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Investigating the experience of Moodle adoption through expert voices

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Abstract. Virtual learning environments (VLEs) such as Moodle are now widely used in universities and other organisations. One crucial factor in the successful employment of such platforms is the ability and commitment of teaching staff to adopt the system. Despite the importance of this role, there has been little work to examine the experience of using VLEs in practice. This paper presents initial, qualitative research aimed at understanding how Moodle is being used and the different experiences and perspectives of the staff involved. To generate themes and areas of interest for future investigation this paper uses interview data from two “expert witnesses” who have a deep understanding of how the platform is used. Emergent themes include: divergence between confident and basic users; the spread of usage within an academic community; lack of progression to innovative teaching methods.

Keywords: Virtual learning environment; Moodle; technology adoption

1 Introduction

Many institutions use a virtual learning environment (VLE) to present learning resources and manage course delivery. In recent years, the open-source, extensible Moodle environment has become the most popular free platform in higher education [1]. Reasons for its widespread adoption include its free availability and open source nature, extensibility, wide range of functionality and social constructionist ethos [2]. Current research on the use of Moodle tends to focus largely on two main issues: practice reports giving details and evaluations of how courses were implemented (such as [3]); and user acceptance investigations. Such analysis provides basic insight into how Moodle is being used but it is often limited to a narrow, quantitative view given by a small number of basic descriptive data items. Questions exploring richer, more qualitative areas, such as how (different) users experience a platform such as Moodle, how practice develops and what pedagogical approaches are adopted, have received little attention. Such an understanding is needed to identify the ways in which the system is used, directions in which it could be utilised for more effective teaching and learning, and the barriers to moving towards more innovative use of the platform.

As a first step towards better understanding the various users’ experience of Moodle, this study seeks to gain a general perspective on the ways in which Moodle is used and to generate themes and areas of interest for future investigation. The approach taken in this paper is to use qualitative interview data from two “expert witnesses”

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both of whom have considerable experience in providing Moodle technical and pedagogical support for University teachers. Using qualitative data analysis, the responses allow themes to be identified and topics of interest and concern to emerge.

The following two sections introduce background work and describe the methodology used in this paper. Results are then reported, noting emerging themes and differences developed from and supported by categorisation applied to the words of the expert witnesses. The findings and their implications are discussed.

2 Background work

Since its release under the General Public Licence Agreement in 2001, Moodle has rapidly increased in popularity as VLE of choice in schools, universities and businesses around the world [2]. In detailing reasons for the growth of Moodle, Costello [2] cites cost, fear of lock-in with proprietary vendors, its “ethos” as a vibrant, growing open-source platform, its flexibility and its pedagogic reputation as a learning-centred (rather than tool-focused) VLE. Different stakeholders will have different reasons for adopting Moodle. A number of studies of Moodle (and indeed on the acceptance of technology by teachers in general) have been based on the widely used Technology Acceptance Model (TAM) and results report a range of findings, for example, that students’ perception of ease of use of Moodle is directly influenced by the availability of technical support [4] and that perceived usefulness is the main factor influencing students’ intention to use the system [5]. However, the findings of such studies often appear to be contradictory and lacking in generality. Further, there is a lack of richer understanding about why participants answer as they do or how to interpret the results effectively.

There is far less published work investigating staff motivations for using Moodle. In some cases, institutional adoption has made its use compulsory. MacKeogh & Fox [6] find that motivating factors for staff include the potential to reach new students and to explore new technology whereas demotivating factors are generally more pragmatic, such as concerns over technical support or time needed. Walker et al. [7] note the pivotal role of teaching staff in the user experience of Moodle since they are responsible for creating content. They observe that there is often a big difference between the student perspective (frequent use, enthusiasm) and the staff view (infrequent use, reluctance) and that patchy staff use of the platform leads to a very variable learning experience for students. Staff training is often noted to be an important factor in the introduction of Moodle with “Moodle champions” or local experts frequently seen as the best way to spread enthusiasm and disseminate the necessary training [8].

Practice reports of using Moodle include accounts of how a course has been developed, how it is delivered and results of evaluation, often at the level of student satisfaction survey [3][9]. A further way to gain information about system usage is by analysis of the large amount of log data gathered by the platform. A number of papers report results from Moodle learning analytics. For example, Agudo-Peregrina et al. [10] discover a relationship between engagement in types of learning activity and

academic performance. Drăgulescu et al. [11] provide one of a number of accounts of adding analytics functionality to Moodle.

A number of authors make the claim that Moodle is more learner-centred than other VLEs [12]. However, there seems to be little exploration within the literature of how Moodle is really used and few papers address the use of innovative pedagogy within Moodle (or indeed any VLE). Bromham & Oprandi [13] note the need to incorporate active learning strategies rather than simply providing a repository of materials. However, Alves et al. [14] note that even where varied, dynamic resources are offered, they may be accessed and attempted by only a minority of students. Such studies underline the fact that, as with any VLE, the platform provides a wide range of functionality and how it is used by both staff and students can vary greatly. There is a need for further work to investigate how Moodle's affordances are being exploited in practice in order to determine directions for future development.

3 Methodology

To elicit themes relating to users' experience with Moodle which can inform the direction of more detailed future work, this research applies a qualitative analysis to data derived from semi-structured interviews with Moodle experts who have extensive experience of driving the introduction of Moodle and supporting teaching staff at two different European universities. In qualitative research, the number of data sources used varies depending on the methodological and epistemological perspective of the work undertaken. Rather than trying to cover a representative sample of users, an ethnographic approach seeks to generate a rich, subjective portrayal of a phenomenon as experienced by authentic users [15]. In the current research, the intention is to identify emergent issues in an area where little is currently known. For this purpose, two European universities were selected, each of which supports but does not mandate the use of Moodle. Key Moodle support staff were identified as experts who had overview of Moodle adoption across the whole institution. Detailed, in-depth interviews were chosen as the means to collect data to inform a deep exploration of how the system is experienced in two different contexts that have a similar Moodle adoption policy [16].

3.1 Data collection

Semi-structured interviews were held with the two expert witnesses, each session lasting roughly one hour. The questions covered the following general areas: how and why Moodle is used in their institution; support provided for teachers and technology issues; the student perspective; how use of Moodle has developed since the time of its introduction; challenges to the use of Moodle; plans and ideas for future development.

Both interviews were recorded and later transcribed. The themes listed above were used as the categories for a high-level coding exercise in which content analysis was performed on the transcribed data by the two authors independently. Differences were discussed and agreement reached on the analysis output. Relevant key areas within the categories were noted and the data grouped and analysed accordingly to identify

emergent themes, similarities and differences. Possible explanations for observed phenomena and areas for further investigation are then noted.

In this paper we report the first part of the analysis conducted on this data which relates to adoption of Moodle within an institution, staff attitudes and perspectives and the observed spread of use of the platform. The work brings together data relating to the themes stated and draws together issues of adoption and progression which create relationships between themes.

3.2 Institutional settings

One interview was conducted with a Moodle support officer in a University of Applied Sciences in Finland (referred to as expert F). The other was held with an educational technologist responsible for Moodle development and support in a research university in the UK (expert E). The Finnish university has been using Moodle for ten years, and prior to that the institution had some experience with using WebCT. The UK institution has been using Moodle for three years, prior to which there had been no VLE, with material hosted in a basic web format. At both institutions, the use of Moodle is now the VLE of choice, with central support and training provided by the university. However, in neither case is the use of Moodle mandated, and each department is left to decide on its own approach. Hence, for some staff, Moodle use may in effect be compulsory due to departmental policy. Others are free to make a personal choice and may either find that they are lone adopters in their area or that they are part of a self-selecting local group.

The UK university has an undergraduate population of around 13,000 and a postgraduate body numbering nearly 10,000. The majority of undergraduates come straight from school, are resident at the university and pursue a full-time degree. Postgraduates are a mixture of MSc students (largely on taught courses) and PhD by research. This institution does not have a history of distance learning or e-learning, with most courses being taught face-to-face, on campus.

The Finnish university is a multidisciplinary institution of higher education. The number of full-time students is 5000 and academic and other staff members 380. Seinäjoki UAS has 19 Bachelor and 7 Master degree programmes. This institution has ten year's history of Moodle usage, however Moodle is not totally accepted among the whole university.

4 How Moodle is used

In both institutions, members of staff are not required to make use of Moodle (or indeed any VLE). However, both experts noted that in many cases, departmental decisions have been made, causing Moodle to be effectively mandated within individual departments.

4.1 Patterns of adoption

As noted by expert E, *“some departments use it for absolutely everything and there’s just no exception, everything’s in there. And then other departments you just get a small handful of modules.”* A patchwork of use as described here is perhaps inevitable where adoption is not compulsory. The institution supported by E has been using a VLE for only a short amount of time (three years) and it might be supposed that after a longer period a spread of use might occur to the extent where adoption is practically universal. However, as observed by expert F, *“we still have teachers here in our school who aren’t using Moodle even though we have had it for 10 years”*.

In terms of the proportion of staff using Moodle, E estimates that this was around 50%, noting that *“there’s been a dramatic increase in the number of people using it”*. After a decade of use, F puts the usage figure at around 80%, indicating that adoption rates slow down and that some staff still do not intend to use the platform at all. Participation rates are a little difficult to estimate as teachers may be involved with a course that uses Moodle but not directly using it themselves. Or, as raised by F, someone may have asked for their resources to be put on Moodle so *“you might have a course there but you’re not actually utilizing it in any way”*. With use not controlled by the institution, a number of issues arise, from knowing the extent and nature of usage within the platform, to the appearance from the students’ perspective.

4.2 Consistency

When resources are provided in different ways there is a danger that students will become confused. E describes a course managed between four different departments: *“some of whom use Moodle, some of whom still have their materials on the normal web pages, and then in the Business School where they have their own customised VLE. So there’s a huge disparity in terms of the way that resources are provided, how you access them. So many different places to go and look for resources or where to submit assignments. It must be horribly confusing for those students. And they’d be rightly very unhappy about it.”*

E describes the consistency issue as one of the major challenges posed by allowing gradual platform adoption. There are dangers that students may be affected, not just by irritation and inconvenience of different formats, but by issues which may materially affect their studies such as failure to find resources or even mistaking the way to hand in an assignment. E further describes the reaction to patchy provision as one of disbelief from many students. *“Students will phone up IT services and say: ‘My friend next door to me in my hall of residence can see all their modules in Moodle but I can’t see anything. There must be something wrong – can you fix it for me?’*

While a free choice of VLE adoption may have many advantages and may be preferred by many staff, it can appear to students as an irrational source of discrimination between them and their friends on different courses.

Different policies on whether to make resources available in Moodle or by some other means is one source of inconsistency. Even within Moodle itself, courses can be presented in many different ways causing similar issues. F comments: *“My opinion is we should maybe require some things, some basic things like the description of the course, timeline or how this course can be done, teachers information and things like that. But then I would leave the rest for the teacher because otherwise everything will look the same. It’s very boring.”*

The question of interesting materials and individual choice is important to both experts. Each is keen to promote the use of Moodle as a platform for innovative teaching, and the teachers' own experimentation and creative design are crucial to new pedagogic discovery and progressive development. E discusses the need to provide consistency while maintaining choice and allowing diversity. In relation to the use of templates he says: *"That was something that didn't happen originally, that everybody just had a blank Moodle course where they would put their own material into it for whatever they were teaching. And it would be related to their module but there was not really the consistency. One of the big things that I think has emerged from the use of Moodle here is that, perhaps the rise of the consistency argument and that's not a conformity argument, not "You must do it this way" but just from a student experience point of view, from an ease of use for both staff and students that there is some visual and logical consistency to the way that things work. So many departments now have a template. And that's not to say that people don't deviate from that template. But you deviate from that template for a good pedagogical reason."*

The increasing recognition of student experience as an important driver in good teaching and learning points to a need to ensure that VLEs contribute to a positive experience for the learner. There appears to be a balance necessary here between, on the one hand, allowing enough flexibility for good, innovative teaching to develop and, on the other, providing some level of consistency for the learners. The previous quote also raises the issue of consistency for the benefit of staff, suggesting that many course developers may benefit from a more structured approach but acknowledging that this should not be something that constrains or restricts them.

Although appearance may seem a minor issue compared to underlying pedagogy, problems inconsistency and poor basic design can be off-putting to the learner. This is one of the more common problems noted by E. *"There are some examples that we've got where you look at the course and it is just visually a total mess. There are lots of different fonts. There are images which are scaled in weird ways so the aspect ratio is wrong and font sizes are all over the place and things aren't aligned properly and visually it is quite jarring to look at. However, the material that's there and the structure can be quite good."*

From the staff perspective, it can be a very time-consuming endeavour to make a course look visually appealing and ensure consistency across all aspects. The effort of moving materials to Moodle at all may take up a good deal of time and staff may be unwilling to pursue more detailed fine tuning of visual appearance. There may also be an issue of technical knowledge if resources from different sources need to be adjusted in various ways. F suggests that lack of technical confidence and skill is a major barrier to many of the staff she sees, indicating an area that may affect both willingness to use the VLE at all and a barrier to developing good courses. *"They're scared of technology and that's their threshold. That's why they can't get over – it's too big and it's getting bigger every day. Because we get new things every day and maybe they didn't bother to learn – or maybe we didn't teach them when they were studying to be a teacher they didn't have any education for using computers to help in teaching. So they don't know how to utilise it."*

This raises a number of issues which underlie important themes not just of Moodle adoption, but also of moving to more effective and innovative use of the system, of staff training and development and of the increasing complexity of the system itself. It

indicates that a further area of inconsistency is in the knowledge and skill levels of staff, with some very adept at using the system and others not having started. Understanding the complexity of Moodle options and creating effectively-structured courses can be a demanding task and with each subsequent upgrade of the system some staff may be left further behind.

4.3 Mandating use

Despite issues caused by inconsistency of use and patchy adoption, both experts believe that their institution is taking the correct approach in allowing staff the choice of whether to adopt Moodle or not. E expresses his perspective on the approach to adoption in the following way. *“The thing I wouldn’t do, but people have suggested in the past, is saying that everybody should be mandated to use Moodle. I think that would actually be the wrong thing because I think that allowing for adoption at a pace that suits individual modules and courses and academic is a much better approach from an educational point of view - and it helps the institution unpack what it wants to do in this space. Rather than just force everybody to use a technology it means that people think about ‘how am I delivering what I’m doing, what other ways could I deliver this’ and it gives them room to think that through”*

This response is an interesting combination of what is best for teaching staff and their courses, but also brings in consideration of the institution’s own development and its positioning within a growing global e-learning market. Imposing a system on staff may cause resentment and, while mandated use can ensure that resources are placed in a VLE, it does not guarantee effective or committed use of the platform.

F’s perspective also supports the idea of gradual evolution and of supporting and encouraging staff to move forward as and when they are ready. *“Every time somebody asks me something I try to add something – have you noticed that we also have this and we also have this? To make them a little bit interested so that next time maybe it will stay somewhere there in their mind and then they come back and say hmm once you mentioned – maybe we should try it now.”*

This may be effective in encouraging use of different features of the platform and in involving teaching staff in the pace of their own development with respect to its use. It allows innovation to be needs-led as teachers relate their current teaching requirements to aspects of the system they have heard about but not yet tried out.

5 Use of the platform

Given freedom in deciding whether to use a system and in what way, further questions arise of how staff approach the task and what Moodle features they employ.

5.1 Initial use of Moodle

Both experts agree that for the majority of staff, initial use of Moodle consists mainly of putting existing resources on to the platform. As described by E: “we’ll look at a module if there’s some problem and it’s not much more than a list of files for slides or

things to read”. However, he continues to talk about noticing a development of practice over time. *“When Moodle started ... most people were treating it as a place to put resources. Now it’s been running for a few years we’ve got a lot more examples of people who’ve been using it for some kind of innovative teaching practice.”*

The kinds of activities used initially generally mirror and support an existing face to face course. Teachers may be using the platform as an online repository to make slides and reading material available on the web. F discusses the typical usage of Moodle features. *“I would say most of the teachers put their material – use the assignment, that their students return the assignment in there. They can use discussion board and some use exams. And that’s not even half of the potential Moodle has.”*

Here, F makes the point that the features used by most staff are fairly limited and tend to be those that are similar to the traditional methods of delivery. This is perhaps hardly surprising and, following on from E’s observation regarding development, it might be supposed that a pattern of evolution would be evident. However, the restricted use is noted not just in new users but in the majority of long-term users as well. F states: *“So I would think most of the teachers are using it very lightly. Even though they think they are heavy users because they might have 10 courses in there with lots of material in there. But they aren’t using the whole palette of things.”*

Even though a teacher has made Moodle versions of many courses, they may still only be using the system in a very limited way. This is a pattern observed by F in the majority of Moodle users: *“most of the people they only put their material in Moodle and then they think, ok that’s it, I can stop here.”*

This indicates a possible divergence between what teachers think is effective use of the system and the unexploited potential that could be used to create novel and creative learning opportunities which exploit the affordances of the platform.

E expresses similar views and suggests reasons for the lack of progression. Again, he stresses that in some cases there may be legitimate motivations for a limited Moodle provision, but in general sees the failure to exploit more features of the system as a missed opportunity. *“I’m sure there are many cases where it is simply that there are lots of potential opportunities that could be exploited. It’s a limitation of imagination, of interest, of time. It’s their relative importance.”*

While many teaching staff may point to a lack of time to create inventive online courses, others find the necessary time. As F puts it *“I don’t know how some of the teachers have time (but others do not)”*. For some, the importance of investing effort in developing a creative Moodle course comes low on the list of priorities. Again, F refers to this, saying: *“They’re not interested in computers and digitalization and doing things online or whatever. They want to teach the subject they came here to teach and they’re not interested in how to add a picture somewhere”*. This suggests that the lack of interest is not simply in being unwilling to invest time in learning about the system, but that it is a manifestation of an absence of curiosity, a failure to experiment with technology in general: *“A lot of teachers want to use things that are told them are easy things. I use this and I am not even looking at anything else. So that’s the problem. I would like them to be open minded. You get this new thing and I want them to be interested in if I push this button what happens.”*

Teachers’ views on and facility with technology in general inevitably have an effect on their willingness to explore and experiment in a digital environment. A better

understanding of this and of its relationship to usage of a VLE could point to practical ways of providing better support.

5.2 Super users

While many users fail to progress or develop their Moodle courses, a minority are keen adopters of the platform and display an eagerness to improve their teaching by using online functionality to develop and enhance the overall experience offered by their teaching. F says: *“Some teachers take it on by themselves and they don’t even need any help. ...We tell them where you find Moodle and how to log in and they start doing things on their own.”* She describes the users as filling a triangle where the base is formed of the majority of users who view the system as nothing more than a repository. The middle of the triangle contains those who consider use of features which might lead towards an enhanced online course experience, such as the introduction of an online discussion. The apex of the triangle represents the “super users”. *“So the ones up there on top – they don’t ask questions. They know how to find things on their own. But then it’s the big mass of people and they don’t.”*

F refers to *“a grass-roots, a bottom-up approach where individual members have tried things, have experimented”*. These staff may act as motivators within their departments, push forward the use of Moodle, experiment and think of inventive ways to use features and develop teaching. F describes them as *“staff who in effect act as the proxy for many members of staff”*. Both E and F estimate that this type of user accounts for less than 10% of staff. They each view this minority of staff as being crucial to the introduction and development of Moodle and they describe how this has occurred in their institution. E sees the super users as a source of inspiration and motivation for others in the institution. Thus, *“there’s people who benefit from people at the cutting edge who won’t go first but when they see people make the first step they follow behind”*. These users act as progressive forces: *“they are in effect corralling academic staff to put things in to Moodle”*. The super users set an example, showing colleagues what can be achieved and reassuring them that the technology is robust enough to be trusted: *“Both on a technological level that the technology didn’t just break every five minutes. But also at an educational level that it worked in some way for somebody’s module, somebody’s delivery of a course. So I think it gives other people confidence to see yes it could be done and you could do it too.”*

However, F’s experience has been that the super users act more as loners and that the grass-roots, inspirational effect is not being observed. She describes them in the following way: *“They’re loners doing the job on their own because nobody – everybody else is so behind they can’t get any help from them.”* Asked if there is transmission of knowledge and skill to others she says: *“That doesn’t happen ... sharing is not happening.”* As a future activity, F intends to look into ways and means for promoting better sharing of good Moodle practice within the university.

Although attitude to technology has been raised as a barrier to effective use, it does not appear to be the “techie” teachers who generally emerge as super users. The following list of characteristics associated with these users is compiled from the words of both experts: lack of fear of technology; not a techie expert but willing to explore; good basic online skills; interest in pedagogy; concern for development of good teaching practice; willingness to adopt new pedagogy; lack of fear of failure; interest

in new ways of supporting students; general attitude of being open to experimenting; self-awareness about their own levels of skills; awareness of what they are and are not doing well; a willingness to ask for help. The most effective users are not necessarily early adopters but are keen experimenters. E introduces the analogy of Moodle as a door. It provides the means to access a wide range of other technologies and possibilities. By going through the door, teachers take the first step towards unlocking that potential.

6 Discussion

Although we have looked at Moodle, the findings are on the whole generic and it might be reasonable to suppose that similar issues relating to adoption, staff attitudes, ongoing pattern of uptake and so on would be observed in the use of other VLEs. The findings also have implications for attempted moves to more inventive use of diverse new technologies in education in general and the way that this might be best approached. There was generally an agreement between the two expert witnesses on both fact and perspective.

Models such as the Technology Acceptance Model (TAM) [17] and its variants have developed in the field of information systems in an attempt to explain what influences people to accept and use a technology. Such models are highly relevant to the use of a VLE such as Moodle in the case where adoption is not mandatory. However, even in the finer models, their limited capacity to explore richer data and explain observed phenomena means that they are limited in providing deeper understanding.

Where use of a learning platform by staff is not made compulsory, it appears that adoption may initially rise rapidly but does not necessarily continue to spread. The question of why users adopt Moodle initially is certainly of interest, however, the ways that staff use the system differ. It is not simply a question of whether a teacher has materials on Moodle or not, but how they are using it, why some stay with a basic set-up and others move on, how and why use develops over time and what pedagogy is developing that can promote enhanced learning and inspire staff. Further, the research raises questions about the way in which use of the system does or does not spread within an institution. Again, this is not just about numbers, but, as indicated by our expert witnesses, involves a more subtle narrative involving staff development, institutional positioning and even the evolution of a concept of teaching which can encompass new and disruptive approaches and which may be alarming to some staff.

There is a danger that many staff may already be left behind by the technology and that the gulf between the adopters and the non-adopters is growing. However, the issue goes deeper than confidence in using technology, exposing a gulf in pedagogical approaches. At one extreme there are those who embrace the disruptive potential of a rich online experience and are keen to work with students in exploiting the possibilities. At the other are the staff who see changes in terms of negative effects, such as lowering student attendance, for whom acceptance involves a paradigm shift in their whole approach to education. Understanding the experience and perspective of users, whether staff, students, educational technology support or management, is vital in uncovering and tackling the challenges and barriers to use.

On the question of whether adoption should be gradual and by choice or whether it should be an institutional decision, both experts were clear that the model of recommending but not forcing staff to adopt Moodle is best. They would not like to see it made compulsory. They support their view by pointing to the benefits of allowing a situation to evolve. For staff, forced usage may well be bad usage. They also mention the benefits to the institution of being able to find its way in the e-learning space and working out the policy that best suits its objectives. To maximise the benefits of adoption and to allow both concerns and creativity to emerge, a better understanding of different user experiences and perspectives is needed.

F introduced the metaphor of Moodle as “*a door*”. By entering that door, teachers have the potential to harness new technology and develop novel pedagogy. The first step is in unlocking that door. Beyond that, there is further work to do in translating the potential into actuality using the subject knowledge and creative skills which the teachers themselves bring. The suggestion from these interviews is that for the majority of users this progression is not happening.

7 Conclusions and Future Work

This study has generated themes relevant to the exploration of Moodle usage and users’ experience which are likely to provide fruitful areas for further investigation. “Use” of a VLE such as Moodle may mean many different things. Uptake in terms of having a course presence in Moodle does not indicate how the platform is being used. Teachers may regard themselves as “expert” Moodle users because they use it as a platform for all their resources but in practice they may be exploiting very few of its features. There is no natural progression to a “higher” level of use for most users.

Super users are noted by both experts as being instrumental in furthering the introduction of Moodle, but there is a difference in their described role. In one case, the super users were seen as instrumental in spreading good practice and in motivating colleagues to adopt Moodle and try new approaches. However, in the other they were seen as loners and little evidence of sharing good practice was observed. This raises the question of whether good practice does spread in this way and, if it does happen in some institutions but not in others, what are the factors that promote sharing and dissemination of good practice between colleagues? This is an area for future work. In addition, we wish to investigate both teaching staff and students’ perspectives and experiences of VLE usage. The overview provided by our expert witnesses and the themes that are emerging provide the basis for investigation with these further classes of user. In addition, our findings begin to suggest ways in which existing adoption models may be extended and point to barriers to usage which can be addressed.

Compulsory use of a VLE has consistency advantages, but may hide genuine concerns and barriers and these will hinder progress even if adoption is mandatory. A balance is needed between allowing enough flexibility for good, innovative teaching to develop on the one hand and providing some consistency for the learners on the other. Initial work and training has often concentrated on getting staff started with Moodle. The lack of progression and development by the majority of users seems to

indicate that attention needs to be paid to how teachers can be encouraged to explore the affordances of the platform (and related technologies) further.

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