Using Pigeonhole® Live to Elicit Feedback, Questions & Reinforce Learning During Lectures

Dr Gijsbert GROtenbreg & Dr Soon Boon Justin Wong

1. Dept of Microbiology
2. Dept of Biological Sciences
3. Dept of Pathology

Introduction

The pedagogical efficacy of lectures can be improved if the lecturer can gauge when students are confused about a certain learning point, and then make use of this feedback to reiterate the point more effectively during the lecture (Brezis & Cohen, 2004; Cain & Robinson, 2008; Nelson, Hartling, Campbell & Oswald, 2012). This is particularly useful in large classes, where students may choose to remain silent about the questions that they might have for various reasons (e.g. fear of appearing silly, not wanting to waste their peers’ time by raising what they perceive to be trivial or esoteric questions, false modesty, or selfishness).

To overcome such communication barriers, we experimented with using Pigeonhole® Live during medical and life science lectures. This is a web-based question-and-answer (Q&A) platform that allows students to post questions for the lecturer over the internet using Wifi-enabled mobile devices (e.g. smartphones, laptops) or by SMS (see Figure 1A). The process is live, anonymous, and these questions can be projected onto the screen or displayed on web browsers installed on the students’ mobile devices (Figure 1B). Students can also vote the most popular questions to prominence so as to draw the lecturer’s attention to particular topics that they feel require further clarification (Figure 1C).

Benefits of Using Pigeonhole® Live

In terms of its benefits, the interactivity provided by the system mimics the spontaneity and informality of small group teaching, where someone with a question can just put up a hand or ask a question out loud. With Pigeonhole® Live, any student can unobtrusively and anonymously direct a question at the lecturer without interrupting the lecture’s flow, or be waiting to catch the lecturer’s attention in a big lecture venue.

Comparing Pigeonhole® Live with Alternative Q&A Tools

One distinct advantage of Pigeonhole® Live is that it requires no extra hardware such as clickers. Students use their own mobile devices to ask questions. Besides allowing students to direct free-text questions at the lecturer, real-time Q&A tools such as questionSMS and Pigeonhole® Live permit the lecturer to collate responses to poll questions or multiple choice questions (MCQs) that they pose to students. However, with questionSMS, delays in message delivery can mar its performance. On the other hand, we have observed that the response time for Pigeonhole® Live is faster, possibly because questions or responses can be sent over the Wifi network. Unlike questionSMS, Pigeonhole® Live also permits students to vote for their

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most pressing questions, and has a moderator interface which allows the lecturer to exclude unwanted questions from being displayed.

How Pigeonhole® Live Enhances Student Learning

The system creates a virtual dialogue between the lecturer and students, as well as between students themselves, that is not constrained by the size of the group or the venue. It therefore removes communication barriers, as demonstrated by the following examples:

a. Students can seek clarification from the lecturer. When there are many questions displayed with only a limited amount of time available, the lecturer can choose to answer either the questions with the most votes, or questions that underscore important learning points. An example of this is illustrated in Figure 2. In addition to enabling the canvassing for questions during a lecture, Pigeonhole® Live also makes it possible for students to review their learning material (e.g. book chapter, journal article, video recording, sample test paper) before the lecture and pose questions for the lecturer to address during the lecture itself. This feature is particularly useful in helping lecturers identify the key and/or remaining questions when they summarise their lecture material towards the end of a module.

b. It promotes peer-to-peer learning. Pigeonhole® Live also allows participants (both the lecturer and students) to input textual answers/commentary to questions that have been posed in order to supplement verbal answers that were provided during the lecture (Figure 2). Questions posed by their peers on the system can also incentivise students to assess their own understanding of the topic.

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c. It helps to test students’ understanding or consolidate learning. Pigeonhole® Live supports graphical displays of student responses to MCQs or poll questions, as depicted in Figure 3A. This allows the lecturer to assess the extent of understanding within the student pool of the lecture content, and to target the most common (incorrect) answers for clarification. Alternatively, the lecturer can pose open-ended or problem-solving questions that students answer in point form using free-text, as shown in Figures 3B and 3C. These answers can be consolidated or further elaborated by the lecturer to underscore key pedagogical points.

Our Experience with Pigeonhole® Live

It is important to demonstrate one’s commitment to the Pigeonhole® Live platform early in the course in order to encourage students to adopt its use. When we used it during the lectures, the questions kept flowing in because we made the effort of answering as many questions as possible. We also tried to pre-empt selfish behaviour and appealed to the students’ sense of altruism early in the course, asking them to use the system to promote peer learning. The students attracted our attention to particular questions not only by voting them to prominence, but also by posing the same question in different forms,

Figure 2. Questions posed on Pigeonhole® Live.

Peer-to-peer comments contribute to student learning. Students with insight to the question can provide answers. Other comments clarify questions posed previously by other students. These responses suggest that at least some members of the student audience actively monitor the questions posed by their colleagues and are assessing their own ability to answer these questions. Note that the questions are ranked according to the number of votes in the column on the left.
utilising appeals (e.g. “please answer me”, “pick me”) or paralanguage (“ANSWER PLEASE”, [using sound effects] zzzzzzzzz). Providing “Pigeonhole breaks” throughout the lecture also facilitated adoption of Pigeonhole® Live by giving the students time to fire questions to the system and take note of the replies.

Limitations of Pigeonhole® Live

Pigeonhole sessions are created by a system administrator and cannot be altered by the end users themselves. This poses some limits to the level of customisation (e.g. the start- or end- date and time of the session) that one can perform without requiring assistance from the system administrator\(^1\). People accustomed to the flexibility already built into social networking services such as Facebook, Google+ or LinkedIn may find this a bugbear.

A more pertinent limitation we observed was that the system does not give students direct access to the events after the session has ended, even if they come up with additional questions/comments, or if they wish to refer to textual answers/commentary previously submitted by the lecturer or their classmates. Fortunately, Pigeonhole® Live provides the end user with feedback on the system’s usage statistics, and can also generate the full collection of questions raised during past sessions as well as their

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\(^1\) See Technology-enabled Learning for more details.

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Figure 3. Using Pigeonhole® Live to assess understanding or consolidate learning.

A) The students were taught the information that was required to derive the answer to this MCQ, but not the actual answer itself. This MCQ was posed in order to assess whether they could connect the dots by themselves. The class response was kept hidden until the prescribed time was up, and then the results were projected for all to see. Although 75% of students obtained the correct answer, the significant minority that got it wrong benefitted from the lecturer’s subsequent review of the question.

B) An example of an open-ended scenario-based question that was posed in order to consolidate several strands of information that had been covered in the lecture.

C) Some of the responses, and student comments to these responses, that were posted as answers to (B).
corresponding answers/submitted commentary as Excel spreadsheets or PDFs (see Figure 2). The latter data might be shared with the students after the lecture using IVLE, a wiki, Facebook page, blog, or on an online forum site. In this way, previously unanswered or new questions can be disseminated for the benefit of the entire class.

**Student feedback about Pigeonhole® Live**

Despite its limitations, overall student feedback regarding our use of the current version of Pigeonhole® Live has been positive (see Figure 4). Some of the qualitative comments that were collated from students are provided below:

- “The Pigeonhole Live system is really useful”
- “Should try to answer all questions posted on Pigeonhole. If time does not permit, could provide the answers and upload them on IVLE.”
- “Pigeonhole is a good way to ask questions.”
- “Pigeonhole Live is a great idea but perhaps can give us a short break at intervals to type questions and note? Preoccupied with listening and copying down notes from lecture.”
- “No Pigeonhole please, it’s not that useful.”

**Conclusion**

Based on our experience, we consider Pigeonhole® Live an effective means of actively engaging students during lectures. It provides an alternative stream of communication between the lecturer and students, so that learning becomes more interactive and less instructor-centric. The platform opens several additional avenues that allow the lecturer to assess and consolidate student understanding of material covered during the lecture. Pigeonhole® Live also encourages peer learning during lectures by opening a channel of communication among the students that is actually sanctioned by the lecturer. As one of our students remarked enthusiastically, “This is like a class WhatsApp!” With the help of Q&A platforms such as Pigeonhole® Live, mobile devices and social media tools, instead of being viewed as distractions within the classroom, can now be harnessed to promote student-centric instruction.
Endnotes

1. Pigeonhole Live has since updated their platform interface. At the time of publication of this issue of Brief in August/September 2013, the end-user can now set the dates and times when Pigeonhole sessions start and end, e.g. starting sometime before lectures, or extending beyond lectures. This permits the lecturer more flexibility in tailoring their Pigeonhole® Live sessions to engage students.

2. WhatsApp Messenger is a popular proprietary cross-platform instant messaging application for smartphones.

References


About the Authors

Dr. Gijsbert Grotenbreg currently teaches LSM3223 “Immunology”.

Dr Justin Wong currently teaches in the second year course for medical students (MD2140) and module MIC1000 “Infection and Immunity” for nurses.