SHORT COMMUNICATION

E-Peer Assisted Learning Strategies (e-PALS) – Opportunities, Challenges and Way forward.

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Abstract

Background: Peer-assisted learning strategies (PALs) is an excellent teaching-learning process. Negating the dominant facilitator's role is a significant advantage of PALs over Problem based learning (PBL). With the moderators being their peers themselves, learners are not scared to make mistakes and participate in active discussions.
This paper explains how technology can solve the common problems encountered during Peer Assisted Learning Strategies (PALs).WhatsApp's abundant features like sending text messages, images, Graphics Interchange Format (GIFs), videos, documents, user location, audio files, phone contacts, and voice notes make it an ideal tool in medical education and application in e-PALs.

Methods: The session begins by grouping the participants into small teams. The distribution of the PALs material to the groups is followed by discussing their specific material within their respective group and then discussing it in the plenary with all the other groups taking turns to present their material. Pre and post-tests allowed evaluation of the effectiveness of collaborative group work in e-PALs using WhatsApp. Each group, comprising the participants and the peer tutor, discusses their specific content in their small teams. The teams join together for the plenary and start the session by introducing their parasitic title as an icebreaker. Following the ice-breaking, each team share their content in the plenary. Participation in the PALs sessions is purely voluntary, and the students are free to leave the WhatsApp group in case of any discomfort.

Results and Conclusion: The discussion focuses on comparing face-to-face PALs with e-PALs, the limitations of e-PALs and the future scope.

Introduction

Peer-Assisted Learning (PAL)[1] is an effective learning method that makes active learning enjoyable. Peers share and learn best as they feel comfortable. To ensure the student peers are on the right path, prior training on the PALs content and delivery methods are essential. Preferably the team which drafted the PALs material is ideal to be the moderators of the sessions. Moderators should be present during the PALs session to step in only when there is a dispute or if the session starts to lose focus.

The content of the PALs is of utmost importance. It should appeal to the peer tutors and the learners alike. The PALs material as provided in Table I, for instance, has the triggers interlinked between groups. For example, all the Slams relate to opportunistic parasitic infectious agents.

The problems faced in conducting conventional PALs

The significant problems that affect conventional PALs are

Problem 1: Unprepared peers attempting to train fellow students.

In medical school, it is common for seniors to tutor junior students. The seniors must refresh their knowledge about the contents that they learnt a while ago. Before conventional PALs sessions, the Peer tutors are briefed and trained a day or two earlier by conducting mock PALs with the moderators as tutors. The prior training sessions discourage seniors from signing up as peer tutors as they cannot commit to so many hours/days away from their regular academic load.

Problem 2: Unavailability of ideal moderators

Though ideally, the content contributors would serve as the best moderators, their availability is an issue of concern. The PALs moderator should not dominate the session and allow free discussion and brainstorming.

Problem 3: The difficulty to slot a convenient time for the PALs

Each year/class of students have a different timetable and self-directed learning slots. Conducting PAL sessions on weekends was easy, as finding a standard slot for PALs on a typical working day was difficult. No show by registered members led to logistic problems in conducting the session.

The proposed solution: Use of WhatsApp to train and conduct the PALs session

There have been several successful efforts by educationalists to use social media to impart medical education. WhatsApp Messenger is a free to use application software and cross-platform instant messaging service available on all smartphones. WhatsApp's abundant features like sending text messages, images, GIFs, videos, documents, user location, audio files, phone contacts, and voice notes make it an ideal tool for medical education. WhatsApp used as a pre-lecture activity before Ophthalmology lectures were proven to be effective.[2]

For problem 1: Set up PALs tutors WhatsApp group. Pose the triggers to the senior student volunteers to train them to share the content with their juniors (peers) later.

For problem 2: Set up a WhatsApp group to orient the moderators/lecturers to the PALs process. Pose the triggers and let them brainstorm and discuss. Add them to the PALs tutor's group when they are ready. Additionally, monitoring and fine-tuning their style of communication with the student tutors will mitigate the problem.

For problem 3: Set up a WhatsApp group where the peer tutors, trained moderators and beneficiaries can actively involve in an e-PALs discussion. Grouping of students into teams depends on the number and availability of students. Posting triggers for discussion followed them. Merging of the groups for discussions in the

plenary sessions allows sharing of knowledge in a common forum.

The significant advantage of e-PALs is the possibility of asynchronous access to the PALs content and discussions.

Discussion

WhatsApp eliminates the need for transportation, a pre-booked venue, projection facilities, and microphones required for a conventional PALs session. The members in the small groups can schedule sessions at their convenience. Enhanced PAL activities, like 'contact a friend', which requires video calling, can quickly be done using WhatsApp on smartphones. Education, especially simulated education, must be closely related to real-life situations, and doctors are using WhatsApp in practice to share EKGs, MRI images, pictures of pathology specimens for quick reports and second opinions.[3] Training the next generation to use WhatsApp for professional purposes is worthwhile. WhatsApp has been used to reinforce ethics to medical students and as a platform to discuss clinical case scenarios. [4,5]

WhatsApp ensures that the posts are timed and recorded. Registration and attendance monitoring become easy for the moderators. WhatsApp can appeal to learners of all styles as pictures, audio, and a performing task (live video) can be shared. This solution will undoubtedly reach auditory and visual readers. Accessing simulation sites, cyber anatomy, and e-microscopy over WhatsApp will also appeal to the tactile learner. Virtual microscopy resources can be accessed through the smartphone and used for teaching and assessment.[6]

The learners have the opportunity to ask questions by replying specifically to messages. The students also know if their messages have been seen or read by the tutors and vice versa.

Posting multiple choice questions, single best answers and pictures that can simulate an OSPE (Objectively Structured Practical Examination) is beneficial. WhatsApp allows default recording of the time taken by the students to answer the question. The questions can be asked by private messages, too, and then the answers discussed in the group.

The peer tutors, the lecturers and the moderators should be aware of protecting patient details, and care should be taken not to divulge patient identity. Addressing issues of the Personal data protection act and ethical concerns are imperative.

Drafting the PAL content is by the lecturers based on the purpose. Most of the time, students request a revision of topics.

Lecture notes, PowerPoint slides, journal articles, ebook resources, audio and video files containing explanations by the lecturers or other sources like YouTube, multiple-choice questions, photographs, photomicrographs were shared and brainstormed over WhatsApp. The use of emoticons made the discussion authentic as the readers could sense the sender's mood.

Participants were additionally encouraged for prompt and quick answers by awarding prizes.

Though the students could have used the search option to get the answer, it was still considered a learning experience. However, the copy and paste material were easy to spot from genuine answers. The student was encouraged to explain the rationale for his answer by posting their speech audio file.

Our conventional PALs session has a pre and post-test. A similar assessment after the WhatsApp PALs enabled evaluation of the efficacy of this system.

Inclusion of control groups to whom the e-PALs have not benefited would reveal a significant difference in grades obtained by the two groups.[7] However, this was not tried. A pre and post-PAL session test enabled evaluation of the session's effectiveness**.** Student feedback on using Whatsapp for PALs, its efficacy and active student participation can be analysed and continuously improved upon.[8] Using some tips from the Kirkpatrick evaluation model, the benefit of E-PALs can be discussed.[9]

Level 1- Did the learners enjoy the training?

The participants reacted favourably to the new T-L method. The collaboration of group members happened smoothly by initial ice-breaking and then a gradual increase in interaction and engagement. Members adapted to group interactions and instantly welcomed the new members joining the groups. Discussions after the merging of teams were more questioning in nature than actual agreement.

Level 2-Was there a transfer of knowledge, and did learning happen?

There was evidence of knowledge gain, as proven by improved scores following the pre and post-tests. The responses from the students were prompter and more confident as the sessions progressed.

Level 3-Did the training change behaviour?

The attitude change over WhatsApp was that the group members greeted each other, posting good morning and good night. Notably, the groups which had their group picture as the display on WhatsApp were more regular to teaching sessions. However, the students' attitude change requires further analysis. One definite attitude change is enhanced communication skills with their peers and lecturers. With many more registering for PALs, we believe that students find collaborative learning more effective with the technology.

Level 4-Did the training influence performance:

The students performed reasonably in the quizzes and assessments, implying they could apply the knowledge gained. One definitive advantage is the knowledge and the confidence gained by the peer tutors. Nestel and Kidd have stated that PALs positively impact the communication skills of peer tutors.[10]

Comparing between real live PALs over WhatsApp PALs

Just as in the traditional PALs, dominating and passive students exist in e-PALs. Many of them purposely check the posts late and sometimes copy and paste others' responses. Though copy and paste material is evident, a link to plagiarism check could be a helpful addition to the solution. The challenge in any interactive learning is to activate the so-called 'sleeper cells' (passive group members). In real live PAL /PBL sessions, despite the best efforts by the facilitator, there may be few participants who passively listen to the discussion but seldom take part in the active discussion. In WhatsApp interactive learning, the silent member can be activated by posting a specific task to the student and responding with a specific timeline. If the student is still silent, he or she can be motivated with a trigger, providing clues and tips to start a discussion. Unlike in an open face to face discussion, it is possible to avoid the embarrassment of the focus of so many pairs of curious eyes of the team on the silent member in a WhatsApp discussion.

Limitations

In real PALs, the shy students get over their initial fears and myths after a lag period, but in e-PALs, it can be an instant start. In conventional PALs, a lead person does role plays to drive home a point. Although posting a video of their role-play is possible on WhatsApp, it may not happen as frequently as in face-face PALs. The timing is also of concern. In real PALs, when a group member says or does something, they respond quickly, but they respond if they are available online on WhatsApp. The student then replies specifically to that message posted, but the time-lapse could make it less impactful. The person who posted the original message may not be online or active when another member posts a response. Therefore discussions should happen when all group members are online and active.

What next?

A PALsApp is a feature the authors are now working on. PALs have been successfully conducted using videoconferencing facilities.

Conclusions

WhatsApp, a social media technology, enhanced the e-PALs by allowing emoticons usage, sharing audio-video files, and providing prompt feedback. The round the clock access facilitates global participation of students and teachers irrespective of time differences.

Real live bonding would be a missing component, and technical glitches can emerge during the session. The challenges to overcome include the unresponsive student, 'copy and paste' cheating and ethical concerns/legality in the shared documents or pictures. Poor group dynamics and irresponsibility can also lead to the extension of time required to complete tasks.

The best practice to ensure all stakeholders ' total gain from the process, the recommendation would be to have two face-face PALs sessions, one introductory and one wrap-up session sandwiched with the WhatsApp e-PALs sessions. After all, observing, interpreting, and effective communication using body language in face to face sessions cannot be compensated in WhatsApp chat sessions. Use of Zoom video conferencing with break out rooms provides a better solution in this respect.

Declaration

This material was submitted as an original assignment to the University of Dundee. The first author of this manuscript worked on this project for his PG Certificate in medical education. This material was presented as a poster at the International Medical Education Conference at IMU, Malaysia, in April 2018.

This manuscript is meant to share the authors experience with WhatsApp PALs.

Table 1. PAL content used to revise parasitology

Scary Ascaris

POINT	Define Paratenic host. Introduce *Diphyllobothrium latum*.
SET.	State the rationale for choroquine phosphate being prescribed uniquely for malaria.
GAME	Discuss human habitats of beef and pork tapeworms.
MATCH	Bladder carcinoma-discuss the parasites associated.
CHAMP	Whip worm-state the clinical features, describe the life cycle linking it to diagnosis.
SLAM	*Cryptosporidium paarvum*-state its clinical significance

Toxic toxoplasma

POINT	Compare and contrast between definitive host and intermediate host. Introduce *Hymenolepis nana.*
SET.	Explain how DEC is effective against microfilaria and tropical eosinophilia?
GAME	Name an intraerythrocyte parasite?Name a few blood parasites.
MATCH	Cholangio carcinoma-discuss the parasites associated.
CHAMP	Thread worm-state the clinical features, describe the life cycle linking to diagnosis.
SLAM	*Isospora beli*-state its clinical significance

Dreadful dracunculus

POINT	Explain pathogenesis. Introduce *Acanthameoba culbertsonii*
SET.	Describe the mechanism of action of levimasole.
GAME	Parasites in the eye? Lymphatic link?
MATCH	Prostate carcinoma-discuss the parasites associated.
CHAMP	Round worm-state the clinical features, describe the life cycle linking to diagnosis.
SLAM	*Chylosmastix mesnili*-state its clinical significance

Fishy filaria

POINT	Classify cestodes, trematodes, nematodes. Introduce *Naegleria.fowleri*
SET.	MOA of ivermectin.How is it prescribed?
GAME	Parasites of the lung? Sputum examination is best?
MATCH	Brain cysts/abscesses-discuss the parasites associated.
CHAMP	Hook worm-state the clinical features, describe the life cycle linking to diagnosis.
SLAM	*Cyclospora cayetanensis*-state its clinical significance

Tricky Trichinella

POINT	Explain the term 'dead end host'.Introduce *Ancylostoma brazilensis.*
SET	M.O.A of albendazole or mebendazole.How is it prescribed?
GAME	Hydatid cyst?ANTIGENIC?so what?
MATCH	Burkitt's lymphoma-discuss the parasites associated.
CHAMP	Guinea worm-state the clinical features describe the life cycle linking to diagnosis.
SLAM	*Blastocystis hominis*-state its clinical significance

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