The introduction of an online portfolio system in a medical school: what can activity theory tell us?

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In this paper we discuss innovations in the personal and professional development (PPD) curriculum that were introduced at a medical school in a major metropolitan university in Sydney, Australia. The review of the PPD curriculum involved the development of new content as well as the exploration of technologies that could be used to underpin the various collaborative, self-directed and reflective learning activities of the new course. An online portfolio system (PebblePad) was selected as the technological platform to deliver the new curriculum. Student feedback relating to the new technology has been critical and activity theory (AT) is used to broaden our understanding of the wider cultural forces - what we call the 'negative discourse of PPD' - that can potentially shape attitudes to technology and learning in the PPD component of a medical degree.

Keywords: Activity theory, PebblePad, professional and personal development, curriculum, online portfolios, medical education.

Setting the scene

The University of Western Sydney School of Medicine (UWSSoM), established in 2007, is one of the newest Australian medical schools. The medical degree is a five year course with mostly domestic students ranging in age from 18 to the mid-40s although most of the students are recent high-school graduates. There is an equitable gender balance across all five years of the student cohort. During the first two years of the course, students engage in problem-based learning tutorials based at the university and are embedded in the clinical environment for the remainder of the course. As is the case with other medical schools in Australia, UWSSoM is required by the Australian Medical Council (AMC) to implement a PPD curriculum. The PPD theme is one of the UWSSoM's four major curricular pillars and aims to promote a bio-psychosocial model of medical care and to encourage students to reflect on, analyse and critically question how their professional identity is being shaped during medical school and beyond. However, despite the requirement and encouragement for curriculum reform from the regulatory bodies, we have found, similar to many other medical schools, that implementing a professionalism curriculum in the UWSSoM, has and continues to be, highly problematic.

The negative discourse of PPD in medical schools

The medical school curriculum is dominated by the scientific paradigm which exerts a powerful influence on students' conceptualisation of what medicine is and the formation of their professional identity (Waldstein, Neumann, Drossman, & Novack, 2001). The PPD curriculum theme offers another perspective to science,

emphasising the personal, the subjective and the socio-cultural dimensions of medicine. Frequently denigrated as "soft" and "subjective," PPD struggles for legitimacy in the medical curriculum not only amongst students but also the staff of the medical school community. We call this the *negative discourse of PPD*.

The development of the new PPD curriculum

Two years ago, the curriculum design team took over the stewardship of the PPD theme for the first and second years of the course. Aiming to overcome student negativity the team undertook significant curriculum reform based on feedback from both students and tutors. As a result of the redesign process, the curriculum is now delivered via fortnightly tutorials during which students are encouraged to engage in discussions about philosophical, ethical, legal and political issues relevant to the practice of medicine. The tutors' role is to facilitate student exploration and discussion of the topics rather than to act as content experts. The assessment takes a variety of formats including reflections, research essays, class presentations and creative responses. The new curriculum also reflects a change from a summative approach to assessment to semester-long progressive formative assessment.

A key obstacle, however, to increasing the emphasis on formative assessment is the learning management system of the University of Western Sydney (UWS). The system does not expedite delivery of frequent and continuous feedback from tutors to students so that students' work can evolve. Nor does it facilitate the provision of peer feedback or provide students with effective tools to work collaboratively on a joint project. As a result, the curriculum was not able to provide students with the opportunity for integrating their self-directed, reflective and collaborative learning practices. The lack of this capacity prompted the search for a delivery platform that would be able to provide these feedback features. The team's interest in an online portfolio system (PebblePad) coincided with the university's interest in the evaluation of PebblePad and this system was subsequently adopted to deliver and implement the PPD curriculum.

As part of the introduction of the new technology extensive staff development sessions were held before its introduction where tutors were introduced to PebblePad and the curriculum. The transition to the new delivery platform, however, was not a smooth one and several issues were encountered. These issues are identified below.

Student feedback

During the course of the first semester of its introduction feedback came in two forms. Anecdotal feedback was provided to us via the tutors and the required online survey for the university's evaluation of PebblePad, which included questions on its support and ease of use, reinforced the nature of the anecdotal feedback that we received. A summary of the survey and informal feedback is provided below.

- The interface was unintuitive and overly complex.
- Navigational steps to complete tasks such as getting templates were confusing - this confusion also created complexity for tutors.
- The value and utility of PebbePad were repeatedly questioned.
- The iPad was unable to render all features of PebblePad (all first year UWS students were given iPads).

These issues, allied with the perception from students that PPD is a soft subject in the context of a medical degree, prompted us to explore theoretical frameworks that might help us to interpret this feedback. Activity theory (Kaptelinin & Nardi, 2006) was selected as a framework that might provide us with the conceptual tools to combine an analysis of the technological issues arising from the use of the PebblePad with the broader discourse of the place of PPD within a medical curriculum.

Analysis of PebblePad in the PPD curriculum with activity theory

Although AT has undergone various iterations since Vygotksy's early work in learning and psychology (Bakhurst, 2009; DeVane & Squire, 2012), the core idea of AT is that the basic unit of analysis, activity, takes place in a complex environment of interrelated layers through which activity is constituted and mediated. In 2nd generation AT (DeVane & Squire, 2012) these layers are schematically represented in *figure 1*.

AT has been adopted as a conceptual framework to aid in the analysis of complex domains such as schools (Yamagata-Lynch, 2003) and hospitals (Engeström, 2001). Universities are similarly complex entities and the

introduction of new technology into a contested component of a medical degree raises questions not only about the characteristics of the technology itself but the social and cultural layers that mediate its use. With this mind, we have used AT to identify the following elements of the system that we are currently investigating.

Year 1 and year 2 students are identified as the subjects, their participation in the PPD curriculum as the object and intended outcomes consist of the development of professional identity. Rules of the activity system include the fact that students need to conform to assessment rubrics in order to successfully pass PPD and the fact that they need to study PPD at all is determined by the institutionally-imposed rule from the AMC.

With the division of labour, several people were identified as central to the implementation of the new curriculum and the community consists of organisational units (university) as well as specific people (technical help at PebblePad) that contributed to the new curriculum but were not central to its production.

Following Daniels (Daniels, 2004) the discourse that we have introduced as a *mediating artefact* provides a further level of complexity to the model. In future research we intend to use AT to examine how this discourse has been transformed, reinforced or contested during the introduction of new curriculum and new technology into the PPD programme.

A detailed representation of activity model is provided in *figure 1*.

Figure 1: Detailed description of the PPD curriculum and delivery platform using AT
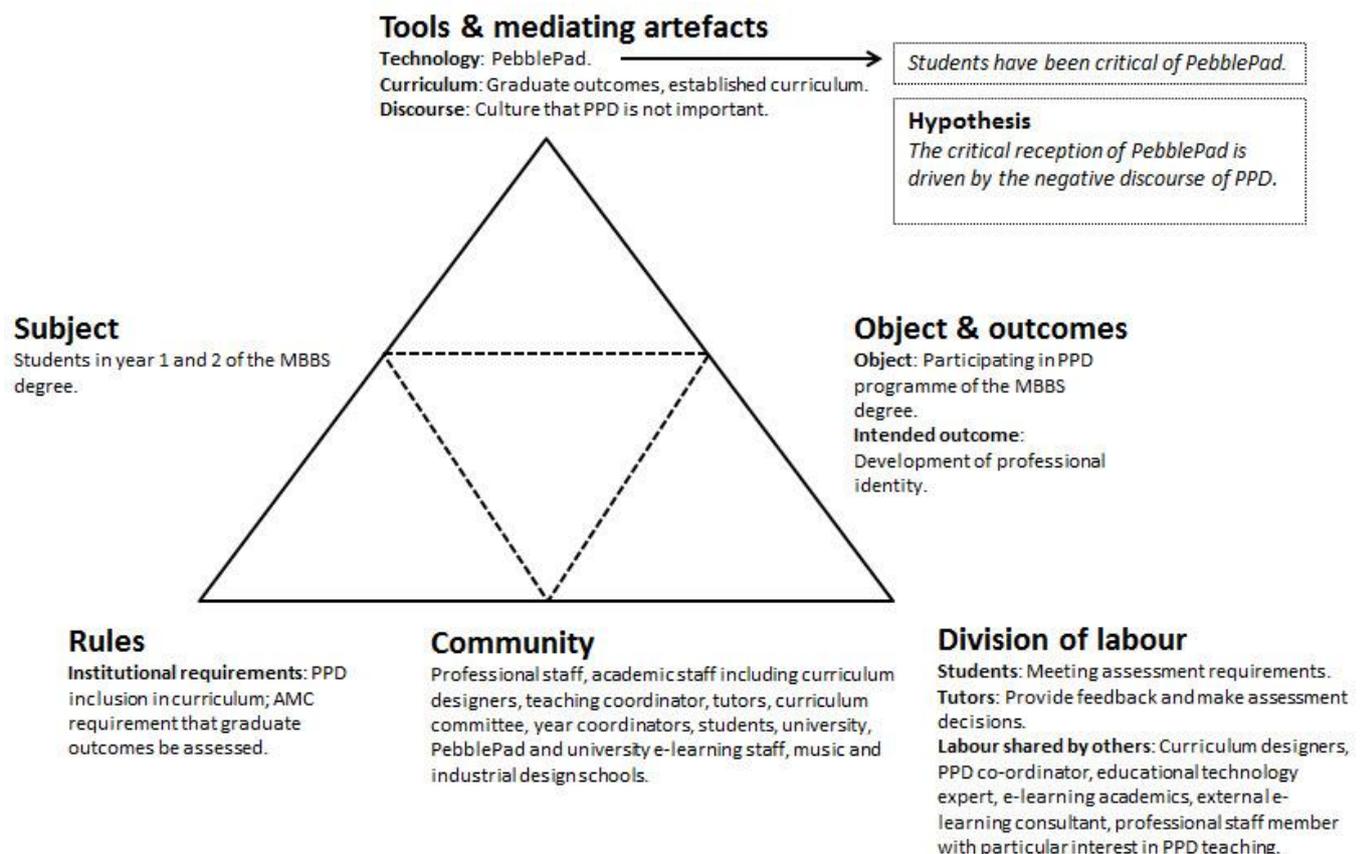
AT has benefited us in helping frame the adoption of introduction of technology in the context of PPD. Specifically, it has provided a framework which suggests we should consider how a discourse might (negatively) impact on how successfully technology is adopted. As is clear from *figure 1*, however, there are factors other than a discourse layer that may need to be considered in evaluating the adoption and integration of new technology in the present context. For example, in the division of labour as it relates to learning activities, tutors are required to provide ongoing, formative feedback throughout the life of an activity. If feedback is not provided, the pedagogical intent behind learning activities is unlikely to be met and this might have an impact

on the value that students place on their use of a novel and complicated application. Further dimensions in the division of labour include technical and administrative components as well as support with online pedagogies from various staff members. In the absence of this level of support, it would be difficult to meet the institutional requirements of the provision of a PPD curriculum as well as the pedagogical objectives inscribed in the PPD curriculum.

Discussion

The student feedback that we have received about PebblePad has been critical and it is clear that students did not embrace the system in the way that was originally intended. It would also seem that the original educational outcomes of the new PPD curriculum have not been entirely met. It is not evident, however, why this is the case. Is student resistance to PebblePad purely a function of technological parameters (interface, usability etc.) or does a complex relationship exist between technology and the negative discourse of PPD? Other factors that mitigate the successful uptake of new technologies by students in a higher education context have also been suggested (Kennedy et al., 2009). Some of these are contextual and specific to a particular discipline - time poor medical students, for example, are only likely to spend time with technologies that are perceived to be useful to their studies - while others relate more to the varying levels of interest, knowledge and ability that students display with particular technologies. In future research it will be important to balance contextual factors such as these against our central hypothesis.

Conclusion

Our analysis of the introduction of PebblePad into the PPD component of the UWSSoM medical degree has been illuminating and the critical reception of the new technology has exposed issues with PebblePad's unorthodox interface. Our adoption of AT as a tool to explore the complex relationship between technology and the factors influencing its adoption led us to pose questions about the introduction of new technology (PebblePad) and the educational framework through which it is mediated, in our case, the PPD medical curriculum. The exploration of the links between the use and introduction of technology and the negative discourse of PPD will inform the direction of our future research.

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