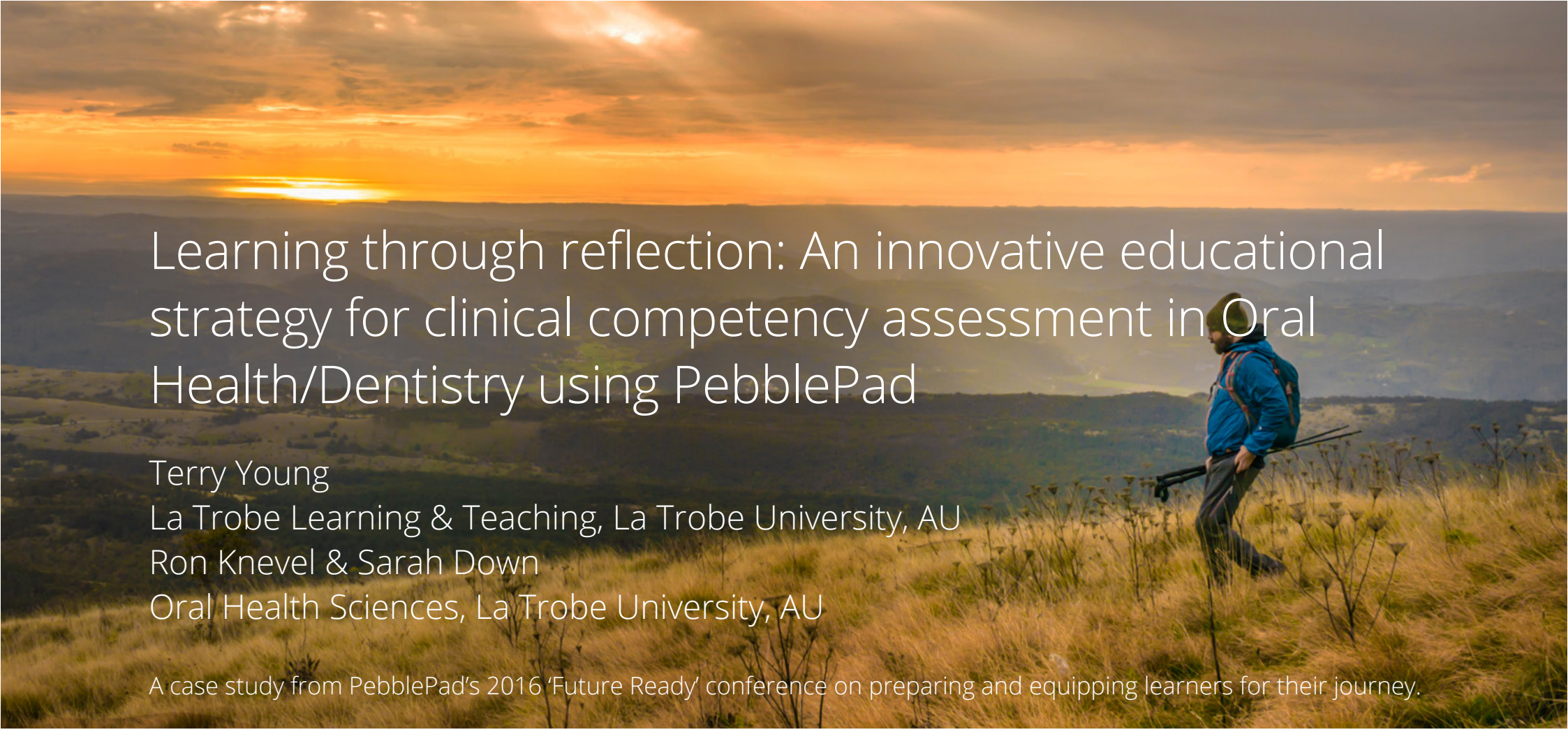

Learning through reflection: An innovative educational strategy for clinical competency assessment in Oral Health/Dentistry using PebblePad

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A case study from PebblePad's 2016 'Future Ready' conference on preparing and equipping learners for their journey.

The Context

Within the Oral Health and Dentistry teaching program, clinical education and assessment is critical. Student competencies must be assessed and validated as a requirement for graduate professional registration. The program aims to support students to develop ongoing reflective practice to maintain professional competence and support certification of competence. This process stimulates goal setting for improvement of clinical and critical thinking skills.

A key feature of the teaching program is to provide useful feedback for students and teaching staff. This entails developing a 360 degree feedback framework which includes peer review, student feedback, clinical educator feedback, placement agency feedback and patient feedback. Analysis of student feedback data will facilitate benchmarking of students, real time monitoring of progression in clinic, and inform the teaching program to best support weaker students. Analysis of feedback data from clinical educators will allow us to compare and calibrate the teaching to be more consistent for students. We plan to analyse the rich data sets collected to inform our future teaching programs and support a better student learning experience.

The Problem

Students are currently assessed using paper-based criteria lists, assessment sheets, and reflective diaries. Students must manage paper-based folders, with staff access dependent on asking students for paper-based forms. The current system does not promote student reflection in 'real time' or support timely and constructive feedback. There is little opportunity for communication between academics, clinical educators, and students, or moderation of feedback across geographically dispersed sites. The system is labour intensive, costly and does not maximise opportunities for strengthened partnerships between students, educators, and university academics, or progressive feedback to improve student learning.

The Approach

The key objectives were to move the clinical assessments online to a PebblePad workbook. This would facilitate online monitoring of student progression, 'real-time' reflection and feedback between student and educator, review and sharing of feedback between colleagues (internal and external academics and clinical educators), and moderation of assessment and feedback performance by clinical educators at different sites.

An initial pilot was run using a small group of students over the summer (Aus) of 2015. The clinical assessment process was as follows:

- Student would see patient and create a patient record
- Educator would review patient record and provide written feedback
- Student would nominate to be evaluated under Qualifier or Assessment Criteria

Effective training of students and Clinical Educators in this new online process was critical to instil confidence and trust, especially when moving from an analogue paper-based system to an online digital framework.

The initial prototype workbook included a reflective journal, patient record templates which were stored in patient Collections, and Qualifier and Assessment templates which were also stored in corresponding Collections. The design of the workbook was complex and was strongly influenced by the physical attributes and sequence of the clinical assessment process in the clinical lab. The evaluation of this pilot indicated that the anticipated outcomes were being met to a degree, but that the processes undertaken by students and educators were cumbersome, inflexible and prone to error. There were strong indicators that this method was not scalable and not sustainable.

The redesign of the next workbook required a total rethink and fresh approach to address the following identified issues with the Prototype 1 Workbook:

- Students were required to generate Qualifiers or Assessments and these were not attached to patient records.
- Collections were inaccurate due to human error.
- Educators needed to quickly access latest records and an unsustainable method was adopted to facilitate this.
- Evaluation included far too many tick boxes and was time intensive.

New Approach

We reviewed the clinical assessment process and clearly articulated the steps, including the rationale and intended outcomes for each step. This review gave us new insight into the desired outcomes and resulted in the following key design changes to Prototype 2 Workbook:

- Qualifier and Assessment forms were no longer generated by students but reconfigured as Feedback Templates for Assessors to initiate and complete.
- Errors in Collections were eliminated by setting search criteria with cascaded Tags in patient records templates.
- The need for assessors to check many tick boxes was considerably reduced by taking the reverse approach of indicating only those criteria not met.

This second prototype saw major improvements in usability, sustainability and time efficiencies, and a reduction in errors. The key change was the introduction of the Feedback Templates instead of the Qualifier and Assessment forms. Additionally, the reporting functions associated with Feedback Templates allow us to compare and contrast the assessment of criteria across the individual assessors, information that was previously not easy to obtain.

The new workbook is being used in 2016 with 54 students, 17 Clinical Educators and over 720 patients.

The Results

The implementation resulted in establishing a 360 degree feedback framework. Clinical educators were aware of transparency of feedback and improved the quality of their feedback. They were encouraged to write feedback during the sessions (as they went) and not at the end of the treatment. This resulted in immediate meaningful open communication. 360 degree feedback gave a realistic and objective overview of the student's progress for all concerned.

An effective reflective framework was established. The feedback obtained from Clinical Educators about the new system indicated that they appreciated the information from the students. They gained insight into individual student learning and understanding through the reflective diaries. They were enthusiastic about the radiographic portfolio and progression reports.

Dialogue between clinical teachers and between academics and clinical teachers improved. The online records provided an open space to refer, discuss and compare individual and group performance, which had been difficult with a paper-based system. This lead to an improvement in the tracking and monitoring of students. Clinical educators had the ability to monitor clinic sessions in real time, and provide feedback on completion of clinical patient records.

Students were very positive about using this technology from the beginning. Once introduced to the framework, students accepted the technology using both PCs and mobile devices. Students liked the feedback videos and demonstrations that were attached to specific logbook templates. This enthusiasm resulted in requests from students to add more functionality to PebblePad and requests for it to be used for other assignment submissions.

We have learnt that this implementation has resulted in better support of student learning using an effective 360 degree feedback and reflection framework.

Lessons Learned

Academic Perspective

The transparency of the system exposed omissions in clinical educators' adherence to specific practical guidelines. This was often argued as due to 'lack of time'. However, in the analogue paper-based system the same elements were required but were not easily monitored. This new system now provides insight into the degree of completion of clinical assessment feedback by the clinical educators. We are now able to plan additional training (didactical) or profession specific workshops to improve our level of teaching (calibration).

Clinical educator engagement

Initially, hands-on support for the clinical educators on location is necessary. They need to feel supported with a radically new system. This should include the availability of a local 'trouble shooter' to help the teachers to embrace the system.

At the beginning of the implementation, the clinical educators should be included in a discussion of anticipated workflow. Their feedback should be encouraged and embraced where possible. This facilitates stakeholder ownership and improves the likelihood of success and engagement.

Student Engagement

We found students adopted the system easily. This may have been a consequence of an effective student introduction and an opportunity to have hands-on practice. Their learning was supported by contextual videos which students also used later for reference.

Overview

- This is a time consuming process which requires input from every stakeholder at every stage. It is important to demonstrate that their feedback and issues are taken seriously. Keep them informed about any changes made to the system or the procedures based on their feedback.

- Testing at clinical sites is critical. IT infrastructure should work flawlessly – we had issues with wifi access resulting in initial frustration for all users.
- A review and evaluation of this initial implementation is important in order to improve the efficiencies and quality of output.
- All stakeholders were highly engaged as we identified the value of this framework to support:
  - individual academic staff teaching objectives,
  - clinical educator teaching needs, and
  - student learning progress.

Development Perspective

- Think 'different'. It is easy to apply previous designs to a new situation. PebblePad has many functions and there are multiple ways to achieve the same end. Some methods are more elegant than others. These decisions are informed by Process Analysis.
- The Process Analysis entails carefully articulating process steps, including the physical user requirements, and clearly identifying the rationale and intended outcomes. This analysis will inform and influence the PebblePad design and user experience.
  - How will the student interact, will it be logical and valued?
  - How will the Assessors evaluate in the the most efficient manner possible?
  - How will academic coordinators monitor the assessments?
  - Are the reports meaningful and is the data easy to interrogate?
- Academic Coordinators must own the project and implementation. Invest in the partnership and ensure client ownership. Expect low confidence at first and encourage brave ideas. Practical design will rule in the end.

Summary

Overall this implementation has far exceeded our original plans of simply replacing a paper-based system. It has enabled us to engage all stakeholders in the teaching and learning process. The open nature of the records has made all users far more accountable for the records, reflections and feedback. The rich data sets derived are opportunities to inform teaching practice and verify student cohort performance. All stakeholders have been inspired to pursue further possibilities with PebblePad.

In Brief – Showcasing 'Future Readiness' with PebblePad

- Students can effectively record and reflect on experience in a clinical setting and receive real-time feedback. This identifies competencies they have gained and helps them plan and address weaknesses informed by effective feedback.
- Students have evidence of progress toward competency of professional standards. These are records of their learning journey with personal reflections and valid assessor insight of their performance.

- Students gain confidence that the feedback is valid, of a peer reviewed standard and informed by quality assurance mechanisms.
- The 360 degree feedback option prepares graduates and employees for a changing and ever more competitive world. They can evaluate their professional profile/identity based on information and feedback from all their professional relationships (patients, colleagues, employers and other organisations).