

Peer Reviewed Research Paper

Introducing PebblePad from the ground up: It's a bumpy road to the top

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Abstract

This study traces the introduction of PebblePad to the learning and teaching practices of a small university. Originating from a single academic's vision for its potential use, PebblePad has been slowly adopted across other disciplines through localised participatory leadership. The way this process developed presents an opportunity to explore participants' perspectives on ground up change management in the development of PebblePad into the learning and teaching pedagogy of a small university. Being introduced by a single academic in the teacher education discipline and slowly adopted across other faculties, ideas of change management from both management and pedagogical perspectives are presented as a unique case where change does not emanate from the management level. Five staff members were interviewed about their introduction and experiences with PebblePad. The results demonstrated that the participants appreciated the training from PebblePad and the collegial support of their peer academics. While mentioning the issue of time management and technology fatigue in learning another innovation, it was accepted that the ground up approach was appropriate because of the demonstrated effectiveness of the new application and the low-pressure mode of adoption.

Keywords

Change management; pedagogy; information technology; eportfolio;

Introduction

Despite a history dating back to 1897, Avondale University (AU) is one of Australia's newest universities. The University focuses on an exceptional quality of experience within a limited range of disciplines, including business, teaching, nursing, outdoor leadership, counselling, and theology.

As for all Australian universities, partnerships with a variety of comparable institutions for benchmarking purposes is a regular part of teaching practices at AU, and occasionally this can lead to insights that are incorporated into the University. In 2019, the first author was involved in a partnership with the University of Tasmania using common assessments of pre-service teacher placements. As part of this process, he became aware of PebblePad as a powerful and valuable system for planning and documenting placement experiences in an authentic and safe way. However, it was clear it had a much broader use beyond placements for authentic learning and assessment more generally, and he was keen for

colleagues across disciplines at his own institution to discover the same benefits. This study traces the introduction and adoption of PebblePad into AU from those beginnings.

Background

While technologies are often introduced in higher education institutions through a top-down initiative (Mansaray, 2019) this is not always the case. Many institutions have processes whereby individuals can request support to pilot new technologies, evaluating their use for wider adoption. In other cases, schools/faculties may identify a technology that meets a discipline-specific pedagogical need and then purchase licences independently. Regardless of origin, these 'ground up' strategies (Laig & Aboejo, 2021) do not neatly fit into traditional change management models (Hiatt & Creasey, 2003; Kotter, 2007) that often assume the incorporation of defined outcomes, powerful change advocates, and formal reinforcement and support. Instead, processes are often sporadic and emergent, relying on internal motivations and favourable contextual factors that encourage uptake in the absence of formal support.

For those initiating technologies outside of formal change initiatives, there can be a dual set of challenges:

- **Managing up**, by convincing those with managerial, IT and financial authority to formally support emerging use; and
- **Spreading across**, by encouraging rhizomatic expansion of usage through pedagogical connection, influence and impact (Deleuze & Guattari, 1988) .

These challenges are usually taken on without resourcing – either financially or via workload, driven largely by a deep belief in the value of the technology for enhancing the learning and teaching process. While the 'spreading across' challenge can continue at either a fast or slow pace, to become sustainable the 'managing up' challenge must be met, ensuring the initiative is both aligned with broader learning and teaching strategies and accompanied by pedagogical and technological support to engage those beyond the early adopters.

This study represents an initial exploration of the experiences of academics who collaborated with the first author as part of this ground up strategy, some of whom were enthusiastic and others more reluctant. It attempts to explore the pedagogical and technological rationales behind decisions to move ahead with PebblePad, and the role the ground up strategy played in these individual decisions. It is also an exploration of how one institution has moved from an individual champion to broader adoption and managerial engagement and support of PebblePad, and the insights gained from this experience.

Bringing these factors together is our research question:

What is the experience of one tertiary institution where one academic staff member seeks to assimilate innovation (PebblePad) across the institution?

Literature

Pedagogy, technology, and the nature of educational change

A 'pedagogy-first' approach to educational change has a strong history in higher education, often pushing against the promises of new technologies to transform learning. Yet as Fawns (2022) argues, the relationship between technology and pedagogy is much more 'entangled' than either of these narratives might suggest. A more realistic view would see teachers, designers, students, and other stakeholders all playing their part alongside purpose, context, values, methods and technology in a complex, relational 'dance' where outcomes emerge over time. In turn, he suggests that understanding a technology depends on understanding the local culture and infrastructure, and how various stakeholders understand each technology within their own contexts.

Hunter and Dunham (2023) reference these entanglements and 'messy' interrelationships in the context of the broader learning ecosystem and the role of capability builders within it. They draw on rhizomatic thinking (Deleuze & Guattari, 1987) to describe the constant, open-ended nature of change within this ecosystem, contrasting this to the linear change trajectories we often expect of top-down change management initiatives. Through this lens, change is driven by complex connections, influence, and impact. New connections can lead to 'ruptures' or opportunities to branch out while remaining connected to core. These ruptures allow for growth and the spread of change in often unexpected directions, stimulated by individual experiences and needs. This kind of opportunistic rhizomatic change can pave the way for larger pedagogical shifts and aspirations that may require deeper planning and/or managerial engagement.

Factors affecting technology adoption

Without the support of a strategy, leadership and a broader vision, technology adoption via ground up change relies even more heavily on individual factors. New connections create ruptures signalling opportunities for growth and change, but a myriad of factors moderate whether those opportunities will ultimately be taken up.

Various models have been developed to predict whether individuals will adopt new technologies. At a broad level, the Technology Acceptance Model (Davis, 1989) proposes that two factors influence technology adoption: whether the user perceives it to be useful and whether it's perceived to be easy to use, each of which has a set of antecedents. External factors (e.g. technology design) influence these perceptions, which lead to an affective response, or inclination to use the technology.

A more nuanced predictive model - the Unified Theory of Acceptance and Use of Technology (UTAUT) - was developed by Venkatesh et al. (2003). This model includes four direct and four moderating constructs that are asserted to influence adoption. The direct constructs are the level to which the user expects the technology to improve their performance (performance expectancy) and reduce the effort they need to complete the task (effort expectancy), as well as whether it has been recommended by valued others (social influence), and the level of support provided (facilitating conditions). The moderating factors include gender, age, previous experience and whether the use is voluntary or not.

Adapting the Kegan and Lahey (2001) approach to overcoming resistance to change, Table 1 considers the direct constructs in UTAUT and how they might be supported by a single person with limited authority promoting technology adoption. It should also be noted that amongst the moderating factors, ground up approaches naturally support voluntary uptake.

Table 1: UTAUT predictors for adoption and associated strategies

Predictor	Strategies to support adoption	Ground up strategies adopted at AU
Performance expectancy	Education and communication	Small demonstrations focusing on outcome improvements at learning and teaching events, visiting people in their offices as a ‘peer with an idea’
Effort expectancy	Education and communication	Shared stories of improved efficiencies, entry-level demonstrations of simple functionality linked to real and immediate outcomes
Social influence	Participation and involvement	Being involved and making recommendations as a colleague to create a network of motivated supporters
Facilitating conditions	Local support at point of need	Organising training and encouraging participation across disciplines, being on call for support and ‘checking in’ on progress

Sorensen and Sarjeant-Jenkins (2016) observe that planning at ‘grassroots’ level assists employees in seeing the relevance to their discipline area. They note that while a management directive to implement a new initiative would be interpreted as a whole of institution initiative, an initiative introduced at the ‘peer’ level would normally be more discipline-focused and therefore seen as more relevant.

The higher education context and the nature of specific educational technologies may have an added influence on technology adoption. For example, fear of failure, time pressures, and competing commitments (Kegan and Lahey, 2001) are all highly relevant factors leading to resistance in the context of higher education. In addition, as a system founded on student-centred learning, PebblePad’s underlying philosophy, reflected in its system design, challenges traditional ways of teaching and so may require users to cross a number of threshold concepts related to online teaching (Kilgour et al., 2018; Northcote et al., 2017) or their pedagogical philosophy (Powell & Kusuma-Powell, 2015). Threshold concepts are gateways or hurdles that the learner needs to cross before the next stage of learning or application can proceed. Similarly, Alder (2010) suggests that learning is based on patterns and where a new initiative or concept is introduced, new patterns need to be formed which may mean breaking old patterns or integrating new patterns into the old ones. Powell and Kusuma-Powell (2015) refer to these as ‘adaptive challenges’, requiring a changed mindset whereby teachers “rethink our deeply held values, beliefs, assumptions, and even our professional identity” (p. 67).

Participatory leadership from the ground up

While much of the literature focuses on change *management*, this needs to be distinguished from change *leadership*, which is generally understood to be more people-focused and relies on influence to enable change. In higher education, real pedagogical change can occur at macro, meso and micro-levels through the big and small actions of many people (Childs et al., 2013). Indeed, the recent Advance HE Report has found that more distributed models of leadership that extend across these levels are essential for achieving desired outcomes and culture (Johns, 2023)

At the micro-level, participatory leadership approaches which emphasise involvement, collaboration, sharing practice and leading by example are valuable. These approaches can foster enhanced engagement, trust and empowerment, strong commitment, and improved learning and innovation (Kezar & Holcombe, 2017). This more informal, situated approach to leadership can also be adapted to individual context, needs and learning approaches. Indeed, micro-leaders can be powerful initiators of change in university settings, creating “interest, enthusiasm and unparalleled momentum for an innovation at a local level” (Childs et al., 2013, p. 38). This is critical in a context where academics value their autonomy.

Yet for ground up initiatives to attract the levels of support needed to ensure sustainability, links will ultimately need to be established with those who have responsibility for fostering institution-wide implementation. In ‘managing up’, it can help to consider incentives for management to support ground-up initiatives. This may include perceived outcomes and efficiencies (e.g. from the move from paper to digital), alignment with learning and teaching strategies, and financial considerations (Hamel, 2009). A ground-up initiative can be a rich space for gathering information around the real experiences and impacts of a technology for presentation to decision-makers.

Methods

A phenomenological qualitative research design was implemented to include the experiences of those involved with introducing PebblePad into their pedagogy. The themes explored revolved firstly around the way participants were introduced to PebblePad, and secondly whether PebblePad changed their approach to the pedagogy they used in their units.

The use of phenomenological qualitative research to examine lecturers’ attitudes and perceptions towards the change management process of implementing PebblePad at AU was found to be well suited to studying emotional and affective human experiences (Merriam & Tisdell, 2015). This method helped the researchers gain a picture of individuals’ lived experiences (Mayoh & Onwuegbuzie, 2015). By using this design, we were able to lay aside any predetermined understandings and authentically explore these experiences (Flynn & Korcusa, 2018).

Data were collected using one-to-one recorded interviews conducted by a lecturer who had not taken part in the early stages of PebblePad usage to ensure there were no pre-conceived notions or conflicts of interest. The interviews were semi-structured (Adams,

2015) where potential guiding questions were proposed, but the conversation was permitted to go in other directions provided it contributed to the main aims of the study.

Purposive sampling (Etikan et al., 2016) was used to identify five participants to be interviewed who fitted the inclusion criteria. These criteria included current staff members at AU who had been: employed at AU for at least two years; working in an area where PebblePad was being adopted into the workflow; participating in PebblePad training; either an early adopter or demonstrated some reluctance to adopt; and agreed to participate.

The key aim of the interviews was to explore the motivation of staff to implement PebblePad in their area and to report on their lived experience of the change process required to implement PebblePad in their discipline. The interviews were designed to seek staff reflections on the pedagogical positives and/or negatives of implementing PebblePad and their perceptions about the implementation process in terms of change management at AU.

The data from the interviews were transcribed and inductive thematic analysis (Guest et al., 2011) was used to derive meaning with no preconceptions of what the outcomes may be.

Results

All five interviewees were staff of AU and had experience using PebblePad. Three were academic staff members, one a member of the professional staff supporting the use of PebblePad within their school, and the fifth a learning designer supporting the use of PebblePad across the university.

The interviewees provided responses on several themes including enablers and inhibitors to the introduction of PebblePad, change management observations, and perceptions of ground-up vs top-down approaches to implementing initiatives at AU.

This section will firstly examine those aspects that participants identified as being enablers to the introduction and implementation of PebblePad in their area. Three themes were identified as being significant: technical and pedagogical support; practical benefits specific to discipline area; and the lack of 'pressure' in the implementation process.

Technical and pedagogical support

All participants spoke positively of the support they received in considering PebblePad as a viable tool for their area. The initial introduction for each participant was the enthusiasm of an AU staff member who had trialled PebblePad and who shared positively about its potential. As one participant enumerated, *"one of the big enablers of course is the advocates who already ... have found it useful ... and therefore can really intelligently articulate how it's been useful for them..."*. This initial introduction led to an opportunity to attend a training session run by PebblePad, with the presenter being described as *"very easy to get along with and supportive"* providing *"a good foundation to deciding on the product ... the capabilities of the product"*. Staff valued that this introductory session was tailored for the group in attendance and was seen as a *"very useful thing in terms of*

raising awareness, showing people not to be scared of it and putting it together in a format that they could go to and look at later”.

The ongoing support was likewise seen as vital to the eventual uptake within their discipline area. Some of this support was from the local staff member who had championed the use of PebblePad and who was seen as happy to be called on to provide advice and support, being described as *“patient and persevering”*. One participant however sounded a note of caution, suggesting that they were sometimes reticent to ‘annoy’ someone who had taken this on voluntarily and who was providing this support above and beyond their normal workload. They felt they would be more likely to reach out for help if it was someone who had been assigned this ‘help-role’ by management: *“I get really conscious of the fact that I’m relying heavily on the local school champion at the beginning of semesters”*. However, it was acknowledged that without this ‘local’ level of support they would have been unlikely to continue implementation, a view shared by another participant.

The ongoing support from the PebblePad representative received positive endorsement, with participants finding AU’s liaison *“very helpful as the go-to person for assistance ... whenever we hit something that we get a little bit stuck with”*. Participants found that they had received the *“proper training and ... received the proper support that we needed”* and that this was *“a good foundation to the whole thing becoming to what we are today ... and we still have that support from PebblePad”*. Responsiveness was seen as a key factor to persevering with PebblePad during the learning journey: *“She was amazing ... we could just email at any time and depending on the time changes, and just ask questions. Say, look, we need help. Can we get a Zoom? ... I [would] just email her and she would get straight on [to it]”*.

Multiple participants noted the importance of the online resources that were created, enabling staff to engage with the learning material in their own time and at their own pace. In commenting on the importance of this aspect, one participant suggested: *“I don’t think people want to be a burden ... they don’t necessarily want to keep pestering people. They don’t want to feel like they’re foolish or incapable.”*

Practical applications and benefits

All participants emphasised the importance of seeing the benefits specific to their area. *“You see the potential, you see how it’s genuinely going to benefit your students, especially given that these days we’re really trying to push reflective practice. So for me, that was my buy-in, that was my enabler, was seeing the relevance”*. Another added; *“I actually saw it as being very useful for a lot of the units that I teach, which are so portfolio driven”*, and from someone in a different discipline: *“It was soon [I] realised that, oh, actually this makes my job easier and it gives me a little bit more time”*.

Participants appreciated that the training and the support offered was discipline specific and that they were given the opportunity to see how other universities were benefiting from this. *“You could collaboratively get together with other people in your specialty field out of your university, just to inspire as well. That was actually an advantage.”* As one person emphasised: *“The initial buy-in has to be because you personally feel excited”*.

It is useful to note the importance of people being very clear on what they wanted PebblePad to achieve for them, as one individual commented: *"I think what was an advantage and enabler ... was that we actually had very clear goals in what we wanted to use it for."* Two participants emphasised the need for awareness as to what the technology is designed to do well, one noting that *"[where] it gets difficult is where it tries to be used for other purposes where that's not what its core design was for"*.

The practical benefits were seen as greatest when the technology played to its strengths:

"... if you're using PebblePad in your lecturing or as an assessment, just because you think you should be using PebblePad ... then [that] becomes quite distracting and it's almost like busy work. And it can take you, the lecturer, a huge amount of effort to massage something that doesn't fit PebblePad into PebblePad".

"I think it's been marketed to sort of have a little bit more ... applications than it probably was originally designed for, which I think therefore might make it a little bit confusing to people who are new to it".

Two of the participants emphasised the importance of pedagogy driving technology, rather than the other way around.

Lack of pressure

Being a grassroots driven initiative meant there was not the implementation pressure usually associated with a top-down change management approach. *"We weren't forced to do it because we weren't forced to take it on board,"* one person enumerated. Another highlighted that they felt this was important in ensuring their creativity and curiosity was engaged in the process: *"And so coming from that, without this thing that's imposed, I felt free to just go where my creativity and imagination took me. I think it's just been this natural, organic, comfortable, I can have a go at this because I don't have to, but it looks good, so I'm going to try"*.

One participant commented at greater length on the benefits of a ground up level approach to this type of implementation: *"I think too, academic/teachers, the way I've mostly experienced them, tend to react better to the organically introduced as opposed to the, 'you have to do this'. Because again, I've seen several examples of that ... But specific to PebblePad, I think it is one of those things that really is more successful when introduced organically, when people are given that more autonomy to how if they want to use it and how they might want to go about introducing it to their teaching perhaps"*.

Some even felt motivated by the 'fear of missing out'. As one person commented, *"the fear of missing out type thing, which I think ... probably, affects things like PebblePad ... 'Oh, I've heard this PebblePad thing. Oh, I better look at that. I don't know about that. Should I be using that?'"*

A couple of participants also connected this area to that of institutional culture, with one commenting: *"I think just creating that culture of trying things and not being roasted if it*

doesn't work." They found this indicative of the area in which they worked, and in general felt safe to experiment and try new things in their school without fear of failure.

Barriers to implementing PebblePad

In commenting on barriers to the introduction of PebblePad at AU, the two most significant themes were that of technical barriers and time barriers, with strong overlap between these two. However, while all participants raised the issue of 'time' as a significant consideration, not all felt that the technology itself was a barrier, with two of the interviewees feeling the platform was user-friendly and intuitive. Three of the participants emphasised the learning curve needed to master the platform. *"It was pretty clunky actually. It was pretty technical to get it figured out. So if it hadn't have been for Justin, I would've just thrown my hands up in the air and said, I just can't work with this thing."*

This theme was echoed by others: *"I feel it's not immediately an easy thing to come to grasps with. It does seem to be a difficult thing to get your head around the way it works"* or from another participant: *"I don't think it's an intuitive thing to learn for both staff and students. I think they find it probably just as challenging for some aspects of the work."*

One participant emphasised the challenge of "technology fatigue": *"And I think that that's there with a lot of technologies because of just the relentless sort of ... technology fatigue. [There is] stuff that's just being thrown at all educators, and some of it good, some of it bad, some of it genuinely helpful and designed to be helpful and others genuinely designed just to make money out of an unsuspecting industry that just thinks that they need to keep up ... just that very factor of do we do things just because we think, 'Wow, we better be part of that. We should buy one of them because we don't have one'."*

The need to ensure that student voice was integral to the process was also noted and that their buy-in was factored. One discipline area intentionally surveyed their students regarding the use of PebblePad, adjusting the following year in response to this feedback.

Another school reported 'student buy-in' as a barrier in one of the teaching units, leading the lecturer to comment: *"It's almost like the students really need to be canvassed about what works for them rather than us coming up with grand ideas and imposing upon the students"*. However, overall participants reported a positive response from most students who were comfortable and supportive with the use of technology when engaging with assessment tasks.

Time barriers

As might be expected, the theme of being time-poor was a consistent one: *"Yes, so many things, and we [are] stretched to the limit with, and our brains are stretched and we are emotionally tired from all the things. So, on the one hand, it is just another thing."* Or as another commented: *"I have also observed those who it is just too much on top of what they have, and they've got various reasons for feeling that way. And so for them, it's been a much harder uptake because it is. You do have to get your head around it, and if you are feeling tired or stretched to the max, it's very hard to invest the mental energy"*.

It was noted by one participant that *“the biggest barrier was just our lack of knowledge initially of what was involved. It wasn't just creating, it was then implementing, and the management side of it, but it was probably our naivety about the program itself”*.

To assist in managing this ‘fear of the unknown’, one School within AU designed a pilot trial of PebblePad for the assessment task they were hoping to implement first. *“So while the rest of the students used the paper-based, we decided to use about 10 or 12 students as a test run to see how we would manage things ... we decided to go with a small cohort of students to minimise risk because if this was something that could not be reverted, then it would've been a logistical problem”*.

Following a successful trial, the discipline designed an implementation plan particular to their area, considering learnings from the trial along with the needs of the staff. This included managing the time-barriers and to ensure the implementation was ‘fit for purpose’ within their area.

Pedagogical considerations

Interestingly, no mention was made by any of the five participants of pedagogical considerations as a barrier. *“I see PebblePad as a genuine authentic assessment tool ... very helpful in that space,”* wrote one. *“It's a great tool for those reflective learning journal type situations where you want to be capturing the students.”* Or as another commented, *“it was a really more efficient way of getting across the skills”*. It is possible that the efforts to develop stronger pedagogical underpinnings initiated by AU's Centre for the Advancement of Learning & Teaching (CASTL) over the past few years has resulted in a shared understanding that facilitates this acceptance. It is also likely that the practical way in which PebblePad was introduced resulted in staff gaining a clear and early view of the potential pedagogical benefits.

Discussion

The main purpose of this paper is to report a case study of a small university (AU) that adopted PebblePad using a ‘ground-up’ approach to facilitate the change. Academic and professional staff were interviewed to compare their individual experiences of technology adoption to the theory and literature of change management where new technology is involved.

While several themes emerged from the interview phase of this study, it should be noted that as highlighted by Fawns (2022), there is a strong connection (referred to as ‘entanglement’) between the themes, and it should not be assumed that the aspects of technology and pedagogy can be separated entirely. For example, the ideas of *technology fatigue* and *time pressure* reported by our participants are related to pedagogy in the sense that as Venkatesh et al. (2003) explain, there is a need to balance ‘effort expectancy’ against the reality of possible saved time because of the pedagogical advantages of the innovation.

Examining the advantages and disadvantages of using a 'ground up' approach, our participants confirmed that within the changing learning environment, it was helpful to have a 'capacity builder' (Hunter & Dunham, 2023) who was a colleague and a constant non-threatening source of support.

Further supporting the advantages of a ground up approach, Kegan and Lahey (2001) discuss the idea of working with colleagues or a 'peer with an idea' and note that the introduction of an innovation can benefit from a relaxed approach where casual 'drop-ins' of a support colleague can work the best. Our participants reported that the lack of pressure to adopt and use PebblePad was an advantage in the implementation phase.

The Technology Acceptance Model (Davis, 1989) mentioned earlier identifies the two properties of new technology that determine its level of acceptance. These are the usefulness of the application and its ease of use. Both are relevant in our results. It was generally accepted that PebblePad is a useful and practical innovation. No respondent questioned its potential to enhance their pedagogy. Not everybody however found it straight forward or intuitive to learn. It must be concluded that the benefits of PebblePad they enthusiastically reported made the learning hurdle worth pursuing.

One of the strong result themes is the importance of 'relevance' to the discipline area. As pointed out by (Sorensen & Sarjeant-Jenkins, 2016), individuals (and schools) are not looking so much to benefits for the organisation as a whole, but rather to how this is relevant and beneficial to their particular area. Our participants answered questions in the context of their own discipline and were eager to translate the benefits espoused by the local champion into their own domain.

Conclusion

This case study of PebblePad adoption from the ground up has demonstrated many of the advantages in having a person on staff who believes in an innovation and uses it in their own pedagogy. It confirms the literature that when a colleague who is relaxed and supportive, yet an enthusiastic champion of an innovation works with those who would likewise benefit from the application, technology adoption is more likely to be embraced (Kegan & Lahey, 2001).

Surprisingly, no questions were raised over the new pedagogy of PebblePad, with the participants accepting its numerous benefits for learning and assessment but as expected, the normal issues of time allocation and hesitation at facing 'another innovation' were part of this study.

This study confirmed that the issues of fear of new technology, pedagogy and management cannot be siloed, but needs to be considered together when introducing a new tool.

The overall finding from this study highlights the value of initial micro-leadership in building momentum for technology adoption. From the initial introduction of PebblePad by one academic, and the low-key encouragement and support given to their colleagues, its use has spread across the disciplines and has been adopted as part of AU's 21st Century learning and teaching model by its Centre for the Advancement of Teaching and Learning (CASTL).
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