



## To Assess the Feasibility of Hematology Postgraduate Teaching by Mobile App-WhatsApp

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### Abstract

**Introduction:** The Pathology postgraduate students have very busy working hours, and need to master varied subjects like histopathology, cytology, immunopathology and hematology. Some of the diseases are located in specific geographical areas. The students studying at other areas may not have accessibility to the clinical diagnostic material. The teaching of pathology is possible by the apps like WhatsApp because of the feasibility of sharing, photos, videos, images and text messages. This also becomes the platform for sharing the discussion at a time of the convenience to the postgraduate student. In addition with the availability of digital scanners and hand held devices have revolutionized the teaching and learning of pathology.

**Methodology:** The present prospective observational study was conducted for a period of 2 weeks.

**Results:** All the residents agreed that this was an interesting method of study. They also agreed that this was a feasible method (94.3%) and could be incorporated in routine teaching method (77.7%). They also found the discussion more stimulating and innovative resulting in better interaction among peers and teachers. They disagreed that this was more time consuming (83.2%) or the availability of internet was an issue (83.3%). All the faculty members agreed that the residents were more enthusiastic and had an inclination towards this method though 50% of the faculty members also said that this was time consuming method.

**Conclusion:** The new method introduced was well accepted by both the residents as well as the faculty. They found it to be an interesting, doable and stimulating method of learning.

**Keywords:** WhatsApp; Pathology; Hematology

### Introduction

The postgraduate students are familiar with the advances in all walks of life and the mobile has become a constant companion. The 21<sup>st</sup> century educational changes and transformations are marked by the number of social media platforms in Web 2.0 [1]. Various applications are available for knowledge sharing. This has markedly improved the communications amongst residents, faculty, pathologists and technicians [2]. The pathology teaching requires good quality images for analyzing the morphological details. The advances in the technology have now made possible the capture and sharing of good quality images by the mobile phone applications [3]. The increasingly good quality of cameras in the Smartphone's helps to capture excellent high quality images of clinical picture, gross specimens and microscopic slides. The same may then be shared by web 2.0 messenger services like WhatsApp. The broad casting facilities help it to evolve in as a teaching/learning platform. This has also emerged as an important tool for obtaining second opinion and even evolved as a telemedicine platform for remote consultations [4]. A nationwide survey at USA tried to assess the usage any type of technologies used in the anatomic and clinical pathology residency program. They concluded that most of the residents have access to various technologies however their incorporation to training programs is highly variable [5]. In India a pilot study from Delhi, has tried to assess WhatsApp for teaching pathology to postgraduates. They concluded that there is a need to incorporate the web tools in pathology teaching as most of their participants found it useful. However this study only evaluated the histopathology and cytopathology [6]. There is a need to assess the usefulness, if any in hematology teaching.

### Aim & Objectives

#### Aim

To prepare Indian Medical Graduate to be a lifelong learner *via* self directed learning using

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newer evolving technologies and tools available.

### Specific objectives

- To design the clinical based questions for WhatsApp
- To develop and implement a module to introduce learning method using WhatsApp as a tool
- To assess perception of faculty and residents towards the introduced method of learning

### Methodology

The prospective study was conducted in the Department of Pathology, GMCH Chandigarh after due approval by the Institute Ethics Committee. All the pathology residents' members 18 and faculty members 06 were enrolled in the study after taking an informed consent. The prospective study was conducted in the Department of Pathology, Government Medical College & Hospital Chandigarh. The study was approved by the Institute Research and Ethics Committee.

### Faculty sensitization

- Initially the sensitization of the faculty members was done. They were enrolled in the study after an informed consent. The cases for discussion were then developed with consensus of the faculty members. The topics and material chosen also included those materials which are not easily available in our Department.

### Module development

- The project investigator then developed the framework for developing the clinical questions. The other faculty members also learned to design the framework. This was followed by the designing of the clinical questions.
- A module was developed regarding the release of the material on WhatsApp. Questions and/or triggers in the form of photographs, images and animation, text, audio and/or video files were finalized. The release of these was timed in the clinical questions.

### Resident sensitization

- The residents were explained about the project including the study methodology. The residents were then enrolled in the study after taking informed consent.

### Implementation

- The study investigator then created a WhatsApp group named "Teaching-Learning Group". All the participants were enrolled. The faculty members were the group administrators. The cases were posted by the group administrators only.
- The group was used to discuss interesting cases, quiz questions, and other hematology academic issues. Two interesting cases, images or case based discussion were posted in the group.
- All the residents were asked to respond at least twice to all the cases. Discussion of one case was spread over a week with daily postings of triggers for keeping the interest generated and discussion active.
- The first week was used to facilitate communications amongst the group members and adjusting the group to the prolonged concept of discussion with release of relevant informative triggers to enhance the journey to a specific diagnosis.
- In the following weeks the cases were posted including images, triggers and other relevant information's so as to direct the

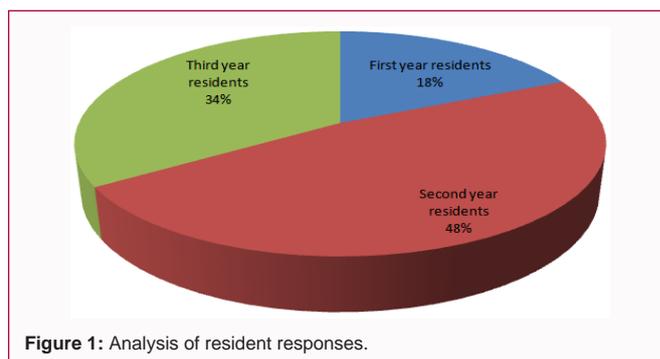


Figure 1: Analysis of resident responses.

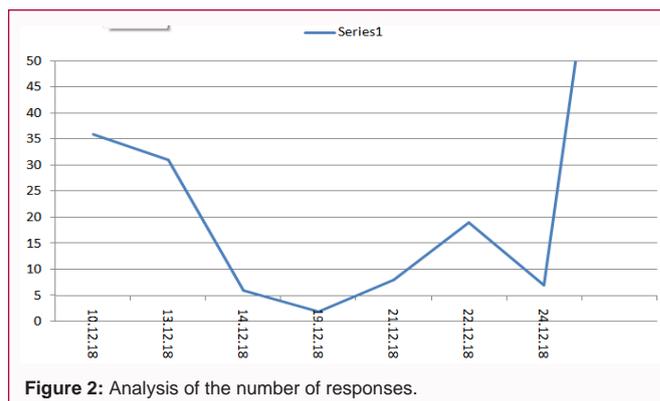


Figure 2: Analysis of the number of responses.

residents in the right direction of diagnosis.

### Feedback

At the end of the cases, separate pre structured and validated questionnaire feedback forms were distributed among the faculty members and residents. The feedback forms were filled anonymously (Appendix table 1).

### Observations and Results

The study group comprised of 18 postgraduate students/residents and 06 faculty members. The residents were asked to give their responses in the group. The group was created for one month and a total of 109 responses were exchanged. Of the residents the Second year residents responded most promptly followed by final year residents and first year students (Figure 1). Maximum messages responses were exchanged on day 1 of the activity, followed by day 2 (Figure 2). The activity was well appreciated by both the residents and the faculty members. The responses were more rapid and almost instantaneous for the easy questions and the time take was much longer with increasing difficulty of the topic being discussed. The time taken to respond was much longer with topics/techniques not routinely practiced. For e.g. the time taken to interpretation of electron microscopy, cytogenetic and molecular studies was longer (2 h to 24 h) and required much prompting as compared to easy questions which were answered in less than one second and not only by one resident but three residents, shortest time. The residents found the approach interesting, interactive and innovative. They felt that it added to their knowledge and motivated them to study further on the topic (Figure 3). The internet availability was a non issue for the residents but not so for the faculty members. The important issue raised by the faculty members was of the space shortage in the mobile and WhatsApp getting clogged due to bigger files of images etc (Figure 4). The suggestions by the faculty were that residents should be asked questions directly by name/batch since the level of

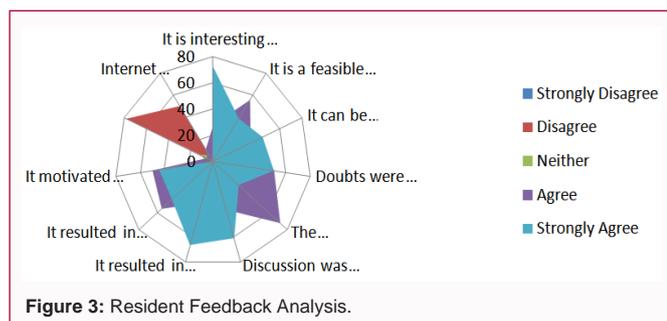


Figure 3: Resident Feedback Analysis.

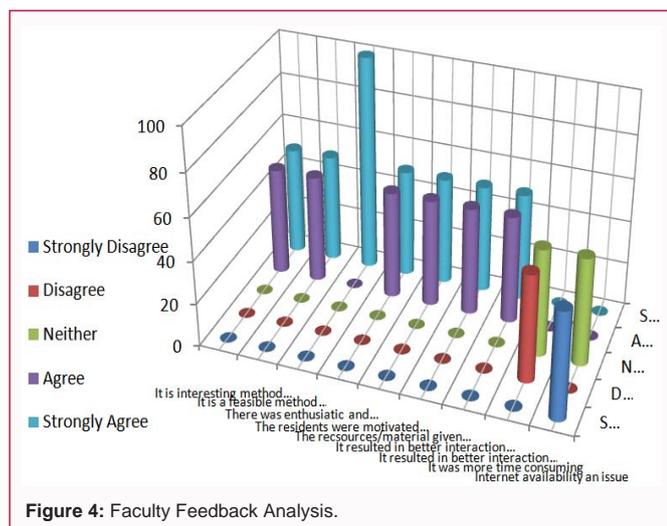


Figure 4: Faculty Feedback Analysis.

understanding for different batches is different. The group created a strong mode of academic interaction among the group members. The step by step approach was also helpful in day to day practice and learning. Another suggestion was to give questions from a preformed topic.

## Discussion

The smart phones were not a part of our day to day existence 8 years ago. They have rapidly become almost indispensable today. The amazing advances in technology enabling us to transmit text, document, images, videos etc. at the touch of a button have burrowed its usefulness deep into our daily existence. Research suggests that an astonishing number of doctors are now using their mobiles to communicate clinical information about patients at work: 64.7% are using SMS messaging and 33.1% are using equivalent web based applications such as WhatsApp [7]. In our study also all the residents and the faculty identified it to be a feasible method of study (100%). Since we only used WhatsApp application it would be difficult to compare with SMS. In another study analyzing the doctors' perception of WhatsApp, it was felt to be a good thing in general by 72.5%, with 80% reporting that it improves the relationship between grades and breaks down the traditional hierarchies that can stunt effective communication within a team. The majority of doctors using WhatsApp form a 'group' (within the app), consisting of members of the clinical team, so when a message is sent it is visible to all. This group chat dynamic not only improves team cohesion through informal conversation but it enables juniors to contact seniors more easily where they may not previously have felt able to phone them directly [8]. Another study which was conducted on the MBBS students in Karnataka especially identified students with less than 35% marks

in internal assessment and concluded that the constant availability of facilitator and learning anytime anywhere has made WhatsApp a new and convenient tool for sensitizing the 1<sup>st</sup> MBBS students in teaching and learning activity [9]. In our study also 66.4% residents strongly agreed that this method of teaching resulted in better interaction between teachers and residents. The social networking platforms are increasingly being used in interactions among health professionals amongst themselves as well as with the patients. These platforms facilitate efficient connections, communications, interactions in education, training and clinical practice [10]. The issues of confidentiality and ethics while using social networking platforms are being addressed but have not been very well regulated. In a study of final year medical students' experience with and attitudes towards using personal smart phones in the clinical environment, it was observed that 86% of students used them for patient related communication and 68% believed that such communication posed a risk to the privacy and confidentiality of patient health information [11]. More studies need to be done before formulating regulations addressing these issues and protecting the patient confidentiality as smart phones get incorporated into clinical practice. In our study the patient confidentiality was strictly maintained. The teaching learning by the method is feasible and can be incorporated into the routine teaching methods. The WhatsApp based group discussion proved to be a simple and effective supplement to conventional mode of teaching. Although it cannot totally replace the conventional method of teaching, it forms an interesting and effective method of visual image and case based teaching. Social media has the potential in the future to substantially impact and disrupt the conventional modes of medical education.

## Conclusion

The method is feasible, with may be positives as it is interesting, innovative, ensuring good interaction among teacher and residents with possibility of effective doubt clearing, sharing of information anytime, anywhere. However, there could be certain concerns like personal non interest in the media used, parental concern and losing attention over long time period etc. More studies in different group of residents would be more informative. It could even be an integrated teaching both horizontal and vertical. Since mobiles have become an integral part then they may be used for gaining knowledge.

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