Medical students’ opinions of Peer Assisted Learning using a One Minute Tutorial format within an Obstetrics and Gynaecology rotation

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Abstract

Objective: To study the educational value to medical students of Peer-Assisted Learning (PAL) using a One Minute Tutorial (OMT) within an Obstetrics and Gynaecology rotation.

Design: Qualitative research study was performed in a tertiary level maternity hospital attached to a large Dublin medical school. The anonymous clinical programme feedback forms of 208 medical students following a six-week rotation in Obstetrics and Gynaecology were analysed. Thematic analysis was performed until saturation of data. The primary outcome measure was the students perceived educational value of the educational intervention.

Results: Many students enjoyed the novelty of peer teaching, though some believed the learning benefit was mostly for the presenter. Students reported concerns regarding the validity of information unless confirmed by a faculty member; facilitation by faculty was favourably received. Students chose the topics for discussion; this was useful in both highlighting underemphasised topics and as a tool for revision. The sessions clarified points students were previously unsure of. Students reacted to the rapid, bitesize nature of the presentations. A recommendation for a document to compile notes of presentations was identified. An unexpected theme was that sessions afforded students an opportunity to develop presentation and public speaking skills.

Conclusion: PAL was valued as a learning tool in consolidating knowledge and improving presentation skills. In general, students reported a positive experience of PAL, but potential areas of improvement were highlighted.

Keywords: Peer-assisted learning; One minute tutorials, Learning skills; Students

Introduction

Peer-assisted learning (PAL) is defined as "the development of knowledge and skill through active help and support among status equals or matched companions" (Topping, 1996). Specifically, it involves teaching from peers who are
not professional teachers, who themselves benefit from the process of teaching. Theoretically, it is based on social constructivism and cognitive congruence: by eliminating the relative knowledge gap between traditional teachers and students, it is suggested that peer teachers can enhance the communication of concepts more effectively to their peers than more senior instructors (Lockspeiser, 2006; Graziano, 2011; Loda et al., 2019). A clear benefit to students who partake as teachers in PAL has also been identified, with increased retention relating to topics taught and an increase in academic performance noted (Williams and Reddy, 2016). Students report that PAL provides a positive contribution to their learning experience (Harvey et al., 2020). Further evidence suggests that PAL can promote a "safe" learning environment: this perceived "safety" of the learning environment is thought to encourage learners to construct ties to their underlying knowledge and validate their evolving understanding of a topic (Glynn, 2006). PAL aims to open discussion and provide an opportunity to clarify questions that students may feel unable to ask in another educational setting. Its use as a learning tool in medical education has been demonstrated in a variety of educational formats, including emergency medicine stimulations, anatomy laboratory sessions, objective structured clinical examination and specific skills, such as electrocardiogram interpretation (Friel, 2018).

One-minute tutorials (OMT) are a learning tool in medical education that are developed around the concept of the One-Minute Wonder (Rowlinson, 2014). The idea was developed in Queen Alexandria Hospital, Portsmouth in response to the negative impact made on training by the European Working Time Directive. The developer noted the frequent pauses that are present during the clinical day and decided to take advantage of these as an educational opportunity. The One-Minute Wonders are focused educational displays which aim to impart knowledge within one minute, which were placed around the hospital in areas in which congregation of staff often occurs, such as the break room.

The objective of this study was to analyse the perceived educational value by students of Peer-Assisted Learning sessions conducted in the form of One-Minute Tutorials.

**Methods**

University College Dublin is a medical school within the city of Dublin offering both undergraduate (six year) and graduate (four year) medical programmes. Students complete a mandatory six-week clinical rotation in Obstetrics and Gynaecology within the last two years of the clinical programme, rotating between two hospitals. The National Maternity Hospital (NMH) is one of the hospitals providing Obstetrics and Gynaecology education and is a large stand-alone tertiary level unit with 10,000 births per year. Students spend four weeks within the NMH.

Obstetrics and Gynaecology is taught using a mixture of didactic lectures, bedside tutorials, clinical teaching as part of the clinical team and online tutorials. In April 2017 a new method of teaching was introduced aiming to allow students direct their own learning and identify areas of need, using the principles of PAL.

The One-Minute Tutorial idea was developed from the theories underpinning the One-Minute Wonder poster campaign in that presenters (in our case, students), were given the challenge to prepare a topic to present to their peers within the time limitations of a single minute. The aim of these presentations was to emphasise the most important points to "take home" regarding the topic, and to then open a discussion among those attending the presentation to further their knowledge and understanding. Students were asked to identify a topic of interest or need and then prepare a one-minute tutorial (OMT) to present to their peers with a faculty member facilitating the discussion. This workshop occurred once a week during the six-week rotation and all students were given an opportunity to present.

As part of routine feedback at the end of the rotation, students complete a voluntary feedback form reviewing all the components of the programme; it is not required to comment on all components of the programme. Face to face constructive feedback with faculty is also encouraged. Valid constructive criticism and learning points are used to
design future teaching programmes.

Feedback forms from students attending from April-November 2018 were reviewed by two researchers in July 2020. Feedback was anonymous, with no student identifying factors included in the feedback forms. As qualitative research is viewed through the lens of the researcher, both reviewers independently reviewed their own presumptive themes. Thematic analysis was performed until saturation was reached. Due to the anonymous nature of the feedback and review of educational programme this study was given an exemption by the University College Dublin Research Ethics Committee (LS-20-176-Higgins).

Results/Analysis

Two hundred and eight feedback forms were reviewed. This represents 100% of students attending the rotation in 2018; feedback from students specific for the PAL was provided by 87%.

Nine distinct themes were identified. Regarding PAL, many students reacted to the novelty of peer teaching. Some expressed that there was a discrepancy of benefit between those teaching and those learning. Students reported mistrust regarding the validity of information unless confirmed by a faculty member and appreciated facilitation by faculty. As students chose the topics for discussion, many expressed that they found the sessions useful in both highlighting underemphasised topics and as a tool for revision. The sessions provided an opportunity for the clarification of points students were previously unsure of. The sessions afforded an opportunity to develop presentation and public speaking skills. In terms of the OMT structure to the sessions, many reacted to the brevity of the presentations, both favourably and negatively. A need for a supporting document to compile presentations was recommended.

Students reacted to the novelty of the sessions, with several finding the initiative to be an enjoyable experience, "Exceedingly enjoyable", and fun "Was good fun- made learning more enjoyable". Some appreciated the alternative learning styles adopted by some students in their presentations "Great- particularly when students used non-traditional teaching methods". While several students enjoyed the novelty and uniqueness of the intervention, "Very interesting and good alternative way of learning", some students appeared wary of the sessions as it was an unfamiliar experience, "Didn't know what to expect. Therefore, didn't contribute to PAL. Would do better if given another chance". Some students identified the sessions as unsuitable for their learning style, commenting that it "..probably suits particular studying style".

A discrepancy in benefit between those presenting and those listening to presentations was identified by several students. Students acknowledged that preparing to teach a topic "forced you to really learn a topic when presenting", and that it was a "very fun way of learning your own topic". However, many students conveyed that listening to presentations was not as beneficial as a learning tool, stating that they "learned well for my own presentation but otherwise did not find hugely beneficial", and that the session "was more useful for people presenting as had to research a topic than those listening"; "great benefit for speaker but not much benefit for others".

In terms of reacting to peer presentations, some students found the peer presentations an effective way to learn, "Learnt so much from this. Peers presenting was very effective", and that it was a "Brilliant way to learn- nice to see peers presenting". However, other students conveyed a sense of mistrust in accepting the information provided by fellow students "As a student is delivering a topic, I am less inclined to take notes due to potential inaccuracies". Some expressed that they would prefer to receive information from academic faculty, "Not that useful- better to hear from consultants", in a more traditional method such as a didactic lecture, "Not a fan- would rather have a proper class", "Prefer lecture or case-based learning", or "would prefer to hear tutorials from staff giving brief explanations".

In some cases, the students felt that the success of the session was influenced by the facilitator. Students felt that the
sessions were "very useful as [facilitator] pointed out the most important aspects of the topic at the same time", and that the sessions were "helpful as [facilitator] was able to elaborate on a variety of topics". This enabled some to "retain[ed] lots of small bundles of info from peers explaining and [facilitator] reviewing".

Students found that the PAL sessions were useful, "Very useful for identifying gaps in our knowledge", providing an opportunity to highlight an underemphasised topic, "Very useful to have one-minute summaries on common topics we had not touched on as much", and to revise topics previously covered. Students appreciated the value of determining the topics in order to highlight areas of need "Brilliant idea, helped figure out what you knew well and what needed more study", whether at the start of the clinical rotation "I found these sessions helpful for getting to grips with basics early on" or near the end "Good refresher coming to exam- nice concise way to learn, gets across important points."

Many reported that the sessions allowed for clarification of topics they were uncertain of, "Useful way to get clarification on topics you were not sure about", and to correct previous misunderstandings "Good to enlighten and clarify any misunderstanding about certain topics". Students acknowledged the opportunity to raise questions they had, "Great to get own questions properly answered", and appreciated the environment of the sessions, commenting they were a "Good environment to be able to ask questions in" and provided an "Enjoyable experience and good platform for getting answers to things uncertain about".

Several reported that the sessions provided an opportunity to develop their public speaking, "Good as it forces you to concentrate on one topic and practice public speaking skills", and presentation skills, "Good rapid revision of important topics and opportunity to work on presentation skills". Some students identified the need for the development of this skill, reporting that it was a "Good session- think there should be a focus on how to present and public speak", particularly in terms of their future careers "... practice presentation skills for future".

Students reacted to the rapid nature of the reviews provided in the sessions. Several reacted positively to the One-Minute Tutorial structure for the PAL, commenting they were a "Big fan of bite-size learning" and identifying the structure as a "Good method of covering many topics in short space of time". Some found that the "...brevity of presentations gave useful synopsis of the topics discussed which I found a useful memory trigger", and that the intervention was a "worthwhile exercise- helped provide a snapshot of major topics". However, some students "Found it hard to take much from very short presentations and many in short period of time", commenting that the nature of the presentations lead to students rushing in effort to complete their presentation within the allotted time, "One minute quite short, people rushed so was hard to concentrate".

A recommendation was made as many students expressed a wish for a compilation of presentation slides to assist in their revision, commenting that the sessions were "effective: Could maybe get each student to come up with a "cheat-sheet" of the topic and get it uploaded for everyone", and that it "would be a good idea to get people to compile their notes for distribution".

**Discussion**

Peer-assisted learning is an educational tool that has been increasingly utilised in medical education in recent years. This study highlighted several themes, some of which are echoed in similar studies performed in analysing the tool as an effective learning modality, and some which were specific to this study.

The dynamics of the learning environment are a crucial factor in determining effectiveness of both teaching and learning. In the context of PAL, our research identified the educational tool as an overall enjoyable experience for many students. Several studies have found that PAL provides a relaxed approach to medical education, promoting a perceived "safe" learning environment (Jauregui, 2018), the benefit to which is seen in an increased enjoyment of the learning process (Harvey et al., 2020). The benefits of the enjoyment of learning are seen in a motivation to
attend sessions, encouraged concentration by learners and increased absorption of information (Lucardie, 2014). Accompanying an increased enjoyment, the perceived "safety" of the PAL environment is seen to encourage discourse between peers and lends itself as an opportunity to air concerns and ask questions. Students have acknowledged that PAL provides a "level playing field" in which students are more likely to feel at ease in asking questions (Glynn, 2006). This encourages a more active learning process which studies have indicated as beneficial (Michael, 2006).

While our research indicated that overall the PAL sessions were well received, research has acknowledged that the learning style is not universal in its appeal, and that the success of the intervention is dependent on whether students' personalities or learning styles are compatible with the method (Martin and Edwards, 1998).

Concerns regarding the validity of information were expressed by many students. While mistrust was not a theme commonly encountered in other studies pertaining to PAL within medical education, nearly all the literature reviewed related to student teachers who were recruited on a voluntary basis. In a scoping study on PAL, (Friel, 2018) it was identified that there may be a potential bias in these studies: students who put themselves forward for peer teaching are frequently academically driven individuals who are increasing motivated and willing to take an active role in both their learning and the learning of others. In the sessions analysed within this study, student participation in PAL was a mandatory requirement within the six-week rotation, requiring the students to take on the role of both a peer-teacher and peer-learner. Some degree of resentment due to this may have resulted in this distrust. In veterinary medicine, the hypothesis that students may also be wary of information put forward by their peers was raised (Reid, 2017) as being important in the context of assessment. Medical education is inevitably assessment driven, and students may wish to be taught what faculty deem to be important or "high yield" over topics their peers may put forward. Our research found that students reacted positively to having the responsibility of directing their own learning in choosing the topics they presented and discussed. It should be acknowledged, however, that the OMT format of the session may have subtly influenced this: the limited time nature of student presentations and number of topics covered in the sessions over the weeks meant that a huge range of information was presented. These possible negative aspects may have been potentially limited by the presence of a facilitator in the form of a member of academic faculty who oversaw the sessions. This was viewed positively by students, who acknowledged their role in providing structure to the sessions and ability to clarify points on which the presenters were unsure of. This, however, may also lead to some bias to the feedback: the sessions, while lead by peer teaching, were not exclusively taught by peers, and may have influenced some of the feedback in terms of the effectiveness of the teaching.

A clear discrepancy of benefit was noted between peer teachers and peer mentees, with many students noting that they benefitted most from the process of preparing for and presenting to their peers. There was relatively little feedback received on the efficacy of being taught by peers. This finding is unsurprising and is mirrored in several other studies. This is due to the theory underpinning PAL: that the process of teaching improves the teacher's learning. A study (Koh, 2018) attributes this finding to the fact that teaching is essentially a manifestation of the "testing effect", compelling the teacher to retrieve information previously studied which leads to a deeper retention of information in the long-term. Students are also more likely to spend longer studying in preparing their topic for discussion, leading to a deeper understanding of topics, as acknowledged by our feedback. This result is mirrored in several other studies pertaining to PAL, with a scoping review of 22 studies identifying a positive correlation between student teaching and exam performance (Williams and Reddy, 2016). Another study (Iwata, 2014) also found that peer teachers performed better than non-peer teachers in final exams, but the difference was small and could potentially also be attributed to the teachers underlying academic drive and abilities as the peer teaching was on a voluntary basis.

The benefit of PAL was not exclusively academic, with many students appreciating the opportunity to enhance their
public speaking and presentation skills. It was striking that students identified a need for this in terms of future career and expressed that more of an emphasis should be put on public speaking skills: for many students it might have been their first time presenting to such a group. Studies also identify several other benefits not afforded in other areas of the curriculum (Burgess, 2012), including the development of teamwork and enhancement of communication skills (Saunders, 1998), as well as improved organisational skills and an improvement in confidence (Friel, 2018). Sessions may promote a sense of community among peers as they work towards a common educational goal.

A paucity of research was identified in relation to the One-Minute Wonder / Tutorial format employed by the PAL sessions. The OMW format has been used to educate clinicians on new guidelines (Bray, 2016) but we are unaware of any published work in undergraduate education. In our study, while the brevity of presentations appealed to some students, a proportion of the students viewed the presentations as too brief to convey a topic effectively. While the presentations themselves were short, the structure of the sessions provided an opportunity to then discuss the topic amongst the group, encouraging a collaborative learning experience. The recommendation for compilation of presentations in the format of a note bundle which would be available to all students to aid in their revision was acknowledged.

Strengths of the research performed included the number of students who participated in the study. Although the feedback was voluntary, 87% of the 208 students provided feedback for analysis. Students gave honest anonymous feedback, including both positive and negative points. A recommendation to improve upon the sessions in the form of the compilation and distribution of presentations as notes was given and will be considered in future iterations of the sessions. Limitations of the study relate to the qualitative nature of the research. Feedback to faculty may be biased depending on the facilitator overseeing the sessions

Areas of future research may include further analysis of One-Minute Tutorials as a learning intervention or a qualitative analysis of PAL from learners in order to dive deeper into the themes discussed and to identify new themes.

**Conclusion**

Peer assisted learning, while a relatively novel concept within medical education, has been the topic of much research in recent years. Our study identified several benefits found by students participating in PAL, including both educational and non-educational benefits. The ability to direct one's own learning and the responsibility of preparing a topic to teach to peers was viewed favourably by many. While students found the sessions enjoyable, as afforded by the more relaxed atmosphere than traditional teaching formats, negative feedback pertaining to a degree of mistrust and a discrepancy of benefit between peer-teachers and peer-learners was conveyed. Regarding the OMT format of the sessions, student's reaction was split regarding the brevity of the presentations, with some students valuing the "snapshots" of information in the presentations, and some finding the time-constraints too limiting. Overall, our conclusion from this study is that PAL is a valuable tool within medical education, with further analysis and continued development and utilisation warranted.

**Take Home Messages**

- Peer assisted learning (PAL) is a valuable educational modality, promoting a "safe" learning environment which is well received by students
- PAL has hidden merits beyond the intended scope of education, including the development of public speaking skills and confidence building
Facilitation and support from faculty can be influential upon the success of PAL.

One-minute tutorials are a useful learning tool and their use should be implemented and researched further.

Notes On Contributors

Joy Murphy was a final year medical student when she worked on this study, in a different year to the students whose feedback was reviewed, who has an interest in General Practice and Women's Health. Joy is currently working as a hospital doctor in Ireland.

Mary Higgins is a Consultant Obstetrician and Maternal Fetal Medicine Specialist, currently working in Dublin, with a special interest in medical education. ORCiD: https://orcid.org/0000-0002-6469-5169

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Appendices

None.

Declarations

The author has declared that there are no conflicts of interest.

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Ethics Statement

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