A PhD should not look like it's fun: an actor-network theory analysis of digital badges

Inger Mewburn

Australian National University

Inger Mewburn is the director of research training at the Australian National University and the managing editor of the Thesis Whisperer blog. She has an interest in educational technology and research student experience. inger.mewburn@anu.edu.au

Abstract

Do learners really want to engage with digital badges? This paper features a case study of the implementation of digital badges in the non-compulsory coursework within a PhD program at the Australian National University. It was expected that learners would experience the digital badges as motivators for learning and participation, based on an analysis of the existing literature, but the evaluation - which consisted of survey and focus group data as well as observations of interactions on social media platforms – showed that badges did not perform the roles expected. This failure case is used to develop a theory of badge desirability, using tools and concepts from actor network theory. Analysis of this case shows us the degree of complexity around how digital badges come to have symbolic value (or not). It was shown that what makes a badge desirable or not to a learner is complex and we should not assume that learners will always see badges in the same way. This paper will help practitioners and technologists think about the design of badge systems and will add nuance to the current discussions about when and where to use badges for educational purposes.

Digital badges in research education

Digital badges are often described as a 'disruptive technology' (Carlson & Blumenstyk, 2012), which has the potential to make current systems of education become more open and accessible (Glover, 2013). A digital badge is simply an image file with 'metadata' attached to it. Gibson et. al (2013) outline various forms of metadata that can be included, such as the issuer, standards achieved, activities undertaken, artefacts created and situations experienced. This metadata can take a variety of forms such as text, photographs and links to other objects online. There has been much excitement about the potential of badges in education settings, although some have raised ethical and privacy considerations (Willis, 2015). Ahn et.al. (2014) outlines three uses of digital badges in education: as a

motivator of behaviour, a pedagogical tool and as a signifier that might link with opportunities, both economic and social. Digital badges could be used to replace our standard representations of learning - the testamur and the transcript – with a rich information objects that represent 'chunks' of learning. By breaking the learning experiences and achievements into discrete steps digital badges have the potential to make what Sharples et. al. (2012) calls a 'DIY university'.

While in theory a whole collection of badges could 'add up' to a testamur, in practice the implementation of digital badges into existing programs can be difficult, with many technical, legal and bureaucratic barriers (Mewburn et al, 2014). Glover and Latif (2013) interviewed staff and students at one university found that perceptions of the value and purpose badges was an important factor in implementation, with staff and students voicing a range of questions around value, fraud protection, privacy, and credibility with employers. User acceptance of badges also faces challenges at a bigger scale. Beyond the single university or program, the fragmentation of the credentialing landscape is a potential risk for individuals seeking to compose a legible professional identity via digital badges. As Pittinsky (2015) points out the possibility of a 'Tower of Babel' problem developing where digital badges from one institution are not formally recognised by other institutions or employers. Put simply, although a digital badge can travel through networks, meaning does not necessarily travel with it.

This paper reports on a project to attempt to integrate digital badges into a PhD program. This case highlighted that we cannot take for granted that just because there are badges, that students will be interested in getting them. When there is a failure to create meaning and value around digital badges, there is likely to be poor uptake and resistance amongst students. This case highlights the complex process of making meaning around a badge and how this relates to questions of value. This paper will attempt to unpack this process using tools from actor network theory, but first some details about the project and what was being attempted.

The INSIGNIA project, funded by the Australian Office of Learning and teaching, explored the use of digital badges in PhD programs at the Australian National University. The project explored the potential for digital badges to be a supplement to conventional systems of measuring and recording academic progress in research degrees. In the UK and Australia, the PhD is a program of largely self-directed learning with minimal coursework. The industry approach to managing higher degree candidature is to use what is called a 'milestone system' where the student and/or supervisor is called on to report on research in progress at regular intervals (often every six months). Previous research has showed that milestone

systems can be deeply flawed (Cuthbert and Spencer, 2001). A study at one major Australian University (Mewburn et. al., 2013) showed that the majority of PhD students who had received multiple unsatisfactory reports had not been managed out of their research degree. Conversely, PhD students who received poor examination outcomes did not tend to have a history of unsatisfactory progress reports. Interviews with PhD students and supervisors revealed that there was widespread lack of knowledge of the purpose of the progress report and lack of clarity about who would have access to the information once it was recorded. This lack of clarity led to perverse behaviour on the behalf of candidates and supervisors, with some going as far as to actively elide key evidence from progress reports to create 'necessary fictions' that enabled candidatures to continue, regardless of whether real academic progress was being made.

The INSIGNIA project proposal suggested that digital badges might offer a way to make the learning progress within a doctorate more visible and legible to the candidate, and those tasked with overseeing their academic progress. Digital badges hold the potential to "visualise the learning path" (Ahn et. al., 2015) which is lacking for many students undertaking the PhD and can lead to high levels of anxiety in PhD student cohorts. In particular, the expectations with respect to the dissertation, the main assessable component of the PhD, are often not made explicit (Lovitts, 2007). By offering a reward for small and measurable achievements, digital badges could act as 'waypoints' in the doctoral learning landscape (Barnacle and Mewburn, 2010) to help candidates navigate through the many extra 'co-curricular' activities that are possible and provide PhD students and their supervisors with a new way to benchmark progress. Digital badges have been used in a number of educational settings both formal and informal, but at time of writing the INSIGNIA project is the only case of an attempt to integrate digital badges in the PhD.

The INSIGNIA project

The INSIGNIA project planned to build a series of digital badges for PhD students to explore the following questions:

- Are badges useful in research education?
- Will PhD students and supervisors understand and use them?
- What are some of the barriers to implementation of digital badges within research degree programs?

Four sets of digital badges were made, targeting four different areas of research degree learning: writing, digital literacy, research integrity and personal/self management. These

badges mapped onto the four key domains of the well known Researcher Development Framework, a curriculum development tool developed by the UK organisation Vitae. In total twelve badges were developed. One badge was offered as a record of completion for a compulsory research integrity training course which every candidate at ANU had to complete (Fig 1).

Figure one: image of digital badge issued for compulsory research integrity training course

Three digital literacy badges were offered as part of a training course that replicated an existing face to face workshop series, crafted for the ANU library by the project team[i], which included a badge for 'Endnote: collect, curate create' (Fig 2).

Figure two: image of one of the digital literacy badges crafted for the ANU library Endnote course.

These three digital literacy badges were designed to recognise progressive levels of achievement as candidates 'levelled up' their digital literacy skills and is documented more fully in Rutherford et.al (2014). Two further separate sets of recognition of achievement badges were offered. The first set was for our popular Thesis Bootcamp program[ii], which included digital badges replicated the lego squeeze stress toys we gave to candidates for hitting particular word count targets during these writing retreats (Fig 3).

Figure three: A thesis Bootcamp badge which replicates the lego squeeze toys given out at the face to face thesis Bootcamp program.[iii]

Finally, two badges were issued as as part of the 'How to Survive your PhD' MOOC, which was run over August / October 2015: one to recognise special contributions to the social media channel and the other as a completion badge (Fig 4).

Figure four: Badges given out for participation and completion of the ANUx MOOC 'How to survive your PhD'.

The INSIGNIA project was designed within an action research framework (Mills, 2000); we collected four different kinds of data: 1) Analytics (how many badges were downloaded and by whom?); 2) A user acceptance survey (offered to people who downloaded the research integrity badges); 3) a focus group with students, supervisors and librarians to explore attitudes to badges; 4) interviews with key university stakeholders to explore barriers to implementation.

Our focus groups highlighted some unexpected issues, in particular around the aesthetics and valuing of badges. In the focus group with PhD students and supervisors participants were shown the proposed digital badge design and asked to for responses. These badges had been designed to look like coins or tokens and to pick up on some of the brand elements of ANU. Designing the badges to look like they aligned with brand guidelines, without infringing on the brand use guidelines was very tricky and a good example of the hidden costs in this kind of project (Mewburn et al, 2014). We were highly constrained by brand guidelines, which determined the type of text and colours that were only to be used on official testators to avoid forgery. The marketing department helped us make what they called "brandy looking things that are not actually on brand" (INSIGNIA interview data, key stakeholder 2). Despite our best efforts to make a badge that looked like it came from the ANU, the response was not what we anticipated. Most candidates were not impressed with the design, with one participant telling that us that she didn't want a badge that looked "like something my kid would bring back from the day-care centre". Other participants were worried that digital badges somehow 'cheapened' the research degree experience, as one participant put it, a badge "We don't want it to look like it was fun being at ANU! We want it to look like it was hard work." (INSIGNIA Focus Group Data, 2014). Focus group participants expressed deep distrust at the 'non papery-ness' of badges. One participant even asked if they could have a piece of paper that went with the digital badge to ensure its authenticity and credibility.

Similarly, feedback on the user acceptance survey about our research integrity training badge showed a high degree of ambivalence, even though this badge was the most popular that we offered. While only 5 candidates completed and downloaded full set Endnote badges, 130 candidates downloaded the research integrity training badge. While the Endnote course was a non-compulsory course where the digital badge served no real purpose other than as a trophy, it was made clear to the research integrity course participants that the digital badge would be accepted as back up evidence for completion of the course, which was a compulsory requirement for all PhD students to complete before graduation. As a consequence, approximately half of the candidates who were eligible to get the research integrity training course badge in 2014 proceeded to download the digital

badge. Only 22 of the PhD students who downloaded the digital badge went on to complete the user acceptance survey. Although this survey response rate was small (only approximately 20% of participants), the results were intriguing and align with the focus group data. The first result was that there was confusion about what to do with a digital badge once you have downloaded it. Even though the participants were instructed to 'keep it on file', 40% were still indicated confused as to what to do with it (Fig 5)
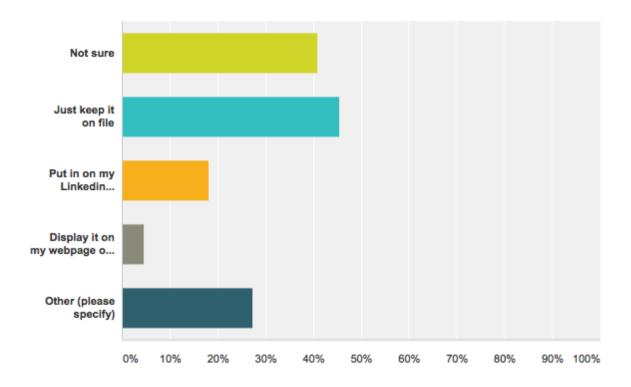

Figure five: results of the user acceptance survey question "What will you do with your badge now you have it?"

Badges are often discussed as a way to add 'gamification' to the learning experience by acting as extrinsic motivators. Devedžić & Jovanović (2015) suggest digital badges as gamification elements need to be approached with care in order to make sure that students do not experience motivation displacement and therefore diminished performance on subsequent tasks. To test whether we could 'gamify' the research degree experience, we asked our survey respondents whether they wanted to try another badge, without specifying what the badge was. The results were mixed as can be seen in Figure 6.
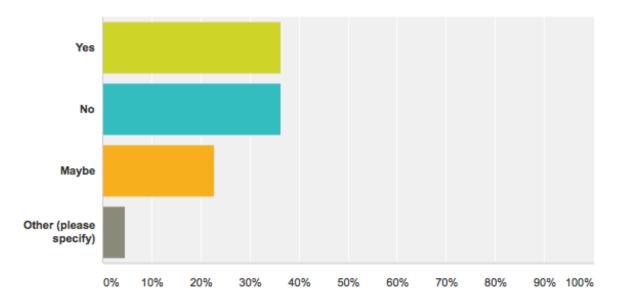
Figure six: results of the user acceptance survey question "Would you like to get another badge?"

While 40% of the candidates expressed interest, the majority were not and the one person who indicated they wanted a free text response (the 'other - please specify category) said "This whole thing is a bit childish and creepy! "

We gave the candidates a full text response to see what they intended to do with the badge now they had it. Similarly to the focus group, the open ended responses were overwhelmingly negative:

"don't see the point of these badges, signed up thinking it was necessary and now I can't unsubscribe from the service. Seems ridiculous and a waste of time "
"It seems useless and conceited"
"It's entirely useless".

Other candidates expressed suspicion about the issuing service and its credibility, despite our assurance that the badge would be officially recognised as a token of completion:

"I probably won't sign up for this badge because I've no idea what Credly is nor of its formal relationship with the ANU"
"I would like to know how to delete my Credly account if I decide that I don't like the service".

Others were frustrated that the badge itself did not show them how to use it. This candidate could have emailed the badge, but despite being given explicit instructions on how to do

this responded "I can't redeem the badge. I would like to share it with my supervisor. Why can't the system send the badge to my email account? ".

The results of the focus group and user acceptance survey suggested that our ANU PhD students were resistant to the idea of badges. We hypothesised that this resistant was due, at least in part, to the association with other 'childish' learning experiences, such as scouting. PhD candidates at ██ are mostly over the age of 30 and thus are independent adults, many with family and work responsibilities in addition to their research degree study. We theorised that they did not think badges reflected the seriousness of the learning activities in which they were engaged - yet this theory did not hold up to further scrutiny when we tested the badges as part of our MOOC "How to survive your PhD".

Over 13,000 people enrolled in this massive open online course, which explored the role of emotions in research degree study. As part of the course, candidates were encouraged to engage with each other in the discussion forums and with the moderation team on social media, primarily through a weekly Periscope broadcast and associated chat on Twitter. We issued 'excellent contributor' digital badges to people who the moderators thought displayed particularly thoughtful and constructive behaviour in the discussion forums. We awarded these digital badges live, via the periscope broadcast and on Twitter. The feedback about these badges was overwhelmingly positive, with Twitter comments like: "OMG so excited!! I got two badges - both on the forum and on twitter! Is that even possible?" and "While one can be dismissive of the value of badges, amazing how cool it feels when u get one". Digital badges clearly embedded as part of the required coursework, or offered in the context of professional development, generated at best a luke-warm response. Yet badges offered for an activity that was not at all aligned with the PhD garnered enthusiasm. What was going on? A new theory of digital badge value is needed to account for this difference. For this we turn, briefly, to actor network theory.

Digital badges: mediators or intermediaries?

Our participants were not sure that the digital badges we offered had a genuine value proposition – and in one sense they were right. Our participants understood that digital badges need to somehow invested with symbolic capital – much like money is – in order to be worth anything. This investiture can be explained using concepts from actor network theory. 'Actor-network theory' (ANT) makes no a priori decision about agency, attributing it to human and non-human actors. Machines, policy documents, buildings - all can become 'actants' and create effects. ANT sees the interaction of people and things as relational, and

may ANT theorists have taken up the term 'assemblage' (Müller, 2014) to describe the provisional and open-ended nature of the process of coming together (or not) of the human and non-human in webs of relations. There is no room to fully do justice to ANT as a body of literature here, but two concepts put forward by Latour (2005) are of particular interest: 'intermediaries' and 'mediators'.

Intermediaries are objects that obey basic laws of cause and effect, their actions are predictable and they do not have agency to affect change. By contrast, mediators are objects that transform or alter; their action cannot be easily predicted and their effects are complex. My contention here is that digital badges can slip between being simple intermediaries, digital objects that merely exist as objects that one possesses, and becoming mediators, tokens that have symbolic value that transform (admittedly in a small way) the person who possesses them. Let's take the Endnote badge pictured in Figure two. Without an Endnote badge, a person may or may not know about Endnote - it is not possible to know without interrogating them, and even then they might be lying. The endnote badge-person (which we might also call an assemblage) can be a recognised expert user of Endnote, but only if the badge is able to be loaded with symbolic capital and thus become a *mediator*. The Endnote badge-person-as-expert is an assemblage that is only made possible by the work of what John Law (2009) calls a 'hinterland' of people and things, work that is effectively invisible when we view the digital badge. Invisible work is easily dismissed, simplified or ignored (Suchman, 1995) Let's start to unpack this concept by starting with two separate, but intersecting, issues that our participants seemed to be confused about, which can be expressed as two questions:

> Where do I put my badges?
> What I can I use the badge for?

At first glance these two questions seem to relate to two different issues: one about the storage and display of the badge, and the other other about its value or utility. However, on closer inspection these two problems are intimately connected as when it comes to the case of Endnote badge-person-as-expert the display and utility cannot ever be entirely separated. The Endnote digital badge only gains value by how it can be displayed, who can see it and where it can 'travel'. In this case, display confers utility. A digital badge without an eportfolio, or another obvious and easy location to show it off, cannot *perform* like a badge with symbolic capital - it's an image file that has unrealised potential, like sticker with the back peeled off. Notionally, our PhD program digital badges can be displayed on social media sites like Linkedin and Facebook, however, at time of writing, displaying digital badges on these platforms was far from straightforward. However the 'display cabinet' is not the only actant

that can transform a badge from a passive intermediary to an active mediator. The Endnote badge needs to be recognised as trustworthy and credible in order for the endnote badge-person-expert to become possible. Halavais (2012) sketches out the history of badges including their use in the military, religious and educational settings. Halavais's most important point is that if badges (digital or analogue) are to act like a form of social currency they must represent some form of "sacrifice". Halavais points out that "Schools and universities are rife with symbols intended to identify those who can be trusted as a member of the group" (Halavais, 2012, p. 357). The most obvious example of this is the degree testamur itself – the piece of paper routinely handed out at graduate ceremonies. In Australia a higher degree is often dismissed 'just a piece of paper', but it's an extremely important piece of paper. As Pitinnsky (2015) argues:

> "…credentials are *signals*. With the competition over scarce opportunities in the labor market, credentials become a way of filtering people… one can make certain assumptions about my knowledge and skills from the fact that I went through that degree program and graduated from the institution I attended" (http://er.educause.edu/articles/2015/3/credentialing-in-higher-education-current-challenges-and-innovative-trends).

The degree testamur is almost always a mediator. It becomes a mediator in part through its material composition: it is made of special paper containing distinctive seals and signatures. Even the typeface is carefully chosen to reflect the self-image of the institution issuing it. Perhaps it's a Gothic font for the institution claiming a history, or Helvetica for the university styling itself as an incubator of the new professional class. The making and issuing of paper degrees is a tightly controlled process (which we were reminded of when attempting to deploy the brand guidelines to our badges). Further, there are conferring ceremonies that surround the hand over of the testamur as artefact to the recipient, complete with special clothes and even, in the case of Norway, swords and rings. Once the testamur is 'charged' with symbolic capital (the credibility of the university as a trusted credential issuing institution) it becomes a mediator; a document that can be used as social currency and 'buy' jobs and opportunities. By possessing one of these pieces of paper I have transformed myself, from a person with research interests and pursuits, to a person-PhD assemblage: a 'Doctor', an authorised expert.

Ironically, in these days of largely digital transactions, the testamur, as physical artefact, has less real utility to me than the digital records held by my alma mater, which can be viewed and reproduced as a transcript on request. The testamur itself hangs on the wall in my home, quietly performing identity above my desk and reminding the occasional family

member or friend who might visit that I have another identity in addition to wife and mother. In some ways digital badge would potentially be more useful to me than a testamur because we live in a world where most transactions are now digital. Unlike other digital documents, digital badges can be difficult to forge – especially if it includes a photo of the bearer, like a passport (another paper document with a large hinterland). In some webs of relations, the testamur temporarily lose its mediating powers and become a simple intermediary. For example, in Australia, the human resources (HR) divisions of universities require an authorised copy of the applicant's PhD testamur on commencement. This requires me, as prospective employee, to visit another assemblage: the Justice-of-the-Peace that has its own hinterland which authorises them to stamp and sign the document and reaffirm its authenticity, thus remaking it into a mediator that I can hand back to HR. This web of relations allows the emergence of another assemblage: the PhD-person-employee. If instead digital badges were used as part of this process, I could skip this step and just send HR a link to the badge, which could be kept on my staff file.

Clearly our digital badges for PhD students had the potential to become mediators; what was missing was the hinterland of people and things to perform this potential into actuality. This is, perhaps, what our research participant meant when she said she didn't want to make it look like getting a PhD from ANU is easy, or when our focus group participants asked for pieces of paper to 'prove' the digital badge's authenticity. This explanation also explains the relative success of our MOOC badges: the public performance of announcing the badge and recognising the sacrifice of time and effort in front of the community was sufficient to turn this badge from a simple intermediary to a mediator which did transform the holder (if in a small way) from person who may or may not be helpful to a person-community leader.

Without systems of display, ceremonies and/or communities to bear witness, a digital badge is just a rather confusing object. Digital badges might be harder to forge than a paper testamur, but this doesn't make them *better* because the badge without a hinterland cannot perform its role as symbolic object. It is genuinely difficult is to replace the work of this 'hinterland', certainly in a small project like this where there is no budget for a graduation ceremonies where the credibility of the university, as an issuing institution, is performed into being with robes, podiums, speeches and puffy hats. By drawing attention to the hinterland and its role in turning a digital badge from an intermediary to a mediator, serious questions are raised about how and when digital badges should be deployed in any formal curriculum, but most especially in the PhD. It is not enough to assume that digital badges will always behave as badges that motivate learning and encourage desired behaviours. Just digital badges are deployed as a pathway to learning does not mean that learners will necessarily take the journey laid out for them.

References

Ahn, J., Pellicone, A., & Butler, B. S. (2014). Open badges for education: what are the implications at the intersection of open systems and badging?. *Research in Learning Technology*, *22*.

Barnacle, R., & Mewburn, I. (2010). Learning networks and the journey of 'becoming doctor'. *Studies in Higher Education*, *35*(4), 433-444.

Carlson, S., & Blumenstyk, G. (2012). For whom is college being reinvented?. *Chronicle of Higher Education*, *17*.

Cuthbert, D., & Spencer, C. (2001). *White lies, damned lies and annual progress reports of HDR candidates and their supervisors*. Australian Association of Institutional Researchers (AAIR) Forum 2001: Proceedings: University of Central Queensland. Retrieved December 5, 2011, from http://www.aair.org.au/jir/html/Papers2001.htm

Devedžić, V., & Jovanović, J. (2015). Developing open badges: a comprehensive approach. *Educational Technology Research and Development*, *63*(4), 603-620.

Gibson, D., Ostashewski, N., Flintoff, K., Grant, S., & Knight, E. (2015). Digital badges in education. *Education and Information Technologies*, *20*(2), 403-410.

Glover, I. (2013). Open badges: A visual method of recognising achievement and increasing learner motivation. *Student Engagement and Experience Journal*, *2*(1).

GLOVER, Ian and LATIF, Farzana (2013). Investigating perceptions and potential of open badges in formal higher education. In: HERRINGTON, Jan, COUROS, Alec and IRVINE, Valerie, (eds.) *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2013.* Chesapeake, VA, AACE, 1398-1402.

Halavais, A. M. (2012). A genealogy of badges: Inherited meaning and monstrous moral hybrids. *Information, Communication & Society*, *15*(3), 354-373.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford university press, Oxford.

Law, J. (2009). Seeing like a survey. *Cultural sociology*, *3*(2), 239-256.

Lovitts, B. E. (2007). *Making the implicit explicit: Creating performance expectations for the dissertation*. Stylus Publishing, Sterling, Virginia.

Mewburn, I., Freund, K., & Rutherford, E. (2014). Badge trouble: piloting open badges at the Australian National University (pp. 643–647). Presented at the Ascilite 2014: *Rhetoric and Reality*, Dunedin.

Mewburn, I., Tokareva, E., Cuthbert, D., Sinclair, J., & Barnacle, R. (2014). 'These are issues that should not be raised in black and white': the culture of progress reporting and the doctorate. *Higher Education Research & Development*, *33*(3), 510-522.

Mills, G. E. (2000). *Action research: A guide for the teacher researcher*. Prentice-Hall, Inc., One Lake Street, Upper Saddle River, New Jersey.

Müller, M. (2015). Assemblages and Actor-networks: Rethinking Socio-material Power, Politics and Space. *Geography Compass*, *9*(1), 27–41.

Pittinsky, M. (2015). Credentialing in Higher Education: Current Challenges and Innovative Trends, *EDUCAUSE Review*, 50(2), 1-5

Rutherford, E., Freund, K., Jenks, H, & Mewburn, I. (2015) Badging the library: are digital badges the next innovation for library skills and training? ALIA InfoOnline 2015, Sydney.

Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., Mor, Y., Gaved, M. and Whitelock, D. (2012). *Innovating Pedagogy 2012: Open University Innovation Report 1*. Milton Keynes: The Open University*.

Suchman, L. (1995). Making work visible. *Communications of the ACM*, *38*(9), 56–64
Willis III, J. E., Quick, J. D., & Hickey, D. T. (2015). Digital Badges and Ethics: The Uses of Individual Learning Data in Social Contexts, *OBIE@ LAK*, 41-45.

---

[i] Details about the project can be viewed on https://adventuresinbadging.wordpress.com/about/ accessed 06/10/2016
[ii] [ii] More details about the thesis Bootcamp program can be found here:
https://thesiswhisperer.com/2015/01/16/how-to-write-10000-words-a-day/
[iii] [iii] More details about the thesis Bootcamp program can be found here:
https://thesiswhisperer.com/2015/01/16/how-to-write-10000-words-a-day/