty of Medical and Veterinary Sciences, University of Bristol, United Kingdom in 2013. Her research area was 'Matrix disruption and altered cell phenotypes in degenerated intervertebral discs'.

Dr. Lama has published research papers mostly in International Journals and attended several International Symposia. Presently she is attached to the Dept. of Anatomy, SMIMS, Sikkim Manipal University as Assistant Professor and is supervising work of Ph.D. students.

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