

Use of Mobile Phones to Aid Learning in Medical Undergraduates

The new competency-based undergraduate medical program emphasizes on the use of technology for imparting knowledge, and promoting self-directed learning in Indian medical graduate [1], including e-learning [2]. With the easy availability of the internet and smart phones, messages *via* phone lines (SMS) [2] or *via* social media ie, Whats App, Messenger etc are highly prevalent [3]. I read with interest the recent article by Kapoor, *et al.* [4] reporting on use of Whats App as a tool for undergraduate classroom teaching. I compliment the authors for addressing this under-explored area in medical education in India. I have the following observations related to the study.

First, only 40 students (32.2%) were enrolled out of a total of 124 students. The principle strength of e-learning tools is their easy availability at all times, thus facilitating asynchronous learning [5] and the ability to overcome resource-constraints. If only 1/3rd of the students are using a modality routinely, it may not be an efficacious educational aid in real life, howsoever effective it may be in an experimental study. Secondly, there was no comparison done of the intervention group (WhatsApp group) with the control group (conventional classroom teaching), this may introduce multiple problems in assessing the effect, the main one being the Hawthorne effect [6]. Thirdly, less than 50% of the volunteer students participated in the discussion. The reason for low participation was not collected, but would have been an important addition to the literature. It is not clarified in the paper whether a pretest was done after conventional classroom teaching of the topic, or without any educational inputs. It would have been still better if the post test scores of both intervention and non intervention groups could have been compared. We have recently used this methodology in a study assessing effect of text messaging (SMS)-based instructions on 92 undergraduate medical students [7]. However, we did not find a significant difference in post-test scores of intervention and control groups, despite good acceptability.

Thus, using e-learning to overcome the reported faculty crunch in medical education in India is a pressing need, given its low cost and high student acceptance [5]. However, more well-conducted research on easily acceptable e-learning modalities in the Indian context is needed to demonstrate its place in the current medical education setting.

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AUTHORS' REPLY

We thank the reader for showing interest in our study. This study was done in December, 2015 - February, 2016 with 9th semester students after completion of topics on cardiovascular system. Methodology was informed to them before recruitment; participation had to be voluntary but those who participated, had to attempt pre-post tests. Reasons for relatively low percentage of students volunteering to participate were time constraints due to pressure of university exams

(February-March 2016) and apprehension of pre-post tests. In fact, pre-university exams were held during study period with interruption in discussion for two weeks. Not many students were having smartphones or using WhatsApp at that time compared to now.

Secondly, study was designed as non-comparative trial with the objectives to determine the acceptability and efficacy of WhatsApp as teaching-learning media in promoting problem-solving skills and self-study beyond classroom and not to compare with conventional classroom teaching [1]. Though less than 50% of the volunteer students participated in the discussion, Hawthorne effect can not be ruled out. In order to avoid bias in online teaching and discussion, pre and post test sheets were assessed only after the post-test was over. Design of study was based on Case-based learning (CBL) and students applied their previous knowledge, did self-reading, step-by-step analysis, shared answers with reasoning and resources on WhatsApp. Timely feedback helped them to clear doubts and promoted learning beyond classrooms. There is evidence that CBL links theory to practice, promotes self-directed, collaborative and active learning amongst students which help them to learn better and gain in confidence [2].

Thirdly, reasons for low participation of volunteer students as per their feedback were: difficulty to find time

for going through discussion (18.7%), not comfortable in participating on WhatsApp (8.1%) and some had problem of net-connectivity. Discussion used to be at a fast pace during late-night hours as it was not permitted during college timings. Many students would be asleep by that time. Later when they could go through the discussion, it would have moved forward and they kept on trailing behind. Despite this, 94.6% read all the discussion as per their convenience and more than 80% felt they benefitted from it. Hence, we consider this as strength of our study.

We agree, more studies are required as WhatsApp has potential to be adapted as a teaching-learning media for medical education due to ease of availability and flexibility to participate and/or review and revise content as per one's convenience.

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