E-LEADERSHIP LITERACIES FOR TECHNOLOGY-ENHANCED LEARNING IN HIGHER EDUCATION: A MIXED METHODS RESEARCH DESIGN AND PRELIMINARY FRAMEWORK

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Abstract

This paper presents the design of a research method for a doctoral thesis in three main phases which entails developing and validating a framework of e-leadership literacies for technology-enhanced learning in higher education (TEL-eLL), applying this framework in three Mixed Methods case studies and finally formulating and validating recommendations for leadership development programmes. In addition to the research design, the paper also presents the results of phase 1 of the research, in the form of the preliminary TEL-eLL framework resulting from an online Delphi study conducted with 31 international experts. The rationale behind the overall study is anchored in the still unsatisfactory integration of technology for teaching and learning in higher education and the hypothesis that one of the reasons for this is a lack of strategic thinking and leadership. The aim is thus to explore the attitudes, mindsets, understandings and behaviours of higher education decision-makers in relation to teaching and learning supported by technology, as well as their wider views on the societal and environmental impact of technology. The voices of teachers with respect to such leadership are also addressed, as is the complex political, hierarchical and cultural environment in which this leadership operates.

Introduction

Technology-enhanced learning (TEL) has been part of the higher education (HE) teaching and learning landscape for several decades but is still not being used to its full potential (Bates, 2015). There are many examples of this, where the focus is on the technology rather than the teaching and learning itself: cumbersome Learning Management Systems serving primarily as storage and distribution of text-based course materials; mass lecture capture with no thought to the design of learning activities around these resources; the rush to get on the high-profile Massive Open Online Course (MOOC) bandwagon with no sound business model and poor pedagogical design (Laurillard, 2016). In times of decreased public funding, changing demographics of the student population and the pervasiveness of technology, HE institutions need to develop a high level of strategic thinking (Bates & Sangrà, 2011) and the leadership capacity (Fullan & Scott, 2009) to make informed decisions.

One area of research seen as being particularly appropriate to studying leadership for TEL is that of e-leadership, first developed as a theory in the business world (Avolio, Kahai, & Dodge,

2001) and defined as "a social influence process embedded in both proximal and distal contexts mediated by AIT [Advanced Information Technology] that can produce a change in attitudes, feelings, thinking, behavior, and performance." (Avolio, Sosik, Kahai, & Baker, 2014; p.107). Indeed, Jameson (2013) calls for e-leadership to emerge as the *fifth age* of research in educational technology research, yet a recent review of the literature shows that this has not been the case, with a notable absence of such research in continental Europe. One reason may be due to difficulties relating to the different understandings of the concept of e-leadership, where it is either accepted as multifaceted and conceptually ambiguous (Salmon & Angood, 2013) or where other terms such as Digital Education Leadership are preferred, shifting the emphasis from leadership in educational technology to that of "fostering… leaders who have the qualities to lead in a digital culture" (Brown, Czerniewicz, Huang, & Mayisela, 2016; p.8). One could also argue that such leaders need to develop their own (critical) digital literacy (Belshaw, 2014), a proposal that sits well with the theory of Leadership Literacies developed by Davis (2012), where we understand the notion of literacy as the ability to use cognitive skills "in ways that contribute to socio-economic development, to developing the capacity for social awareness and critical reflection as a basis for personal and social change." (UNESCO, 2006; p.147).

The research thus aims to investigate the role of e-leadership literacies for technology-enhanced learning (TEL-eLL) in European campus-based universities and develop recommendations for Leadership Development Programmes (LDPs). Specifically, it involves developing and validating a TEL-eLL framework, combining the aforementioned prior research on Leadership Literacies (Davis, 2012) and e-leadership for TEL (Jameson, 2013), as presented in Figure 1. The study explores how such a framework can help HE leaders implement strategic and organisational change to improve the way technology is used for teaching and learning. The wider aim is to raise awareness of the need for HE leaders to take into account not only pedagogical and technological considerations but also organisational, cultural, economic, societal, ethical and environmental issues in decision-making about TEL in a VUCA (Volatile, Uncertain, Complex, Ambiguous) world (Johansen, 2012).
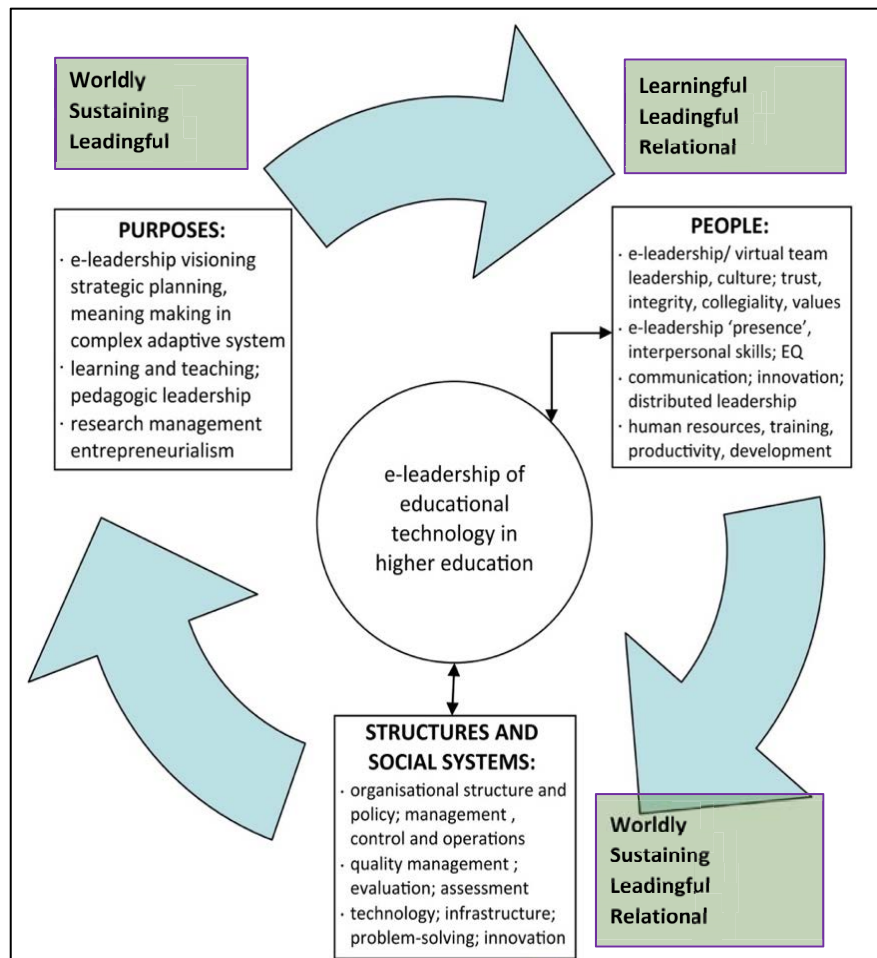
Figure 1. E-leadership literacies framework, adapted from Davis (2012) and Jameson (2013; p.909)

Research design

The study is designed in three phases, around the following research questions:

- Phase 1: What are TEL-eLL in HE?
- Phase 2: (a) How are TEL-eLL experienced by key informants in selected European universities? (b) How do key informants in European universities develop (i.e. *learn*) TEL-eLL?
- Phase 3: (a) How are TEL-eLL reflected in existing LDPs? (b) What changes should be proposed to integrate the development of eLL for TEL in LDPs?

PHASE 1 (Research question 1)

The aim of Phase 1 is to define TEL-eLL through an extensive literature review and by producing an initial TEL-eLL framework validated by a group of 30 experts via an online Delphi study. The outcomes of this phase are an agreed definition of TEL-eLL in HE and the refined framework, which will then serve as the basis for Phase 2.

The Delphi method originated in the 1950s (Dalkey & Helmer, 1963) as a means for reaching consensus among a group of experts, enabling anonymity of individual responses, revision of

contributions by individuals and assessment of the group view (Linstone & Turoff, 1975; Okoli & Pawlowski, 2004). The Delphi method is of particular interest to research where judgmental information is indispensable (Okoli & Pawlowski, 2004). This is precisely the case here, where the proposed combination of Davis' (2012) leadership literacies and Jameson's (2013) e-leadership framework for TEL requires validation before commencing the following stages. Furthermore, mobilisation of external experts also minimises researcher bias (Lincoln & Guba, 1985).

PHASE 2 (Research questions 2a and 2b)

Phase 2 is designed to analyse current strategy, organisation and practice in relation to TEL-eLL, to determine congruence between the proposed TEL-eLL framework and the lived experience of key informants in European campus-based universities, as well as to identify whether and how these participants develop TEL-eLL. In order to achieve these objectives, Mixed Methods Research (MMR) case studies will be carried out in three European campus-based universities in France, Germany and Italy. The qualitative study involves content analysis of strategic documents and organigrams parallel to semi-structured interviews with key informants (vice-rectors with a remit for teaching and learning, pedagogical innovation and technology; TEL managers). The aim is to provide rich contextual data on institutional strategy and organisation, and to explore both how participants demonstrate TEL-eLL in their leadership practice and how, or whether, they develop these literacies through formal or informal learning. The quantitative study involves an online survey to provide statistical descriptions of how faculty themselves perceive TEL leadership through the lens of eLL.

MMR has been chosen to increase the robustness of the study (Venkatesh, Brown, & Bala, 2013), by clarifying and expanding on qualitative data via a quantitative survey, by providing the most complete picture possible and by analysing the diverse viewpoints expressed by governance, management and faculty.

PHASE 3 (Research questions 3a and 3b)

This final phase is concerned with developing evidence-based recommendations for TEL leadership development in European universities. Content analysis of national LDPs in five European countries will enable these to be mapped against the TEL-eLL framework and any gaps to be identified. Recommendations for integrating TEL-eLL in LDPs will be formulated, before being refined and validated by an online expert panel.

Research design metaphor

This research design can also be viewed though the metaphor of a burger. The heart of a study is often referred to as the 'meat', but for reasons of personal preference, a veggie-burger has been chosen here. As Figure 2 below shows, the case studies (2) are framed by the interventions of external experts at the beginning (1) and end (5) of the study, to enhance data validity, while the additional content analysis of LDPs (3) and recommendations for TEL leadership

development programmes (4) contribute to producing 'palatable' results with practical applications.
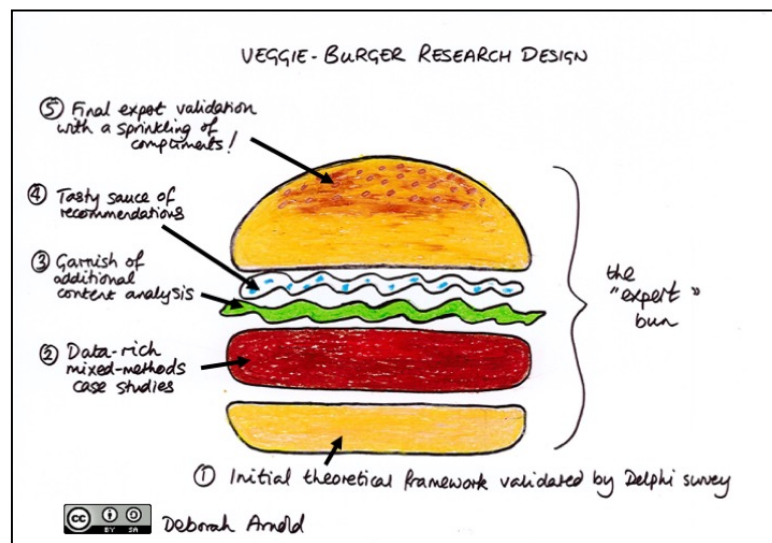

Figure 2. The research design presented as a (veggie) burger

Results from the Delphi study (Phase 1

A Delphi study was carried out in three rounds between January and March 2018. A total of 113 international experts were identified and invited from within the authors own extensive networks and from key publications in the field of leadership for TEL in HE. The criteria for the selection of the experts were: significant knowledge and/or experience of (TEL) leadership in HE, knowledge of TEL in particular from a pedagogical rather than a technical perspective, coverage of both ODL and campus-based HE contexts, gender balance of the overall panel.

Forty-eight (42.48%) of those contacted signed up for the Delphi study and thirty-eight actually completed Round 1. Of these 38, 31 (82%) completed both Rounds 2 and 3.

For the first round, a provisional TEL-eLL framework was developed based on Davis' (2012) Leadership Literacies for professional staff in universities, which provides the overarching dimensions, and Jameson's (2013) e-leadership framework for TEL. Other work which informed this included Johansen's (2012) leadership skills for an uncertain world, Sheninger's (2014) seven pillars of digital leadership, Belshaw's (2014) digital literacies, Ahlquist's (2014) ten competencies of a digital leader, Beaudoin's (2016) recommendations for distance education decision makers in HE, the work of the C-DELTA project in developing a curriculum for Digital Education Leadership (Brown et al., 2016), Appreciative Leadership (Orr & Cleveland-Innes, 2015).

The working definition of TEL-eLL presented to the Delphi experts was the following:

> "*a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful*

of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change."

For reasons of concision, we concentrate here on presenting the overall outcome of the Delphi study. A more detailed analysis together with a full description the associated methodology will form the focus of a subsequent publication.

TEL-eLL definition

In Round 1, 21.1% of experts found the aforementioned definition perfectly satisfactory, 68.4% found it reasonably satisfactory and 10.5% found it unsatisfactory. A total of 21 reformulations were proposed, 14 of which were considered to be adjustments to the initial definition (changing words and punctuation, omitting words and phrases). The remaining 7 were considered to be major rewording or alternative definitions. In Round 2, experts were asked to choose their top three definitions, which resulted in narrowing down the options to four definitions for Round 3. The final result was an absence of any clear-cut consensus, but which enabled the researchers to propose the use of the most concise, general definition (41.9%) as "a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning.", which also formed part of the second-choice definition (32.3%), while taking care not to neglect the additional issues addressed, namely: an awareness of how technology changes the traditional paradigms of education, research, scholarship and administration; and solving these problems in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.

TEL-eLL framework

Of the 68 statements in Round 1, 4 were validated outright, with a consensus threshold of >80% obtained from the use of a 5-point Likert scale and with no proposed reformulations. Consensus was also reached on 34 further statements, however these all produced proposed reformulations which needed to be rated in the subsequent rounds. None of the statements were eliminated at this stage and 51 new statements were proposed. Rounds 2 and 3 involved the participants in rating both the reformulations and the new statements.

The final overall framework consists of 109 statements, with 4 of the original and 6 of the new statements having been eliminated. In this framework, we find 69 statements which received a clear consensus of over 80%. The remaining 40 statements received weaker consensus of between 50 and 80%. Almost half of these (18) concern the proposed reformulations, which did not lend themselves to a clear-cut decision on the part of the participants. This brings us to highlight one of the limitations of the study in that it had been pre-defined with three rounds, whereas the results of Round 3 indicate that a fourth round would have been useful. In the light

of these results, it was thus decided to generate a primary framework consisting only of those statements which obtained a consensus of >80%. The structure of the framework including the number of statements and the main themes addressed within each of the dimensions or sub-dimensions is presented in Table 1 below.

Table 1: Synthesis of TEL-eLL framework

DIMENSION	SUBDIMENSION	MAIN THEMES
WORLDLY (29)	e-leadership visioning (13)	Informed decision making; Clear vision of institutional mission; Creating an open and respectful environment for discussion; Involving external stakeholders.
	Self-relationship with technology (9)	Healthy embracing of digital technologies; Ethics, cybersecurity; Critical digital literacy; Awareness of research on student use of media.
	Self-relationship with teaching and learning (7)	Understanding different learning theories and approaches; Design thinking for pedagogy; Affordances and potential risks of TEL.
SUSTAINING (8)		Human and environmental implications; Access, equity and inclusion; Safe, legal and ethical use of TEL; Learning spaces; Social good, digital citizenship, open education.
LEADINGFUL (15)	Leadership style (13)	Creating conditions for innovation and change; Risk-taking; Change management; Distributed leadership, empowering others.
	Branding and Public Relations (2)	Promoting open forms of education; Positive brand image emphasising the quality of teaching and learning supported by technology.
RELATIONAL (10)		Shared vision, meaning and purpose; Managing relationships; Trust, positive affect and caring; Managing divergences and differences, while still being able to make a decision in the absence of consensus.
LEARNINFUL (7)	Leader as learningful self (4)	Formal and informal learning for leadership, change management, information literacy and critical digital literacy; Learning the art of delegation.
	Learningful community (3)	Reward mechanisms aligned with competencies for change; Digital scholarship (teacher and staff development);

Organisational culture of learning and innovation.

Conclusion

This paper thus describes how a Mixed Methods research design can support the study of leadership for TEL in higher education through the lens of e-leadership literacies. It also reports on the development of a TEL-eLL framework through a Delphi study conducted in phase 1 of the research. The future application of this framework will not only serve to explore the lived experiences of key informants in three European campus-based universities with respect to TEL leadership, but will also inform the design of leadership development programmes.

Further research in the field of e-leadership literacies is required, in order to validate the concept beyond the populations studied, to refine the framework and to contribute to bridging the gap between research and practice. As technology progresses and permeates our collective and individual worlds in as yet unknown ways, the attitudes, mindsets, understandings and behaviours of education leaders at all levels will continue to evolve, reinforcing the need for evidence-based decision making which serves the best interests of students, staff and the institution as a whole, grounded in sound pedagogical principles, a critical approach to technology and a heightened awareness of human and environmental issues.

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