The Digital Turn: staff perceptions of the virtual learning environment and the implications for educational developers

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Abstract

Virtual Learning Environments (VLEs) have become a critical part of the Higher Education (HE) learning, teaching and assessment environment over the past two d ecades. The study in this paper complements the longitudinal study designed by the #VLEIreland Project team to examine the key drivers and barriers for uptake and usage of an institutional VLE amongst students. There is a dearth of literature on VLE usage by staff in an Irish context. The findings of the #VLEIreland staff survey, presented in this paper, help us understand staff usage of technology tools including the VLE, and places this in a wider context. In 2014, the project team developed an electronic survey instrument to examine staff perceptions of the VLE and online learning tools. This collaborative study involved seven Irish HE institutes. There were 580 respondents to the electronic survey. Findings show lack of time as a considerable barrier to staff usage of the VLE and that staff usage is primarily for distribution of resources, communication and assignment submission. However, insights can also be gleaned from the data to assist educational developers when designing appropriate interventions for the development needs of staff. When considered in conjunction with findings from student data, the common misconceptions about VLE usage can be addressed including a negative impact on attendance and over-reliance on lecturers. In addition, consideration for the professionalisation of teaching in terms of digital literacy and technological skills is considered of vital importance to empower staff in the era of the digital turn.

1. Introduction

1.1 Context

Since the mid-1990s, higher education in Ireland and internationally has seen the emergence of digital technologies including the introduction of virtual learning environments (VLEs) across the sector. These developments in the increasing use of technologies have been identified as "the digital turn" (Jones, 2013, p. 169), which requires increased attention to new literacy practices in digital environments across a variety of social contexts including educational, recreational sites and workplaces. In addition, this decade saw the establishment of centres of learning and teaching in Ireland, initially in the universities funded by the HEA and more recently across the sector responding to staff development requirements including the use of the VLE.

Key policy developments have also influenced the work of centres for teaching and learning, including the *National Strategy for Higher Education to 2030* (DES, 2011). The subsequent establishment of the National Forum for the Enhancement of Teaching and Learning led to the publication of the *Roadmap for Enhancement in a Digital World 2015-2017* (National Forum, 2015). More recently the National Forum has published the National Professional Development Framework (National Forum, 2016). This incorporates a specific domain entitled "Personal and Professional Digital Capacity" focusing on "the importance of personal and professional digital capacity and the application of digital skills and knowledge to professional practice" and appropriate to this study, "to the development of personal confidence in digital skills to develop professional competence and the identification of opportunities for technology to support and enhance student learning" (National Forum, 2016, p. 7). This approach is in keeping with European Commission objectives for improving teaching and learning (European Commission, 2013).

Much attention has recently focused on the lack of investment in technological infrastructure with a variety of negative consequences (National Forum, 2017). These include the limitations on educators' endeavours to be innovative and a lack of access to up-to-date technologies, which it is suggested is contributing to slippage in university rankings. Indeed, expert commentators have requested a rethink of the role of educators in the digital era and of the funding model that currently applies to Irish higher education institutions (HEIs) (Humphries, 2015). It would seem that Bonk's (2004) suggestion that we are facing a perfect 'eStorm' linking pedagogy, technology and learner needs' remains relevant today in the current context of Irish HE and also in particular to this research study.

The #VLEIreland staff survey has been described elsewhere in this Special Issue (Farrelly, Raftery & Harding, 2018; McAvinia & Risquez, 2018). Analysis of this data indicates VLE usage and barriers to use, and from this we can identify staff development needs. The need for research into the challenges faced by learners and teachers in pursuing learning goals using technology provides justification for this study, which focuses primarily on staff perceptions of the VLE and the implications of these for educational developers.

1.2 The digital turn

Consideration of the place of the VLE implies consideration of the nature of the 'digital unviersity' and 'digital turn'. The definition of a 'digital university' is contested but may be considered to apply to "all university functions as they are revised to make use of digital technologies and to accommodate their impacts" (Jones, 2013, p. 164). These include the use of technology such as the VLE to enhance learning. However, even in 2004, Zemsky and

Massey's report of the Weathervane Project and the use of the VLE suggested that "any expectation that such technologies would of themselves bring about change in teaching practices was unfounded" (O'Rourke, Rooney, & Boylan, 2015, p. 3). Indeed, Selwyn suggests that digital technologies have created increased "managerialism" in universities affecting students in addition to academic and administrative staff (2014b). Weller's pronouncement of the death of the VLE received widespread acclaim in 2007, but a decade later the VLE remains mission critical to most HEIs. While the VLE gives the security provided by 'walled garden models' favoured by students and academics, it has also been suggested that the VLE can reduce experimentation by students and staff (Conole & Alevizou, 2010, p. 84). There are still those who do not engage with the VLE, contrasting with the early adopters of technologies in all aspects of academic work.

1.3 The "digital natives" debate

Several authors have posited the idea that the current young generation, born after 1990 and often referred to as generation Z (Williams, 2015), have a familiarity with the networked world and in particular social media, and that this phenomenon has implications for teaching in higher education. The terms 'digital native' and 'digital immigrant' (Prensky, 2001) have been used to indicate the differences between those who have grown up with computers and the internet which can set them in opposition to their teachers who are older and may not have the same proficiency (Bayne & Ross, 2007). These students are presumed to be more at ease with technology and some would suggest this places an imperative on teachers to respond and remain relevant (Bayne & Ross, 2007). According to some authors, digital natives' familiarity with technology automatically implies they think and learn differently compared with previous generations (Howe & Strauss, 2000; Prensky, 2001, 2010; Oblinger & Oblinger, 2005; Palfrey & Gasser, 2008; cited in Jones, 2013, p.167). However, Jones suggests that such high skill levels do not translate into preferences for increased use of technology in the classroom and indeed he also suggests that student attitudes towards teaching can be on the contrary, quite conventional (Jones, 2013, p. 167). Selwyn has also argued that the hype and optimism normally associated with educational technologies should be challenged (2014a). Recognising the importance of this debate, our findings in relation to student perceptions of the VLE (Raftery & Risquez, 2018; Ryan & Risquez, 2018) indicate that "student satisfaction with the VLE is intrinsically linked with the educational design behind the use of the tools". It appears that the VLE offers benefits to students, particularly support for students with specific learning difficulties especially when adopting a multi-modal approach in the design of learning materials and activities (Caruso & Kvavik, 2005; McMahon, 2016). Nonetheless, a more considered examination of the factors influencing attendance at lectures is required (Risquez *et al.,* 2013). Our previous findings also indicate that use of the VLE changed students' patterns of learning, providing them with more flexible ways of studying (Risquez *et al.*, 2013). Therefore, researching staff perceptions of the VLE is important in understanding how they might use it to enhance student learning.

1.4 Digital literacy

Recent discussion of digital literacy has moved away from the concept of a narrow set of ICT skills towards the development of knowledge and competence (Aviram & Eshet-Alkalai, 2006). More recently other scholars suggest that digital literacy is a foundational capability essential for participation within society (Littlejohn, Beetham, & McGill, 2013). JISC defines digital literacies as "those capabilities which fit an individual for living, learning and working in a digital society" (2014). JISC include seven elements to indicate the capabilities

encompassed including: information literacy, media literacy, ICT literacy, learning skills, communication and collaboration, career and identity management and digital scholarship (JISC, 2014). Each of these seven elements can be considered relevant to this study as the development of digital literacies could be mediated through the VLE. The VLE can be used throughout a programme of study to assist students manage their digital reputation and online identity; use digital applications; develop effective study and learning skills, participate in emerging professional and research practices, develop critical skills in relation to finding, sharing information, and collaborate and communicate using a variety of media and networks (JISC, 2014). This provides another lens to critique the findings of this study, particularly when examining the reported use of online tools including the VLE and staff requirements for further continuous professional development in the use of such tools with a view to embedding digital literacies as part of curriculum design and pedagogic practice.

1.5 Research questions

In order to examine the use of the VLE and online tools by HE staff as a social phenomenon with an objective reality the following research questions were devised for this study:

(a) To what extent are staff using the VLE and online learning tools and what are the barriers to use reported by staff?

(b) What are the implications for educational developers arising from the perceptions of staff relating to VLE use and non-use?

2. Methodology

Previous papers in this Special Issue have described the methodology and data analysis procedures of the #VLEIreland Project (Farrelly, Raftery & Harding, 2018; McAvinia & Risquez, 2018; Ryan & Risquez, 2018). The staff survey instrument consisted of questions designed to generate categorical data relating to the research questions. Question types included dichotomous, multiple choice, Likert-scale questions and open-ended comments. The research was conducted in keeping with best practice in educational research (BERA, 2011).

3. Findings and discussion: staff perception of the VLEs

3.1 Demographics: staff profiles and the use of the VLE

Of the 580 respondents to the survey 10% (n=59) indicated they did not use the VLE (Figure 1). Of those who indicated they used the VLE the majority 79% (n=451), held a teaching role with the breakdown as follows Professor (n=28), Senior Lecturers (n= 83), Lecturers (n=258) or Junior (Assistant Lecturers) (n=82). Other respondents who indicated they use the VLE as part of their role included, post and pre-doctoral researchers and postgraduate teaching assistants (n=16) and one administrator. 8% (n=48) of respondents who indicated they were non-users held an academic role, with the majority either Senior lecturers or Junior (Assistant) Lecturers (n= 41).
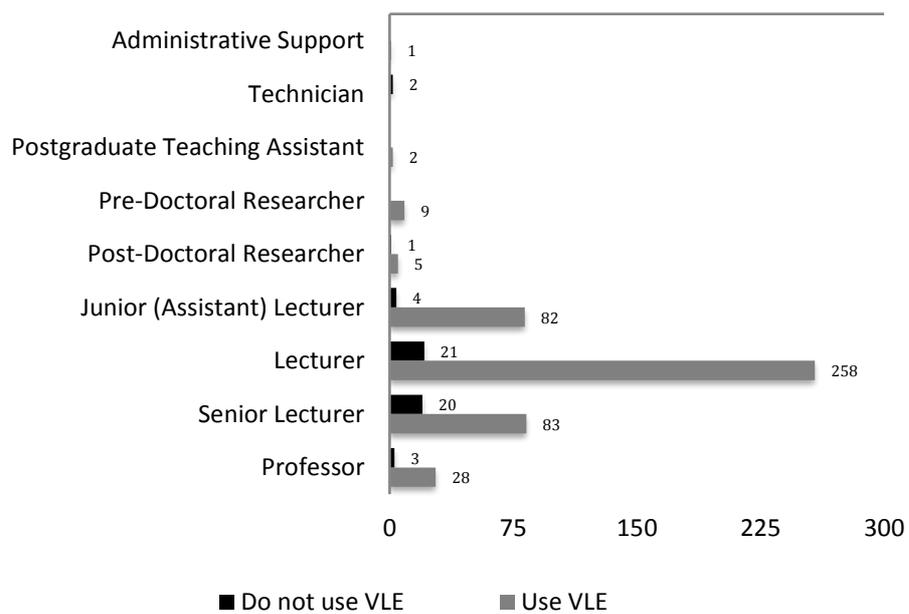
Figure 1: Respondent use and non-use of the VLE according to role

Respondents were asked to indicate gender, however gender bias was evident (Figure 2).
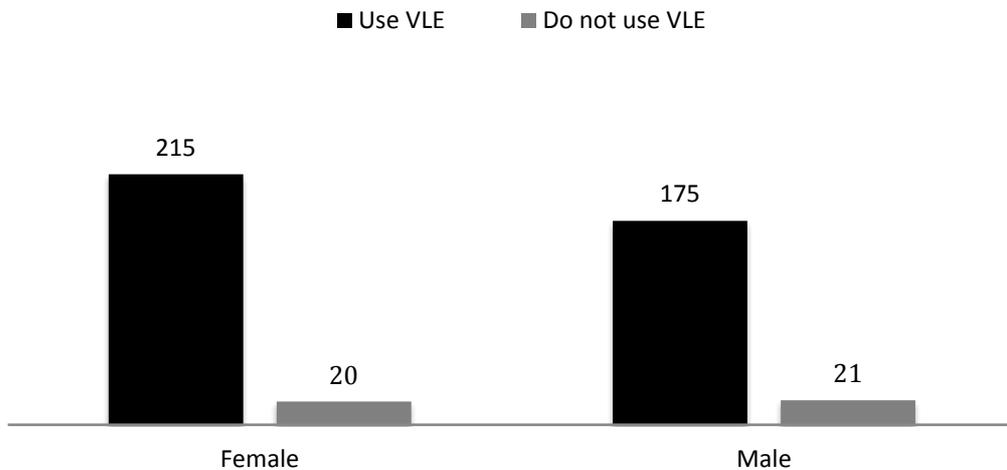

Figure 2: Use and non-use by gender

When asked to indicate how long respondents have been using the VLE, 44% reported using the VLE for more than five years, (n=200) with a further 38% indicating usage for two years or more and 18% (n=80) reporting using it for less than two years (Figure 3).
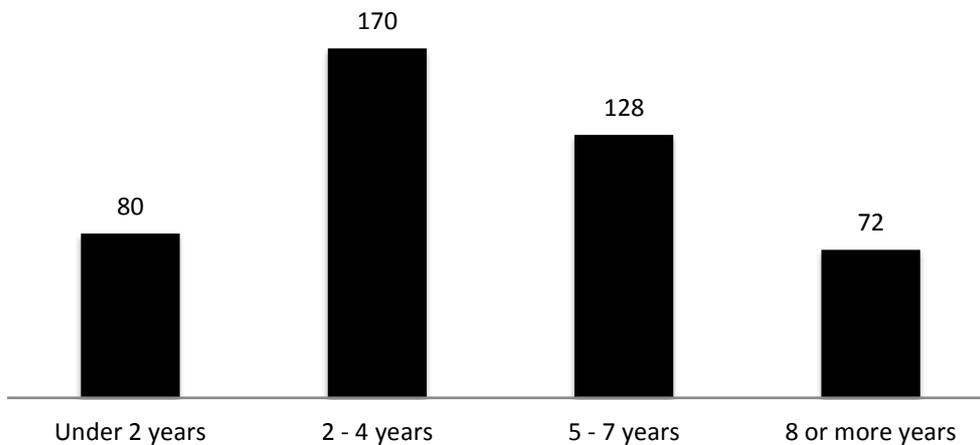
Figure 3: Use of VLE in years

67% of respondents (n=355) indicated they had received training in using the VLE, 33% (n=172) indicated they had not (Figure 4). This finding has implications for the supports offered to staff and the lack of opportunities and/or time to engage in development.
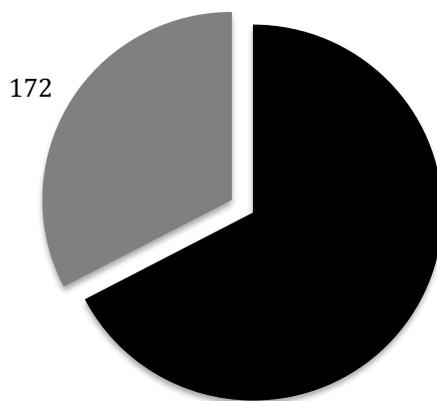
Figure 4: Training in the use of the VLE

3.2 Non-users: barriers to use and suggestions

Non-users were asked to indicate what would encourage them to use the VLE in the future. Of the 59 non-user survey responses, 48 responded to this question. When analysed thematically the responses generally split into two categories, barriers to use and suggestions to encourage future use (Table 1). Usability was the main barrier to use with some very strong comments about the design of VLEs. In addition, some respondents were of the view that the VLE did not enhance teaching or was not appropriate to teaching in their discipline. One respondent mentioned that "teaching happened in the classroom". This may reflect non-

user theoretical perspectives and current understanding of the process of teaching and in particular of learning as something that only happens in the classroom. However, it may also relate to the views articulated by Satchwell, Barton and Hamilton (2013) when they suggest use of technology when appropriate and suited to the context. In addition, "ownership of resources" after development arose as a concern. In relation to suggestions to encourage future use, training received the most responses with some examples of types of supports required (Table 2). These findings will inform and assist developers when designing training. "Time" emerged as both a barrier to use and a suggestion to support future use. This also emerged as key finding as it consistent with the data for VLE users and is discussed further in McAvinia, Ryan and Moloney (2018) when analysing the talk of time in lecturers' use of the VLE.

Finally, the "teaching environment" emerged as a theme. Responses included having to conform to peer pressure and mandating use of the VLE. Interestingly, one respondent indicated they would use the VLE if teaching a distance course, again indicating a belief that it is not required for teaching that primarily involves face-to-face classroom contact. This may indicate that the respondents do not consider the development of digital literacies as a requisite learning outcome for their students in the modules they teach, even though JISC's research suggests students will look to their lecturers to recommend the technologies required for their subject and use technologies that are embedded in the curriculum (JISC, 2015).

Barriers to use	Suggestions to encourage future use
Usability (#12 Responses) "I don't find it easy to navigate - I don't like the look of it (designed by engineers not designers?) and it feels clunky." "Nothing, because it's a commercial technology in search of a use, not a legitimate pedagogical tool. People who use it - and people who promote its use - are being suckered by powerful companies with product to sell. I'm no sucker."	**Training (#14)** "I'm reluctant to take up anybody's time asking repetitive questions about how to use the system. I might be more inclined to use it if there was a bank of self help style videos showing the main features of the system." "workshops at very basic level, where the instructor would spend time on people who do not know much"
Beliefs about teaching enhancement (#4) "I do not think Moodle adds anything to teaching. It has a number of course administration and student tracking benefits. Teaching happens in the classroom." "Nothing. 3rd level college is not a correspondence course and students learn from the group collective and dynamics at play in classes and not from reading slides on a power point." "It also seems to me to generate more work (posts, blogs, etc) rather than streamline the existing workload - I know I am using only the basic level nuts and bolts version - but I don't see its add-on value (yet?) except as a digital noticeboard and pigeon hole."	**Time (#6)** "Lightening of all my other teaching and research duties, so I can devote a few hours to get started with [VLE]." "Time to become familiar with skills required to operate it; and time to assess its potential value in engagement and learning outcomes for the particular modules and student groups that I teach."
Ownership of resources (#1) "if you put a lot of work into creating good notes etc. for a particular module and then you are no longer asked to lecture that module, the following lecture will get the benefit of all your work."	**Teaching Environment (#4)** "A teaching environment where people use [VLE] is all I need. I am getting one soon." "If I was obliged to." "If I was teaching a distance education course." 'Peer pressure, convention.'
Time (#1) "The "main barrier is time to get it started."	

Table 1: What would encourage you to use the VLE?

3.3 Barriers or restrictions to the use of the VLE

Three key findings emerged in response to statements relating to barriers to using the VLE or other online tools (Figure 5). When asked to respond to the statement 'Training is available but is not suited to my requirements', 33% (n=177) disagreed or strongly disagreed with this statement and 29% (n=132) agreed or strongly agreed. This is in contrast to the positive response to adequacy of training reported earlier, which has implications for educational developers.
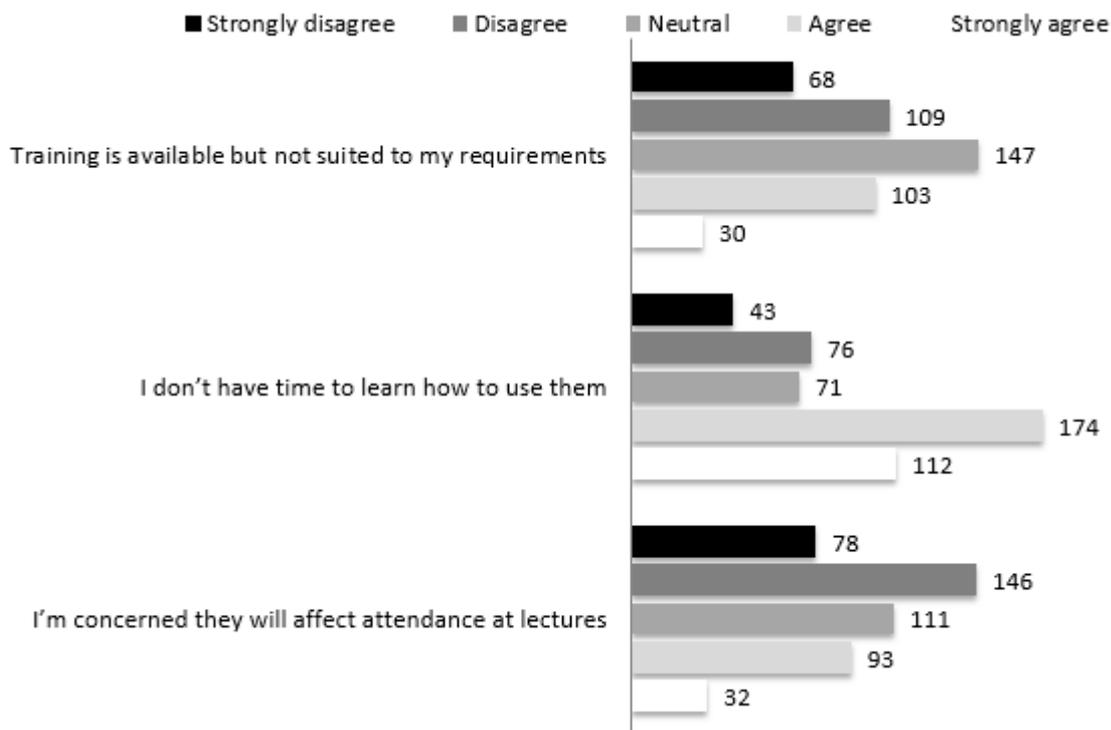
Figure 5: Barriers or restrictions to use of VLE and online tools

Importantly, when asked to respond to the statement 'I don't have the time to learn how to use them' 60% (n=286) of respondents indicated they agreed or strongly agreed with this statement. 25% (n=119) indicated they disagreed or strongly disagreed with this statement with 15% (n=71) remaining neutral. Time emerged as a key theme in the analysis of the qualitative data also in the responses given to different open questions (Table 2).

	Number of respondents suggesting 'time'
Is there anything that prevents you getting best use of the VLE?	135
Are there any other reasons you choose not to, or are prevented from, making use of online tools in your teaching?	77

Table 2: Time as a factor

This finding is in keeping with the responses by non-users and also with earlier studies. Goodyear (2005) suggests that in terms of introducing innovations in learning design and technology, academic staff maintain a strong sense of being "time-poor" (in Laurillard, 2008, p. 144). Indeed, Brownell and Tanner posit that there is a substantial body of literature indicating the many factors that impede faculty change, the most common of which are a "lack of training, time, and incentives" (2012, p. 339). However, they also contend that professional identity plays a key role in being open to pedagogic change and contend that academics particularly are often reluctant to "come out as teachers" (2012, p. 342). These findings have implications for educational developers in terms of their role in policy development, designing guideline documents and the development of initiatives in professional development. For example, when working with newly appointed staff Clay (2010) suggests a five stage model which commences with uploading of resources (stage one) and continues with advanced use on a weekly basis such as adding a variety of learning resources; photographs of classroom based exercises, links to eBooks and RSS feeds (stage two); following this the addition of interactivity through online quizzes and feedback (stage three); engagement follows this approach using online forums (stage 4) and finally embedding is the feature of the final stage, where usage of the VLE and online tools becomes part of practice and practitioners are able to offer blended learning (stage five). This model progresses staff beyond the use of the VLE as a document repository and assignment submission site to one that supports learning through designing in interactivity thereby supporting student engagement in the learning process. Interestingly, the affordances of technology to enable feedback, particularly for first year undergraduates, have also been identified as a key means to support learning (Y1 Feedback 2016a, 2016b). However evidence of extensive practice is not apparent in this study.

3.4 Attendance at lectures

When asked to respond to the statement 'I am concerned [the VLE] will affect attendance at lecturers' 27% (n=125) indicated that they agreed or strongly agreed with this statement. However, 49% (n=224) disagreed or strongly disagreed with the statement and 24% (n=111) remained neutral. When considered in conjunction with the findings from the study of student perceptions (Ryan & Risquez, 2018), again this sets a challenge to educational developers to assist staff in providing appropriate resources and extending the use of the VLE beyond a document repository (Risquez, et al., 2013). In addition, this finding may also relate to students' reported dissatisfaction with inconsistent use by lecturers (Cosgrave, et al., 2011; O'Rourke *et al.,* 2015) which has implications for the development of policy and strategic planning at macro, meso and particularly at micro level within academic departments by integrating programme-wide approaches when integrating the VLE into learning, teaching and assessment strategies.

3.5 Restricted use of the VLE

When asked to rate the features of the VLE that respondents considered very useful and useful, a specific pattern emerges (Figure 6). Over 40% of usage relates to distribution of resources, communication, submission of assignments, giving grades/marks and finally for the use of text-matching software.

VLE is Very useful & Useful

Feature	
Distribute other course material	(n= 492)
Distribute copies of lecture notes	(n=488)
Post announcements	n=405)
Send email	(n=323)
Collect assignments	(n=315
Giving students marks/grades	(n=241)
Detect plagiarism	(n=233)
Online quizzes	n=146)
Discussion forums	n=139)
Manage groups	(n=132
Journals	(n=92)
Keep track of class times	(n=65)
Blogs	(n=40)
Wikis	(n=30)

0% 20% 40% 60% 80% 100%
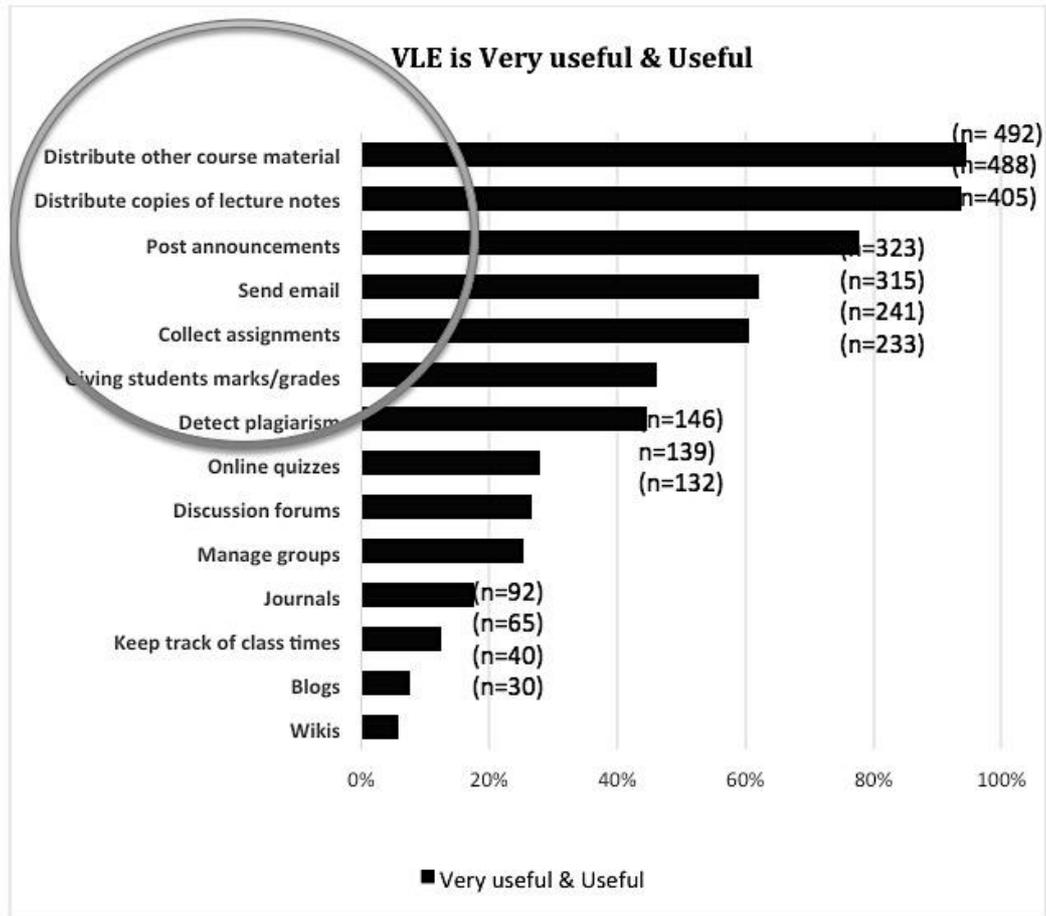
■ Very useful & Useful

Figure 6: Rate the features of the VLE

The data was examined further using Pearson correlation to produce the strength of a linear association between the two variables, 'perceived usefulness of the VLE' and the 'features used' (Figure 7).
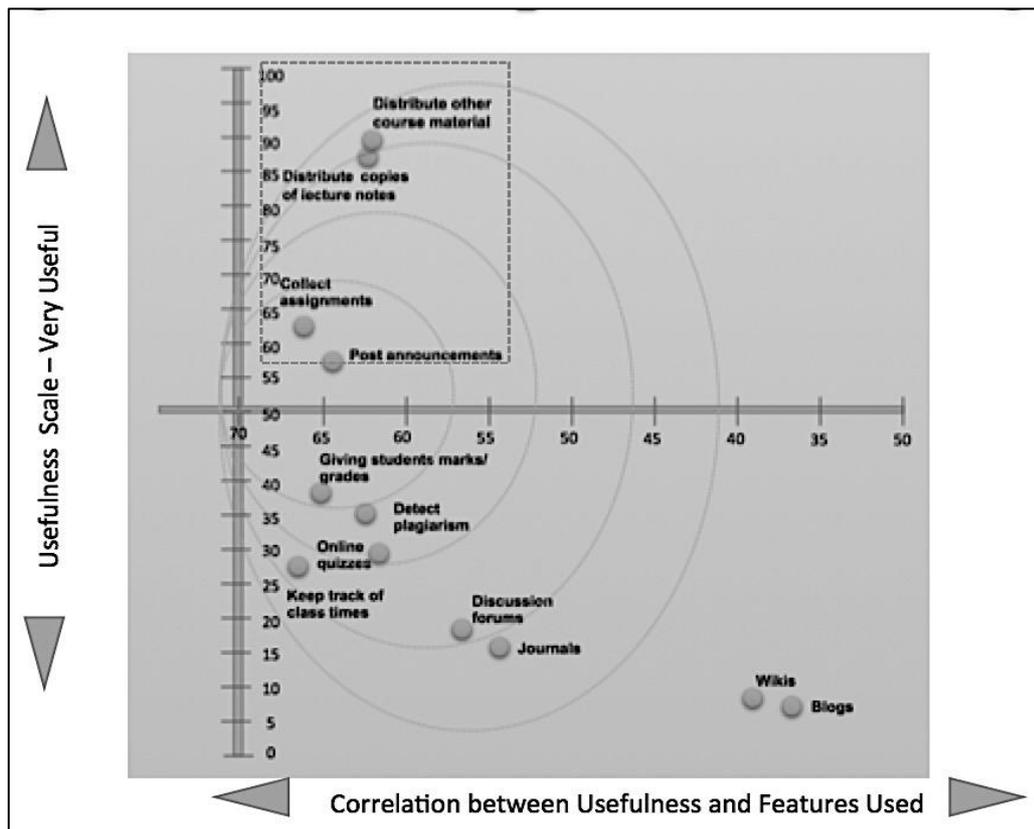
Figure 7: Relationship between perceived usefulness and VLE features used

The left axis shows the scale for perceived usefulness with anything above the intersecting line being very useful. The features are then plotted according to how they correlate with perceived usefulness. This replicates and confirms the findings outlined in Figure 6. However, it may also offer a reason for staff not moving beyond the basic use of the VLE or indeed extensive change to practice, as suggested in other studies (Greener, 2012; O'Rourke et al., 2015). It also raises questions in relation to the use of technology to enhance learning as, if staff do not consider the features of the VLE which promote active and peer to peer learning as useful to their teaching and student learning, this has implication for the use of all technologies. This relates to their underlying beliefs about teaching and may go some way to explain why some uncritically adopt technologies whilst others reject them uncritically (Bayne & Ross, 2007). Indeed, Margaryan, Littlejohn and Vojt (2011) suggest that even academics who are proficient in the use of technology for research find it difficult to integrate technology-enhanced learning into their teaching practice (cited in Littlejohn, et al., 2013, p. 128). The finding also provides further evidence for educational developers to consider how staff are introduced to classroom technology, and if the focus is on skills acquisition without also focusing on how technology can be used appropriately to enhance the development of digital literacies of students.

3.6 Use of online tools

The survey was designed to elicit responses in relation to the use of online tools and techniques in the year prior to completion. A selection of options was provided with respondents indicating whether or not they used them and if they did was it inside or outside of the VLE. Table 4 displays the findings with any element achieving a response 80% and over highlighted in red. A similar trend of conservative use emerges, as indicated earlier, with

the VLE being used primarily for sharing resources, communication, assignment submission and plagiarism detection. This finding is in keeping with Greener who suggests that use of the VLE by the lecturer does not progress beyond this basic requirement (2012).

What online tools and techniques have you used in the past year? **#450-500** Grey=80% and over of respondents	*Yes, within [VLE]*	*Yes, outside [VLE]*	*No, do not use*
Assignment submission	318	67	109
Plagiarism detection using Turnitin/SafeAssign	239	62	186
Access to external web based resources or digital repositories	223	130	143
Videos and screencasts	157	108	223
Online assignment feedback-Turnitin/SafeAssign/Inline Grading	146	46	280
Asynchronous Collaborative tools e.g. discussion boards, blogs, wikis	113	47	320
Online quizzes (formative, for feedback)	108	48	330
Audio/Video Lecture recordings	106	81	291
Online quizzes (summative, for marks)	96	29	357
Online journal tool	59	34	379
Online student presentations (individual & group)	45	71	352
Podcasts	44	65	358
Synchronous Collaborative tools (virtual classroom, Skype etc.)	37	63	368
e-portfolio/PDP/progress files	27	37	403
Peer assessment tools	22	61	383
Simulations and games	15	55	391

Table 3: Use of online tools inside and outside of VLE

3.7 Identification of development needs – implications for developers

This finding raises interesting questions about the perceived usefulness of technologies in and outside of the VLE with a similar picture of conservative use emerging for outside. It would appear that usage of online tools whether inside or outside the VLE is predominantly at stage one and two of the Clay's model (2010). This again highlights the need for critical engagement with how to support the development of digital literacies amongst staff and students, the development of policy and practice and the provision of appropriate professional development opportunities, in keeping with recent strategic documents (DES, 2011; JISC, 2014; JISC, 2015; European Commission, 2013). Consideration in this regard is also required in relation to embedding digital literacies in curriculum design throughout programmes (JISC, 2014; JISC, 2015).

Of practical interest to educational developers, when asked to rate the options for future training and support, one-to-one training and online video or screen casting support were the top two choices considered 'very useful' or 'useful'. Online written instructions and guides and one-hour workshops were the next most popular choices with two or three-hour workshops considered the least popular.

Finally, a very positive finding was the response to the question about the future use of online tools. When asked if they would like to make more use of online tools in teaching 91% (n=430) responded yes and 9% (n=45) responded negatively (Figure 8). This clearly shows that it is worthwhile investing in supporting teachers to use technology in their teaching in order to encourage innovative and efficient pedagogy, although bringing both together remains a challenge.
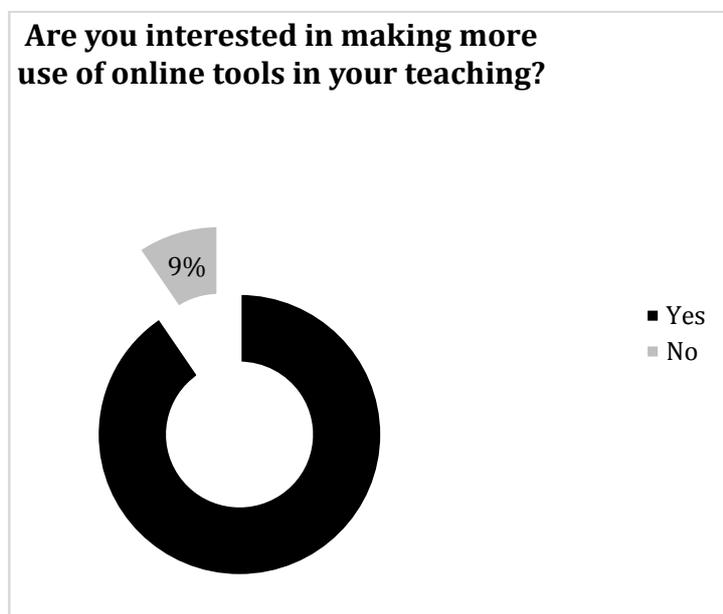

Are you interested in making more use of online tools in your teaching?

9%

■ Yes
■ No

Figure 8: Future use of online tools in teaching

When considered in conjunction with earlier findings indicating conservative use of the VLE and online tools perhaps Laurillard's question "what does the teaching community need to help them personalise learning?" becomes relevant. Indeed, Laurillard suggests that technology provides the opportunity to develop a range of resources for teaching. However,

she cautions that if learning design remains a "hand-crafted, context–specific exercise" a repetitive and traditional approach will ensue (2008, p. 144). She offers a solution to HE institutes and developers: to make teaching more like research. Focusing on teaching and problematizing, exploring, building on the work of others, being experimental, reviewing, sharing ideas and being part of a community would allow teachers build knowledge about teaching practice using an action research approach (2008, p. 144). Research-informed principles could include Kreber's "scholarship of engagement", Boyer's "scholarship of discovery" and citing Knight, Tait and Yorke (2006) the requirement to treat teaching as "professional learning" (Laurillard, 2008, p. 144). Adopting these approaches may help move teaching beyond an often individually focused exercise to one that which encourages collaborative pedagogy and sharing of practice through the support of a research community. However, this would require resourcing of staff development and the tools, resources and environments to support sharing and exchange of ideas and learning design.

4. Conclusion

This article has set out to answer the questions relating to the extent of use of VLEs by HE staff and the barriers to usage to consider the implications for educational developers. In general, respondents report satisfaction with the VLE and consider it useful for their teaching. As reported in Raftery, Farrelly, and Harding (2018), the majority of respondents were positively disposed to VLEs, considering them useful, easy to use and reliable. However, given the low-level usage of features that promote collaboration and peer learning, questions must be asked about how the VLE is used to support learning. This low usage may be explained in part by the barriers to use suggested in this and other studies, such as lack of time and availability of training tailored to needs.

Findings of this study suggest, given the availability of contemporary research into digital literacies, it is timely to consider if the roll-out of VLEs in HEIs has been on an *ad hoc* basis, and whether this has had a negative impact on usage. Developing a more strategic approach at macro, meso and particularly at micro level with appropriate resourcing is timely.

Although negative effects on student attendance remain a concern for some staff, the majority of respondents did not consider it an issue. The study has shown that overall there is a positive disposition amongst teaching staff to the use of the VLE, although concerns have been raised in relation to usability in addition to the creation of a dependency culture amongst students at a time in their education when there is a focus on developing skills of self-directed learning and their development as autonomous learners. In addition, the reported lack of incentives and training, highlighted in other studies, have been replicated here with implications for resourcing and policy development. Non-users reported similar barriers and in some cases, did not consider the VLE appropriate for the teaching of their subject.

Given the appetite which emerged for making more use of online tools in teaching, a key question emerging which requires further investigation is the role that professional identity and an understanding of learning theory play in designing and implementing pedagogic innovation which moves beyond the use of technologies to maintain the status quo, replicate traditional approaches to teaching and/or to support an increasing administrative load. This in particular sets a challenge to educational developers and HEIs to examine and research the underlying pedagogical issues associated with the development of digital literacies and the use of technology in education thus influencing the development of policies and strategy in

addition to informing the practice of educational developers when supporting staff in the era of the digital turn.

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