

Aligning the use of portfolios with digital badging

While the place of portfolios in medical training is established, there are limits to their use. This article discusses the potential use of digital badges to complement portfolios, as these provide a transparent overview of a learner's level of competence.

Portfolios have been cemented in medical training for several years. While they serve as a record of knowledge, skills and behaviours their value is limited by both learner and teacher engagement. This commentary provides an insight into the potential use of digital badging which helps to award learners for their progress. In addition digital badges provide a more transparent overview into a learner's level of competence which may serve to satisfy patients of a doctor's fitness to practise.

Portfolios

In one sense the learning process can be described in a relatively straightforward way. Students are provided with resources and engage in activities in order to achieve intended learning outcomes. Students are then assessed in order to determine whether they have in fact met the intended learning outcomes. Portfolios add an additional dimension to the learning process through introducing a meta-cognitive element whereby students reflect on the process of learning.

In terms of introducing a reflective element into learning, the use of portfolios aligns with the theoretical principle of experiential learning first described by Kolb (1984). In Kolb's model, learning is a cyclical process of experiencing, reflecting, thinking and doing. In this context portfolios provide a space for students to capture their reflections. Whether digital or physical, the portfolio then provides stu-

dents with a 'permanent' and ongoing record of their reflections on their learning (Endacott et al, 2004).

The importance of reflecting on learning has been frequently noted in the literature, particularly in the work of Schön (Sandars, 2009). Here the distinction between 'reflecting in action' and 'reflecting on action' is important. When students are reflecting in action they are reflecting in the moment in terms of what is going on. When students are reflecting on action they are taking a step back to think about what happened and what they might do differently the next time. This article is concerned with reflecting on action. This sort of reflection is important as the ability to reflect on a particular competency and subsequent learning enables students to determine appropriate learning paths in the future. For example, a student who is able to identify a weakness around a particular competency can establish mastery of the competency as a future learning goal.

Currently the use of portfolios in a summative sense is not well documented and few studies exist in the literature. One example from Davis et al (2001) documents the introduction of portfolio assessment in medical students' final examinations. Conclusions drawn included the need for strong staff-led support for this model along with largely positive feedback from the students. Furthermore this approach to assessment was deemed both valid and reliable, with the added ability of being able to assess attributes not easily assessed via traditional methods such as examination. This has obvious implications for assessing an individual's fitness to practise.

In addition to providing for student reflection, the use of portfolios has the added advantage of enabling teachers to conduct an ongoing review in order to identify subject areas where students consistently struggle. While this can be

achieved by, for example, reviewing summative assessments, the review of portfolios allows the teacher to gain an insight into the thought processes that lie behind students' challenges with particular subject areas. Teachers are then better able to address the issue because they can see how their students are thinking.

From a trainee's perspective, portfolios comprise a record of knowledge, skills and behaviours including the mini clinical evaluation exercise or case-based discussion. These assessments are primarily led by senior staff and provide an equivalent demonstration of continued professional development that is required following completion of training. With the recent introduction of revalidation, doctors of all grades will be required to maintain such portfolios (Starke, 2012).

The use of portfolios in fact extends beyond reflection, learning and assessment. Portfolios are currently being used in the medical field to assist in the job selection process. In the corresponding author's experience, admission into core medical training was centred on a 10-minute portfolio station which was assessed in depth and required reflection on particular learning events that had been logged.

Furthermore the paradigm of competency recording is changing. Educationalists have realized that the current model relies on trainees ticking the box for a particular competency on a once only basis. However, seeing a patient with chest pain or shortness of breath on one occasion does not necessarily lead to competency. As a result, current training is being reformed to ensure not only competency but also entrustment through professional activities, with the aim of a trainee being deemed entrusted to perform an activity without senior support. In the USA entrustment activities are now a prerequisite for exiting students entering residency (Greenberg, 2014).

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Work by Driessen et al (2005, 2008) notes that successful portfolio reflection is dependent on coaching, portfolio structure and guidelines, relevant experience and materials as well as summative assessment. In addition, adequate teacher capacity for coaching and assessment is an essential prerequisite for the successful use of portfolios. This means that there is no 'quick win' with portfolios, rather portfolios must be carefully integrated into the curriculum, and students and teachers must be supported in using them. In the first instance this is a matter of understanding how to maximize the benefits of the portfolio for teaching and learning. If an electronic portfolio is used then training in the use of the appropriate software will also be required.

Digital badges

We have seen the potential of portfolios as a record of learning and as a vehicle for reflection on action. With the rise of digital badging there is the potential to augment portfolios with badges that evidence ongoing learning.

A digital badge is an online demonstration of an achievement related to the acquisition of knowledge and/or the mastery of a particular skill. The badges are publicly available through an online portfolio, allowing for ease of access to an individual's accreditation. Badge-based activity has been recommended as a means to:

- Incentivize learners to engage in positive learning behaviours
- Identify progress in learning and content trajectories
- Signify and credential engagement, learning and achievement (Gibson et al, 2015).

Furthermore digital badges contain a range of meta-data including the:

- Issuer
- Standards achieved and certified
- Activities undertaken, artefacts created and situations experienced
- Quality of the experiences, products and performances (Gibson et al, 2015).

The concept of award recognition through badges is not new, but the electronic form of badges has now emerged as a result of the ubiquitous rise in technology. In terms of modern day badging,

Wikipedia and Barnstars offer badges to contributors for their hard work and diligence (Wikipedia, 2015).

Numerous online systems exist to facilitate the badging process. One particularly highly regarded platform is the Open Badges system (<http://openbadges.org/>) by Mozilla which provides free software and an open technical standard that simplifies the badging process. Badging has given rise to the new term 'skill knitting' which refers to accumulating badges for different competencies from a variety of different sources. Skill knitting is valuable in terms of evidencing progression when several skills have been gained from an array of institutions. Finally, the fact that badges are publicly evidenced will require a shift in the evidential base towards social media and networking platforms.

While badging has potential value for the learning process and for ongoing professional development there are potential negative aspects to the badging process. Examples include résumé overload, added pressures on employers to assess true badge merit, and a view of badges as a commodity with students focusing on badge pursuit as opposed to diving into an assignment out of curiosity (Young, 2012). However, these are all issues which can be addressed if learners understand the value of the badging process. First, learners need to make judicious use of badges for their résumé through pursuing and including only those badges that are really important in terms of their learning and career path. The worth of any particular badge rests on the reputation of the institution that awarded the badge and employers already have an understanding of the relative status of the institutions from which students graduate. Finally, the issue of students pursuing badges rather than engaging in learning can be addressed through an appropriate learning design which ensures that students are engaged for the sake of learning and not solely for the acquisition of a badge.

The learning opportunities opened up by badging help to address potential challenges. For example, a certificate is traditionally awarded for the completion of a substantive body of work. In other words the certificate is an all or nothing affair – one either receives a certificate or does not.

With the introduction of badges students can obtain badges within a certificate course as they acquire knowledge and skills in particular areas. For example, a student taking an introduction to psychology course might only be interested in the workings of memory and the learning process. This student could focus on the relevant modules and work towards earning the related badges. The same student could then enrol in additional courses, again with the sole aim of acquiring knowledge in a particular area. Further badges might be earned and 'knitted together' in an online portfolio. There is already a substantive movement in this area, although the authors recognize that it is still early days with the ePortfolio and badging movement (Zomick, 2013).

Medical education: do badges have a role?

The most important question is whether digital badges have a role in the use of portfolios in medical education. The University of Michigan Medical School introduced a digital badging initiative in September 2014 for several classes offered by the Office of Research, with a digital badge providing evidence that individuals had taken the appropriate steps to accomplish new career competency enhancement (University of Michigan Medical School, 2015). In addition, the Boston University School of Medicine (2015) provides digital badges for participants of their teaching and learning programme. These pilot initiatives are novel and formal research outcomes are yet to be reported.

Although formal research into badging in medical education is lacking, we can still ask some sensible questions. The key issue concerns the benefit of introducing badging into medical education. There are a range of possibilities here (Finkelstein et al, 2013). First badging has the potential to reinforce learning engagement, motivation and progress through the medical degree. Second, badging can provide evidence of learning at a more granular level. For example, badging could capture 'extra-curricular' learning that is nonetheless important in the learning process. Badging is a much more portable and visible way for students to evidence their learning with any individual or organization being

able to access a student's badges online. If we think of badging in terms of 'micro-credentialing' then badging provides a narrative of the student's education over time. For example, digital badges could support the introduction of entrustable professional activities, through providing a visible means of demonstrating the step-wise progression to reach entrustment.

Conclusions

The authors believe that there is potential value in digital badging but the use of digital badges would require a revised perspective on the medical curriculum. In this context digital badging would be used for 'micro-credentials' which would provide a public and ongoing record of acquisition of knowledge and skills over time. In this scenario students would need to take responsibility for weaving together their credentials in a way that would show a coherent learning journey beyond the tra-

ditional journey through a medical programme. Badging could provide the same benefits for the continuing professional development of health professionals although the same caveats would apply. Health professionals would need to weave together their own story of their learning in a meaningful way. **BJHM**

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KEY POINTS

- Portfolios allows learners to reflect on their learning and provide evidence of their knowledge, skills and behaviours.
- Badges serve as a form of micro-credentialing, awarding learners as they gain competence.
- Merging portfolios with badges can serve to incentivize learners to better engage with the process as a whole. This is particularly useful in view of the move towards entrustment and a desire to demonstrate to patients a doctor's fitness to practise.

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