

control group ($n = 50$) received verbal feedback from instructors about their performance and then completed the self-reflection. Students in the experimental group ($n = 62$) received verbal feedback from instructors, and an emailed link to the patient-perspective video of their performance. After viewing the video, these students completed the self-reflection. Instructors recorded student performance again the following day, and we compared the data collected from instructors on both days. All students were evaluated using anchored 10-point Likert scales assessing 14 areas of performance. The Uniformed Services University of the Health Sciences IRB#1 approved this project.¹

What lessons were learned? Our patient-perspective video activity proved successful, particularly for students whose performance on the first day was below average ($p < 0.05$). The patient-perspective video feedback also proved successful for helping students to evaluate a patient in the correct TCCC sequence, and recognise signs and symptoms of shock, more than verbal feedback and reflection alone ($p < 0.05$). The activity also proved popular with students – they reported higher learning satisfaction with the patient-perspective video feedback than with just verbal feedback alone. Inter-rater variability affected our data collection this year, and further study, after better training of faculty members to ensure more consistent evaluation, would be beneficial. Overall, patient-perspective video feedback is achievable, and it holds promise for learners mastering challenging trauma and communication skills.

Note

1. The opinions expressed in this article are solely the opinions of the authors, and do not represent the official policy or position of the Department of the Air Force, Department of Defense or the US Government.

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Practical histology in tune with the times

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What problems were addressed? Due to a reform of medical studies that led to teaching general his-

tology during the first year of the Bachelor Degree instead of the second, our cohort has doubled. The lack of microscopes and slices for traditional practical sessions, with more than 500 students, convinced us to develop new methods to teach a younger and larger target audience while improving the quality of education with more student-centred strategies.

What was tried? Practical work in histology was taught by a hybrid method combining eLearning modules (integrated to the institutional platform based on Blackboard[®]) and face-to-face sessions. For each e-lesson, students had to complete an interactive module including four activities: video, explorations of histological slices, MCQs (multiple choice questions) and MT (matching test). The video (Camtasia[®]) explained with drawings the characteristics of histological tissues. Exploration of five to seven high-quality scanned slices allowed students to follow routes, indicating structures or cells of interest (Annotelame and Cytomine[®]). A question was asked on each point and detailed feedback (text/picture) was accessible with a single click. Students could also freely explore the whole slice. Besides the routes, students had to pass MCQ tests based on histological pictures by answering correctly 70% of the questions. They received immediate feedback on their performance and the solutions of the tests. Finally, the MT consisted of associating words from the essential vocabulary seen during the activities with relevant structures on unknown slices. The MCQs and the MT correspond to the type of tests used for student assessment in accordance with the pedagogical alignment theory.

Each self-learning period of 2 weeks for each module concluded with face-to-face meetings involving 180 students. The aim was to strengthen student knowledge and verify the achievement of learning outcomes. Split into small groups of eight to nine, students worked on fun exercises with the help of an undergraduate teaching assistant. Some challenges were also proposed. Individual responses to the exercises were sent via tablets or smartphones and summarised graphically in real time (online voting system Socratic[®]). The teacher then made comments for the whole group.

What lessons were learned? The concept has proven successful because we managed to conduct high-quality practical sessions in histology for a large population (more than 500 students). Moreover, the use of interactive electronic technology, peer learning and entertaining face-to-face sessions has captivated this young population of students. A satisfaction survey showed that this method is effective in acquiring essential knowledge and 90% of the 254 respondents considered it stimulating.

Examination results are comparable to those obtained by older students (in the second year) taught with traditional methods (average of 10.7/20 instead of 11 over the last 2 years). This rate is very satisfactory, knowing that in other areas of the morphological domain such as anatomy, the average of these first-year students reached only 9.4/20.

In conclusion, this hybrid teaching method is innovative, efficient for large groups and trendy. It focuses on students' interests and strengthens their commitment to learning, which is an inseparable component of increased motivation according to the theory of Viau.¹

REFERENCE

- 1 Viau R, Louis R. Vers une meilleure compréhension de la dynamique motivationnelle des étudiants en contexte scolaire. *Can J Educ* 1997;**22**:144–57.

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Feedback just in time: group-ePortfolios for PBL

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What problems were addressed? Problem-based learning (PBL) is one of the key learner-centred teaching strategies in medical curricula. However, students of our curriculum often report challenges with regards to feedback they receive from PBL tutors on assignments they complete during their self-study time. Furthermore, tutors are looking for an instructional design to optimise the transition from self-study time to PBL tutorials. We address the following research questions. (i) Can we ensure that all students are prepared for PBL tutorials? (ii) Can an innovative feedback process during self-study time contribute to an improved structuring of PBL tutorials?

What was tried? After implementing a PBL cycle with a 1-week self-study period, we introduced a blended-learning scenario that fits into the PBL process by using Just-in-Time Teaching (JiTt).¹ The novel concept was piloted over 7 weeks with one PBL group (11 students) and two tutors.

In JiTT students complete assignments and upload them to the web.¹ In our case these were tasks students defined during PBL tutorials. Tutors

in return look at the assignments 'just-in-time' before tutorials to focus on students' needs in an upcoming tutorial. For our JiTT scenario we used a group portfolio within the ePortfolio platform *mahara* (<https://mahara.org/>). We built pages in the group portfolio for each problem, where students could upload their findings and discuss them in terms of peer feedback during their self-studies. They were also able to ask questions in the group portfolio that could then be answered by tutors and peers during tutorials.

As well as JiTT, tutors had a look at the group portfolio shortly before the tutorial and left feedback on group findings. At the end of the pilot we conducted a focus group analysis with 10 of the students who tested the method.

What lessons were learned? We were able to successfully integrate the group portfolio into our PBL-cycle. Students and tutors strongly accepted the tool and used it until the end of the term.

Students felt that JiTT enriched the PBL process. They liked the idea of asking questions in the group portfolio that could be answered or discussed during tutorials. All students were prepared for tutorials during the use of the group portfolio. Therefore tutors were able to start the tutorial with questions and problems, which optimised the transition between self-study time and PBL sessions.

Focus group results indicated that feedback by tutors was too vague. For students an adequate feedback by tutors in PBL would include (i) weighting of students' findings, (ii) recommendations for upcoming assignments, (iii) additional information and (iv) feedback on individual findings. It is questionable whether students will find feedback satisfying if no additional information is provided by the tutor to sustain the philosophy of self-directed learning. Students did not use the option of peer feedback.

Finally, JiTT worked effectively in two out of six PBL cases that were tried within our group-portfolio pilot. Further efforts are needed to adapt the feedback guidelines and process to students' needs for PBL tutorials.

REFERENCE

- 1 Novak GM, Patterson ET, Gavrin AD, Christian W *Just-In-Time Teaching: Blending Active Learning with Web Technology*. Upper Saddle River: Prentice-Hall 1999.

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