Editorial for EJEL Volume 14 Issue 5

Welcome to this special issue of EJEL focusing on research methodologies in e-learning. The call for the special issue was inspired by the large range of research methods and approaches within e-learning research. These vary in respect to the approach taken in studies reported on, for example action research or design based research, correlation research focusing on evaluation and effectiveness. Studies can further vary in respect to their point of departure; for instance, being based on single case studies while other studies may cover several cases and be more longitudinally oriented. Further variation can be observed in respect to the research methodologies used where some studies are quantitative, some qualitative and some use mixed methods. Adding to this is the broad variety of pedagogical approaches, domains and contexts approached.

Given this rich variation and that the research reported contributes to produce knowledge about e-learning, the call aimed to further explore the research methodologies used in producing this knowledge by formulating the following questions;

- How and why do we chose and motivate our methodological approaches, and are there specific arguments that are vital to deal with when choosing a research design in e-Learning contexts?
- How do we identify and qualify criteria for suitable construction of research designs according to a current study on e-Learning?
- What do we need to consider in our field of e-Learning, when we align a research design with the current research questions?
- How do we manage reliability and validity in e-Learning research - and how do we become aware of blind spots and links between research objectives and relevant findings?
- What are the options for generalisation of findings in various approaches and are there special concerns to take into account in e-Learning research?
- How are the criteria for research design and research findings negotiated between other research communities (paradigms) and our field of e-Learning?
- Are there new instances and new uses of e-Learning that lead to a need for new research designs and new research methods, tools and techniques?

The articles in this special issue relate to one or several of these questions and therefore contribute to reflect upon and further our knowledge on these issues. The three first contributions report on the use of mixed methods and motivations for the choice of mixed methods in research designs, albeit in different ways. The contribution by Gelareh Roushan, Debbie Holley and David Biggins describe a two-spiral action research approach to the analysis of experiences of informing institutional e-learning policy. Approaching a complex and burning issue, the approach that is proposed moves away from traditional top-down management approaches and argues for greater coordination of several key stakeholders in processes of change and development. The second contribution by Timos Almpanis makes an argument for mixed-methods approaches in e-learning contexts, and more specifically as a result of having analysed the heads of e-learning and their perspectives of technology enhanced learning (TEL) at several universities. The third contribution by Caroline Stockman presents to us a study where the use of mixed-methods design aided in becoming aware of blind spots - in this case revealing the importance of power and knowledge in technology acceptance research. Although a research design may be well suited to a research question, the author argues we need to remain open to emerging insights.

While the first three contributions report on experiences and benefits from mixed methods design, contribution four by Lyz Howard presents a theory-practice gap and more specifically makes the argument that there is currently no theory upon which to practice autonnetography (ANG). From a qualitative perspective with the use of meta-ethnography, methodology relating to autonnetography is examined as a step towards developing a framework using ANG as an eResearch methodology.

Contribution five by Javier Sarsa and Tomás Escudero acknowledge many of the problems and difficulties involved in e-learning research, and particularly quantitatively oriented research striving to measure the effects of e-learning. The multitude of features and factors involved in e-learning research complicate coming
to conclusions regarding expected benefits. The authors present and discuss a roadmap meant to highlight crucial aspects to consider and reflect on to increase the validity and reproducibility of results.

The contributions in this special issue thus ranges from articles building on qualitative methodology to quantitative methodology, and a mix of both. The scope varies from reflecting on use of methodology and results to anchoring and proposing new approaches to e-learning research. As such, the contributions vary in the very way that was originally phrased in the call for the special issue. However, as intended, the reflections and arguments presented by the authors make a valuable contribution to an ongoing critical discussion and challenging of established approaches and paradigms.

Robert Ramberg
Guest Editor
The Kaleidoscope of Voices: An Action Research Approach to Informing Institutional e-Learning Policy

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Abstract: This paper describes a two-spiral action research approach (AR) in its analysis of the experience of a British University endeavouring to change and reposition itself in the context of fast pace external change in terms of innovation. Taking the European Union (EU) 2020 digital competence framework (Ferrari 2013), with its drive to address the huge EU digital skills gap as technological adaptation and use speed up and the call from the UK Government, employers, and students themselves to produce digitally competent graduates Higher Institutions need to consider their proposition. An action research approach, with its reflective stance, is relevant for complex and policy based studies, we argue, as the framework can encompass mixed methods techniques. Informed in conjunction with a ‘Panel of Experts’, thought-leaders drawn from industry and academia, and incorporating a strong student voice, we believe the AR approach is key to offering insights and transparency in the quest for change. The transition from an initial top-down management approach to a kaleidoscopic middle-out partnership of the executive team with key internal stakeholders, including students, academic staff, librarians, learning technologists and IT specialists offers a new and inclusive approach offering the agility and the synergy that traditional models lack. Results indicate that strong research and technological leadership, building internal alliances with key stakeholders, focusing on the ‘middle out’ and a partnership approach to working with the Students Union all contribute to a transformational and shared approach to institution-wide change at a time of complexity and contestation in Higher Education policy.

Keywords: Higher Education, Action Research, Digital Competencies, Technology Enhanced Learning.

1. Introduction

Digital skills and the lack of these across the EU has been highlighted as a major issue in the Measuring Digital Skills study (European Commission 2014, EU policy framework 2020); estimating 39% of the workforce had insufficient digital skills, while 64% of those in disadvantaged groups have insufficient digital skills for the workspace. Digital competence and capability are seen as essential for enhancing immediate and enabling life-long learning (EC DIGICOMP, 2013). This policy agenda is reflected in recent UK Government policy documents on the new skills needed to be fostered in the UK (The House of Lords Digital Britain, 2015). The Labour Force study (UKCES, 2015) indicates 300,000 recruits are needed to invent and apply new technologies, reflecting earlier work by Frey and Osborne (2013); their models show that as technology adaptation and use speeds up, low-skill workers will be replaced. The challenge for Higher Educational Institutions (HEIs) is how best to embed these skills, and enable and facilitate institutional change?

This paper draws from the experience of a single university and examines and evaluates their approach to managing change. Our methodology is located within an action research framework (Pedler, 2011; Raelin, 2011; Pedler and Abbott, 2008; Norton, 2009). Informed in conjunction with a voice, we believe this approach is relevant for complex and policy based studies, as the framework can encompass a mixed methods technique (Johnson and Onwuegbuzie, 2004). This theme is addressed more broadly by Denzin’s (2008) analysis of the politics of evidence, in which it is shown that by Governments’ and other powerful institutions’ insistence on methods and methodologies of quantitative inquiry that, “a narrowly restricted view of what counts as knowledge is imposed on research” (Satterthwaite in Denzin, 2008:ix). Satterthwaite argues that locating this work within the scope of a deliberate, solution-orientated investigation, as advocated by Kemmis, McTaggart and Retallick (2004), which is characterised by spiralling cycles of problem identification, systematic data collection, analysis and reflection, data-driven action and problem redefinition that the work can be recognised as theory based, relevant and improving practice (Holley and Boyle, 2012). Thus, the development of policy within its context recognises that knowledge is socially developed, as suggested by McNiff (2013).
1.1 The UK policy environment: contested and complex

Narratives of difficulty, isolation and compromise are reported by widening, participatory students as they find their way in the ‘new cold climate’ of HE (Sinfield et al., 2004).

Universities have found themselves in an increasing competitive global marketplace (Hemsley-Brown and Oplatka, 2006) and a response to this has been a fragmentation in strategic and operational management, moving towards what Deem et al. (2007) refer to as ‘the new managerialism’. Noble (1998) regards this change as a disguise to commercialisation of education and this move toward marketisation of HE is well documented (Jongbloed, 2003; Molesworth et al., 2010; Brown and Carasso, 2013). Cruickshank (2016) identified the shift in the UK university fee structure from the state to the student as the first stage in ‘neoliberalism’ (Cruickshank 2016). The second stage is the introduction of the UK Government’s Higher Education Green Paper (Hubble, 2015) with the proposed Teaching Excellence Framework (TEF) (BIS, 2015) introduced to bring reform to the sector and introducing a measure for raising standards of teaching. The far-reaching Competition and Markets Authority (2015 CMA) issued new guidelines for the Higher Education sector with a new Consumer Rights Act. A main focus on this act has been to ensure that the accurate and timely information is presented to potential student applicants with implications for changes in policy (Wilkins et al, 2013). One response to the challenge has been the investment in new buildings, regarded as a direct response to competition and offering a better student experience (BBC, 2014). Universities have the further challenge in developing appropriate strategies in response to a new generation of digital students expecting different physical and virtual spaces to harness new ways of learning (Temple, 2014; Jisc 2014; Brown et al, 2013). The digital native, a term coined by Prensky (2001) has since been refined and developed, however, today’s students are increasingly bringing their own devices (BYOD) and expecting far more engagement with technology throughout their studies (Jisc, 2012). The role of digital technologies is regarded as a paradigm shift to learning (Beetham and Sharpe, 2013).

1.2 Institutional policy agenda

The approach at Bournemouth University (BU) to Technology Enhanced learning (TEL) is led by its Vision & Values to create a world-class learning community through a Fusion of Research, Education and Professional Practice and delivered through excellence in student learning (BU2018, 2012). This initiative is led and delivered through the Centre of Excellence for Learning, thus there is a space for the development of supportive collaborative communities to inspire excellence in learning practice across BU and the wider sector.

TEL has gathered momentum at BU following a re-establishment of the TEL Strategy Forum (TELSF) TELSF is responsible for development and promotion of innovative practices using TEL in pedagogical enhancement and to enable and support an excellent virtual learning experience for BU staff and students. In its initial stages TELSF focused chiefly on developing awareness and promoting shared practice followed by a program of engaging academics in innovative education and learning approaches. Once levels of engagement span wider to include cross-faculty collaboration it was apparent that more confidence in the available systems was required to assist staff and students in extending the adoption of learning technologies to enhance learning practices. The journey for TEL strategy has now evolved to a stage where the focus is on developing consistency in the user experience of TEL from both academics and student perspective. Central to taking the work forward is the development and implementation of the ‘Technological toolkit’ (Biggins et al 2016); offering a medium and acting as the catalyst for developing a different type of institutional change (Beetham, 2015). As a response to the more vocal student voice, as well as acknowledging external policy drivers, a shift change in thinking and approaches to TEL strategy occurred, enabling a broader and partner action research approach, informed by sector and stakeholder voices. As McDougall, Readman and Wilkinson (2016) argue, ‘one significant impact of new technologies in education has been to give teachers and learners a voice through the many “bottom up” channels’.

2. Methodology

This research adopts an action research approach as a response to national and institutional policy drivers that in an age of austerity tend to lead to a top-down management approach (Shatlock 2013; Feigenbaum and Iqani, 2015; Batini et al, 1989). Action research draws upon the work of Lewin (1946), who challenged the dominant research USA ‘behaviorist’ discourse in the USA (Hill, 1990) in the 1940s by involving his participants in a cyclical process of fact finding, planning, exploratory action and evaluation. He considered this approaches the way to improve social formations and regarded this to be an area of significance to him as a refugee from the Nazi occupation of Europe (Lewin, 1948). It is noteworthy that he knew and was familiar with the work of
Vygotsky (1980), sharing a desire to share and understand ways to scaffolding learning – and thus these principles are still of interest to educators today.

Attempting to deliver institutional benefits through an IT structured approach proved problematical because a set of propositions for staff around, for example, minimal engagement with the Virtual Learning Environment (VLE) has resulted in VLEs across the sector being used primarily for content storage, not student engagement (Browne et al, 2006); and a measured approach fails to account for innovation and pedagogy. McNiff (2013) suggests that action research for managing organisational change can be particularly challenging for educational managers as people need a new way of working embodying the concept of collective involvement. Action research approaches involve a genuine sense of partnership despite differing responsibilities and professional expertise. It is a creative dialogue of equals. As researchers uniquely poised at the tipping point between the more traditional management approaches to institutional policy development and the imagined new futures outlined by Somekh and Zeichner (2009). As critical reflection is an almost-universal component of action research (Dick, 2015) we are well positioned for the critical reflection required by action research. Thus the action research approach is one within which we can surface and capture the tensions between the old/new approaches at institutional level, the institutional/national policy tensions, as well as the national/international drivers of the neo-liberal agenda. Orland-Barak (2009) and Getz (2009) both argue that action research is a useful approach for considering practice in depth, and enabling academics to reflect on their work. Somekh and Zeichner (op.cit. p 2) point to the ‘boundary-crossing nature of action research also makes it a particularly well suited methodology for educational transformation in the twenty-first century’, and that the interpenetrating and spiral values of action research deliberately causes discourses and that this makes a unique contribution to educational reform. For McNiff (op.cit.) the key benefit of these systematic evaluation procedures is that the voices of others come through to explain how their learning has improved because of the intervention. It is with these underpinning values we approach this study.

Our paper works through two action research spirals (Kemmis et al, 2000) as illustrated in Figure 1 below, to enable analysis of institutional TEL challenges with more scrutiny. The first describes our initial institutional proposition of a traditional ‘top down approach’ informing our e-learning efforts, consisting of a set of expectations around ‘use of tools, leverage of the VLE and a School based set of ‘e-learning champions’ charged with diffusion throughout the institution. The second cycle is the transformative change offered by Bournemouth University’s ‘Fusion’ strategy (BU2018, 2012) based around staff engagement with research, education and professional practice.

![Figure 1: Kemmis, McTaggart and Retallick (2000)](image)

### 2.1 Spiral 1 Problem identification, systematic data collection and analysis: Set out the ‘issue’

An internal audit, delivered through the auspices of the Leadership Foundation for Higher Education (2015), ‘Changing the Learning landscape’ programme clearly identified that level of academic and student engagement was accelerated by increasing levels of expectations of technology. Academics were becoming increasingly engaging with a wider range of technologies to promote their activities and support their own, and student engagement within a discipline. Building capacity through shared staff/student ownership and use of such technologies should have created enhanced learning opportunities, where staff and students were
empowered in the creation and co-creation of enhanced learning opportunities. However, it became apparent that this was not a systematic and consistent offering, and that a series of technological malfunctions with the VLE and other technologies had dented staff confidence in delivering innovation. A short term response to this dip in engagement by academic staff resulted in a drawing together of a consolidated approach involving both the central technology service and staff development strategies; however this was recognised as unsustainable in the longer term. The new approach did offer a more data-driven perspective, and enabled the identification of ‘e-learning champions’ across the institution, who were encouraged (but not adequately resourced) to share and disseminate change.

Thus, our analysis contrasts two distinct approaches; the initial efforts of a traditional ‘top down approach’ informing our e-learning efforts, consisting of a set of propositions round ‘use of tools, leverage of the VLE with ‘e-learning champions’ to diffuse innovation throughout the institution. The second cycle is the transformative change offered by Bournemouth University’s FUSION of research, education and professional practice (BU2018, 2012), where the institution uses a discourse founded on innovation and partnership with students to meet their digital literacies expectations and needs. Accordingly, a shift change in thinking and approaches to strategy occurred, enabling a broader and partner action research approach, informed by sector and stakeholder voices. This kaleidoscope of voices offers myriad lenses by which to view the development of an innovation driven, a ‘middle out’, approach to technological advancement (Bryant, 2016b).

2.2 Reflection and Data-driven action

The EU competence framework with well-being proposes a broadening of academic program development to incorporating a framework for digital competencies (Ferrari 2013) and the increasing drive for embedding employability attributes in higher education curricula (Helyer and Lee, 2014; Khanna et al, 2014). Internally, BU has implemented a University-wide student survey, Mid-Unit Student Evaluation (MUSE), including questions on how satisfied students are with technology/innovation and this has provided underpinning evidence to reflect a change in strategy by TELSF. The findings mapped those of the UCISA studies between 2007 and 2015 (2016) showing an increase in Universities investment in VLEs, yet evidencing most use as a static repository for materials.

2.3 Spiral 2 Problem identification, systematic data collection and analysis

Spiral one enabled the University to identify the extent to which student and staff expectation had evolved in adoption of technology. The evidence in Spiral one indicated the need for a sustainable offering to enable staff to engage in innovate pedagogies through the adoption of technology and achieve excellence in student learning. Therefore, Spiral 2 ensued to fundamentally review BU’s key TEL stakeholder in TEL offering and service.

Thus the first action research spiral, that of a top down approach to managing the successful implementation of TEL for innovation and student engagement was found to be limited, and resulted in ‘patchy’ provision across the institution. Consequentially a review of BU’s learning platform commenced with the findings used to inform the 2014 proposal to resume an evaluation of the existing platform. This lead to a wider visioning piece to develop understanding of the requirements for BU to achieve its strategic goals. Vision 4 Learning (V4L) is the project that is leading this visioning exercise and BU’s TEL Strategy is informed by its findings to date and the project team has worked in partnership with BU’s Executive Team and the Students Union to frame and inform the revised approach. BU’s strategic approach to change management is outlined in BU 2018 and this is used as a driver to realise learning excellence through the voice of the key stakeholder, the student. Accordingly, the University has developed an exemplary relationship with its student union, SUBU, to work in partnership in meeting students’ academic needs. In recent years SUBU’s enthusiasm to engage in the University’s TEL agenda has been reflected in their inclusion of TEL perception and expectation in student surveys and debates on the alignment of Education Council’s priorities with the University’s TEL review and implementation. Figure 2 represents the multi-facet view of TEL at BU as well as the context within which it operates.
A consolidated approach has been adopted by senior management to develop an environment for TEL which harnesses a culture of confidence in positive engagement with excellent learning. Internal and institutional guidelines and benefit realisations are developed to evidence the value of TEL investment and working with stakeholders to contextualize the emerging trends in education technologies. Underpinned by BU 2018 and informed by macro policies (TEF) and drivers (NSS), some key institutional strategic documents include; ‘Benefit Realisation of V4L’; ‘BU TEL Roadmap’ and BU IT Strategy.

3. Discussion: the kaleidoscope of voices and Impact

Bryant considers the pivotal role of technology in education as a ‘harsh reality’ and he regards traditional approaches for change obsolete to meet the needs of agile learners (Bryant 2015). BU’s experience echoes Bryant’s (2016) evaluation of ‘middle out’ management where top-down and bottom-up approaches lack sufficient agility in timely digital adoption. The middle out approach enables the array of ‘voices’ from BU’s diverse group of TEL stakeholders (internal thought leaders, SUBU, TELSF, CEL, IT department, Library and Learning Support etc.) with a common purpose to deploy TEL in realising learning excellence. The unity of purpose amongst the kaleidoscope of voices has been as a direct result of space created for dialogue contribution through formal and strategic channels (TELSF, CEL) as well as the more informal tactical avenues for example, the TEL Toolkit Working Group that collectively feed into the TEL leadership and decision making. Student Union representation is reflected across both strategic and tactical arenas, and is seen as a key element in ensuring that our efforts are directed at the ultimate users, our students. Alongside the university processes, workshops with students develop both their expertise, and feed into our evaluation; findings are then used to present to BU’s education and student enhancement committees to inform strategy and policy at university level. This research shows that the contrast between old and new approaches is nuanced and that the more a corporate approach is used the quicker institutional benchmarks can be achieved resulting in a top-down spread. The challenge in this case is to harness the management element in terms of setting overall strategic direction, and to emphasise the relevance of external drivers such as NSS, TEF, CMA, and enabling the bottom-up pragmatism to be realised through the voices of the ‘middle’ in terms of delivering on the policy agenda.

In the context of BU, the first Spiral has occurred in a top-down leadership environment. The second Spiral saw the emergence of a bottom up approach and the problem reflection realised a middle out attitude and deployed a more inclusive style which is better aligned with BU’s values and vision. This approach has resulted in increasing staff buy-in as demonstrated in engagement with the online and self-managed pedagogical informed TEL Toolkit on BU’s website designed to help staff share TEL practice and for staff to navigate their way through a variety of technologies to assist with learning; and the successful development of BU’s Postgraduate Certificate in Education (Biggins et al, 2016). A significant institutional impact has been in the area of ownership of VLE services, and the leading service providers in this matter have been the IT services and the learning technologists who provide an institutional-managed service VLE. The service ownership continues to be joint however, clearer demarcations reinforced by routine evaluation and monitoring has resulted in a more robust set of guiding principles.
This paper evidences the need for greater coordination of key stakeholders to manage a cultural change in universities if they are to realise the full potential of their students in the development of digital competencies for greater learning experiences as well as being better prepared for employability. In order to achieve this, universities’ leadership play a pivotal role in preparing academics and developing a culture of collegial approach and working closely with students and the students’ union to harness appropriate ways for collaboration. Bournemouth University achieves positive rates of graduate employment and is known to exceed the national average in a number of its disciplines however, more effort needs to be made for a greater number of graduates to achieve high skilled employment (BIS, 2016) and BU recognises the significance of TEL as a key skill attribute for its students. Our revised approach to the roll out and implementation of TEL across the institution is seen as a significant contribution to continuing efforts to address this key agenda.

The policy framing is a derivative of institutional drivers and is represented through the internal stakeholder standpoint. Subsequently, our challenge to research the experience and learning of the University is complex, nuanced and politicised. A qualitative (case study) or quantitative approach would not be sufficient to capture and articulate institutional values; to offer a sharp and critical lens onto our own practice and to encompass the stakeholders’ views around TEL. Hence, it is the authors’ view that an action research approach has helped to frame and make the body of work more transparent.

4. Final conclusions

Our paper draws upon a number of examples of action research approach in educational practice that pose similarities to BU’s experience. Somekh and Zeichner (2009) suggested action research challenges normative values and has discursive power in that it embodies a collision of terms; in this work we have identified a background for analysis and one of the five ‘variations’ they have identified in action research action research is identified at a time of ‘a university-led reform movement’. This work reflects the arguments of Orland-Barak (2009) suggesting that practitioner inquiry approach in education enables change to take place within the paradigm that impacts practice, and the work of Getz (2009) who argued that action learning research in education allows academics to reflect on the influence of their practices on students’ learning experience. The process of working through the ‘spirals’ clearly shows BU’s stakeholders increasingly working more closely together and this in itself has been a positive outcome, which Schwabenland (2009) would perceive as change as a positive source for intervention and our learning endorses this view. An action research approach has enabled this research to track the journey of BU to record and reflect the evolution of TEL leadership and impact on the way key stakeholders worked together to overcome their diverse and overlapping agenda. A key learning from the journey has been to focus efforts of all stakeholders in a shared understanding of student learning enhancement. A further positive outcome to date has been clear boundary lines for decision and ownership of the VLE to ensure appropriate service support is in place for academics and students. This new approach has fed into new ways of engagement as we procure a new VLE, involving a far wider stakeholder engagement.

There are, of course, limitations to this work. A potential short coming of the research is that the three researchers’ role and commitment to TEL may pose a bias, and underreport resistance to efforts to implement TEL. Another issue is the focus on the experiences of a single UK university thus offering a limited assessment of the sector. A possible area for further research is to reflect on BU’s ‘middle out’ approach to compare and benchmark against the evaluations of comparator institutions.

To conclude, the consolidating the stakeholders’ ‘kaleidoscope of voices’ has not been a clear cut or simple process. However, the action research approach has brought to the fore the emergence of a common theme, albeit expressed differently by different stakeholders, of the desire to offer students TEL enhanced excellent learning experiences that will contribute to their future success.

References


CEL., 2016. [online] Available at: <https://www1.bournemouth.ac.uk/about/centre-excellence-learning/about-cel> [Accessed 29 August 2016].


The TEL Toolkit., 2016. [online] Available at: <https://www1.bournemouth.ac.uk/about/centre-excellence-learning/tel-toolkit> [Accessed 28 August 2016].


Using a Mixed Methods Research Design in a Study Investigating the ‘Heads of e-Learning’ Perspective towards Technology Enhanced Learning

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Abstract: This paper outlines the research design, methodology and methods employed in research conducted in the context of Higher Education Institutions (HEIs) and focuses on the Heads of e-Learning (HeLs) perspective about Technology Enhanced Learning (TEL) by campus-based UK institutions. This paper aims to expand on the research design and the research methodology that was followed as part of this research, making a justified argument for mixed methods approaches in e-learning contexts. The background of this research and its research questions is outlined first to provide the context of this research. Following a review of the literature on TEL that informed this research, this paper provides an explanation of the researcher’s worldview before discussing the chosen research design. The status of the findings and their generalisability based on the chosen methodology are then discussed. The research findings show that most universities represented in the survey offered various staff development opportunities to their academic staff in the effective use of TEL and that examples of innovative use of technology are evident in some areas in all participating institutions. Staff’s digital skills and competencies coupled with a pedagogical underpinning as well as a supportive institutional culture were found to be the enablers for the effective implementation of TEL, according to the HeLs’ expert informed responses. The paper is summarised and concluded making a case for the adoption of Mixed Methods Research (MMR) in e-learning settings.

Keywords: Mixed methods research, technology enhanced learning, staff development, HEIs.

1. Introduction - Research questions

This research focuses on the staff development needs in the use of learning technologies and on a range of institutional approaches to TEL, providing the Heads of e-Learning (HeLs) perspective. The research questions are:

1. What provision do a range of UK HEIs make for staff development in the area of TEL?
2. What do HeLs think lecturers need to know in order to deliver blended and online courses effectively? Are these needs addressed by a range of UK HEIs?
3. According to HeLs, what institutional approaches are required for TEL to be effectively embedded in the curriculum?
4. How do HeLs’ perspectives compare to Laurillard’s conversational framework for the effective use of learning technologies?

The first research question is mostly addressed in this study based on quantitative data gathered via an online questionnaire, while the second, third and fourth questions are addressed qualitatively, based on data gathered via semi-structured interviews with thirteen HeLs, drawing on their expert informed responses. The term staff development has been preferred here over the term training as it encompasses staff training but also includes other forms of professional development such as the Postgraduate Certificate in Teaching and Learning or Postgraduate Certificate in Academic Practice (PGCTL/PGCAP) course. Data gathered from the questionnaires plus some questions from the interviews address these staff development needs that include, pedagogic, technical and curriculum design skills. As the participants of this research provide a high level institutional perspective, the data gathered do not focus on particular subject areas or faculties.

2. Review of the literature on staff development will TEL

Since the last decade, institutions have been challenged to not only employ technologies to enhance learning, teaching and assessment but also to move beyond capital investment and invest further in staff development on the appropriate pedagogical use of the technologies in order to maximise their potential to aid students’ learning (HEFCE 2009).
Aimard (2011) points out five main dimensions of e-learning: a) technology (internet, world-wide-web, e-learning platforms); b) content access and production (instructional design, content production, open source content); c) communication and interaction (asynchronous and synchronous online communications, access to peers, scholars and experts); d) e-pedagogy (e-tutoring, problem solving, project-based learning, metacognition and reflective learning, socio-constructivist learning); and e) organisational and cultural dimensions (looking at the ways the four aforementioned dimensions come together and interact with each other). These dimensions are interlinked and equally important in the implementation of e-learning courses.

It has been found that blended and online provision takes a lot of planning and requires IT infrastructure, platforms, administrative processes and online tutors-moderators in order to succeed. Many authors (Garrison and Vaughan 2008, Laurillard 2002, MacDonald 2008, Palloff and Pratt 2007, Salmon 2011, Tait and Mills 1999, 2003) have highlighted the fact that, for online learning to succeed, staff development is of crucial importance. According to MacDonald (2008, p.177):

\[\text{The effectiveness of a blended course will be greatly influenced by the skill, enthusiasm and availability of the staff who work on it. They will need staff development to be effective, unless they already possess the relevant experience.}\]

Moreover, Salmon (2011) argues that an online tutor-moderator needs to develop technical skills but also become aware of new teaching practices that can be implemented in online environments. Currently, there is a plethora of approaches to staff development on TEL including staff training sessions, workshops, seminars, CPD short courses and online resources. Moreover, pedagogical aspects of online learning are often covered as part of the PGCTL/PGCAP course aimed at lecturers who are new to HE. These approaches currently in use by UK HEIs for staff development for blended and online learning from the HEls’ perspective are the main focus of this research.

Laurillard’s conversational framework for the effective use of learning technologies (2002) emphasises the need for an effective organisational infrastructure to be in place. According to her, a learning organisation needs to be adaptive to the changing environment they find themselves in. Laurillard’s framework is a dialogic process that takes place on two levels: the discursive level with a particular focus on theory and conceptualising, and the experiential level where the focus is on practice, activity and procedure building. In the second edition of her seminal book ‘Rethinking university teaching: a framework for the effective use of learning technologies’, Laurillard (2002) claims that learning is understood to occur through acquisition, practice and discovery, and discussion. Later on, in her ‘Teaching as a design science’ book, Laurillard (2012) adds learning through inquiry and learning through collaboration as ways that learning can arise. Inquiry learning is based on uses of learning resources but the learners need to actively engage with the material by adopting a critical and analytical approach. Laurillard’s conversational framework has informed the research questions regarding staff development needs around TEL and regarding institutional approaches around TEL.

3. Ontology – Epistemology - Worldview

The researcher’s ontological and epistemological worldview is of paramount importance in any research as it can dictate the research design, the main research questions and subsequently the chosen methodology and methods employed. Therefore, it is common for researchers to explicitly express their philosophical – ontological - stance and their epistemological worldview in order to frame their research and explain the chosen methodology. Creswell (2009) notes that although philosophical ideas remain largely hidden, they still need to be identified as they influence the research practice. Furthermore, as Feilzer (2010, p.7) acknowledges:

\[\text{The choice of research questions and methods, albeit sometimes dictated by research funders, is a reflection of researchers’ epistemological understanding of the world, even if it is not articulated or made explicit.}\]

Therefore, in order to justify the selection of the MMR paradigm, a brief description of the advantages and limitations of the two other paradigms is going to be attempted in the following sub-section.
3.1 Discussion of research paradigms

3.1.1 The positivist – postpositivist paradigm

Positivist/postpositivist assumptions have represented the traditional form of research (Creswell 2009) which is sometimes called the scientific method. Positivism dominated the westernised world following the French revolution and it was characterised by an overly confident belief that everything can be known through science (Cohen et al. 2007, Creswell 2009). The term postpositivism challenges the certainty of positivism arguing that we cannot be positive about the absolute truth of knowledge but we need to be able to replace established knowledge when new knowledge emerges, always following the scientific paradigm (Popper 2004). Postpositivists hold a deterministic worldview which emphasises the cause and effect relationship in studying various phenomena with experiments; postpositivists are also reductionists as they are trying to compartmentalise ideas in small sets of testable variables in order to test their hypotheses (Creswell 2009). According to Creswell ‘postpositivists hold a deterministic philosophy in which causes probably determine effects or outcomes’ (2009, p.7). For postpositivists research is the process of making claims and then refining or abandoning some of them for new claims in order to get closer and closer to the ‘objective reality’ that exists out there (Creswell 2009).

3.1.2 Critique of the positivist – postpositivist paradigm

Despite positivism’s/postpositivism’s apparent success, especially in natural sciences, its ontological and epistemological base has been scrutinised due to its mechanistic and reductionist view of nature which, some critics have claimed, defines life in measurable terms rather than inner experience, undermining life itself (Cohen et al. 2007). One of the early critics of positivism in the 19th century was the Danish philosopher Kierkegaard who is regarded as one of the main originators of existentialism (Cohen et al. 2007). Kierkegaard adopted an Aristotelian view of the meaning of existence, according to which the meaning lies in realising someone’s potential, and this cannot be reduced and measured against abstract conceptualisation. He recognised that many characteristics of his time, such as democracy’s trust in crowd mentality and the scientific and technological progress, contribute to the dehumanisation of the individual, giving people illusions. Objectivity, as perceived by the postpositivist paradigm, is a dangerous illusion that could reduce a person to an observer - in a Skinnerian behaviouristic way - trying to discover general laws governing human behaviour, according to Kierkegaard (Cohen et al. 2007). In the 20th century, other well-known thinkers who criticised positivism/postpositivism include Habermas, Horkheimer and Wittgenstein (Cohen et al. 2007). Habermas criticised the scientific mentality for being elevated almost to the level of religion, praising scientific knowledge alone and rejecting all other forms of knowledge such as moral, aesthetic, hermeneutic and creative, and reducing behaviour to technicism. Habermas, Horkheimer and Wittgenstein (Cohen et al. 2007) all argued that positivism/postpositivism is unable to address many important areas of life and that as scientific explanation seems to be the only means of explaining behaviour, it diminishes many of the characteristics that make humans human.

3.1.3 The constructivist – interpretivist paradigm

Contrary to the positivist/postpositivist paradigm, the constructivist/interpretivist paradigm puts an emphasis on the subjective experience and meanings that are multiple and varied. This paradigm holds the worldview that meanings are constructed by humans as they engage with the world and, in doing so, humans are influenced by social and historical perspectives (Creswell 2009). Meaning is generated socially for constructivists/interpretivists, a notion which challenges the main positivist idea that there is an objective truth ‘out there’. Researchers who follow this paradigm are interested in detailed accounts about reality as it is constructed by certain individuals and they recognise that their own backgrounds shape their interpretations of the experiences of others. Sociologist Karl Mannheim was one of the founders of this paradigm (Cohen et al. 2007).

3.1.4 Critique of the constructivist – interpretivist paradigm

Criticisms of this paradigm include the view that subjective reports may be incomplete and misleading as anti-positivists have abandoned scientific procedures of verification (Cohen et al. 2007). Interpretivism has also been criticised due to the fact that it often overlooks the fact that the process during which one interprets a situation is itself a product of the circumstances in which one is placed (Cohen et al. 2007).
3.1.5 The mixed methods research (MMR) paradigm

Integrating quantitative and qualitative research strategies does not fall comfortably within one or the other worldview (Feilzer 2010). Purists of either side claim that quantitative and qualitative research belong to totally different paradigms and are underpinned by different philosophical positions in relation to ontology and epistemology; furthermore, purists claim that they address different questions, which dictate different approaches in data collection and analysis (Cohen et al. 2007, Creswell 2009, Feilzer 2010). At the other extreme, MMR literature can sometimes lead to the conclusion that by introducing an additional element in the research, some form of holism can be achieved; this, according to Bergman (2011) is not a valid assumption, as the additional element is not what makes MMR interesting but rather its fundamental characteristic; furthermore, it could be argued that no matter how many theoretical approaches, data sets and analyses are part of a project, a research question will never be addressed in all its complexity. The focus of MMR should be to improve on the findings of both quantitative and qualitative methods rather than illustrate the limitations of quantitative or qualitative methods per se (Bergman 2011).

According to Bergman (2011) MMR has generated a critical mass of both theoretical and empirical contributions in social sciences and education; however, there are still many theorists that consider this type of research as insufficiently rigorous (Bergman 2011). This apparent contradiction is, according to Bergman (2011), due to the absence of the right terminology and process description that characterised MMR before the 1990s, when the current generation of mixed methods researchers emerged. Some theorists have gone as far as to question the term ‘mixed’, claiming that the quantitative and the qualitative element are not really mixed but blended or meshed. As the term mixed is now established, moving away from it would most probably cause confusion rather than clarification, according to Bergman (2011).

While it cannot be argued that MMR is better than monomethod research in principle, MMR often offers considerable advantages compared to monomethod research. On the one hand, there are good reasons to limit a research project to a particular data set and a particular analysis, such as time and cost, complexity and ease of reporting the findings in print; but on the other hand, careful implementation of MMR can cross-validate and complement individual findings and the researcher can become more knowledgeable and critical towards research as they assess the possibilities and limitations of each research technique (Bergman 2011).

Pragmatism is the philosophical underpinning for the MMR paradigm (Bergman 2011, Creswell 2009, Denscombe 2008, Feilzer 2010, Johnson, Onwuegbuzie and Turner 2007) as it focuses its attention on a particular situation and is utilising pluralistic approaches to derive knowledge about that situation. Pragmatism sidesteps the contentious issues of truth and reality; it accepts philosophically that there are both singular (positivism/postpositivism) and multiple (interpretivism/constructivism) realities out there that are open to empirical inquiry and focuses on solving practical problems in the real world (Feilzer 2010, Rorty 1999). Pragmatists often reject the representational view of the world that attempts to match epistemology with ontology and focus more on the experiential world with its different layers, some objective, some subjective and others both subjective and objective.

Denscombe (2008) has identified four facets of the way in which pragmatism underlies the practice of MMR. He states that these four facets are not necessarily mutually exclusive but a degree of overlap between them may be evident in various MMR projects. The first facet of pragmatism as the underpinning theory in MMR is that it can provide a fusion of approaches, challenging dualisms as sterile and unproductive and looking for a level of compatibility between them. The second facet is that pragmatism can provide a third alternative in cases where researchers decide that neither quantitative nor qualitative approaches alone will provide adequate findings in the particular research question they have in mind. The third facet of pragmatism is more radical and pragmatism is seen as:

...a new orthodoxy built on the belief that not only is it allowable to mix methods from different paradigms of research but it is also desirable to do so because good social research will almost inevitably require the use of both quantitative and qualitative research to provide an adequate answer (Denscombe 2008, p.274).
Finally, the fourth facet of pragmatism is when the word pragmatic is treated in its common sense way as meaning expedient; this last facet is dangerous and can undermine the MMR as a paradigm where ‘anything goes’ (Denscombe 2008).

4. Research design

A research design has been selected in order to align with the main research questions of this study, which focus on the staff development needs of the academic staff involved in blended and online course delivery. A MMR design was adopted for this research as it can best address the complexity of the four research questions as outlined in an earlier section of this paper. The first research question is mostly addressed based on quantitative data gathered via an online questionnaire, while the second, third and fourth questions are addressed qualitatively, based on data gathered via semi-structured interviews with thirteen heads of e-learning (HeLs). The sequence for data gathering used was: the questionnaire was sent out in late October 2011 and it was open for three weeks until the middle of November 2011, while the initial set of interviews (eight) took place between January and March 2012. Five additional interviews were carried out in January and February 2015. Both data collection methods used the same informants, the HeLs, for consistency purposes, as the study is focused on the HeLs’ perspectives on TEL. However, the interviews used a smaller sample – thirteen – compared to the questionnaire, which returned 27 responses, which is approximately 20% of the HeL population subscribing to the HeL Forum at the time (27 out of 118). More details on the informants of this research, and the specifics of the triangulation mixed methods design used in this research, are discussed below.

The informants of this research were the HeLs in various UK HEIs. Most UK HEIs have a nominated contact to that group which meet on a quarterly basis and use a closed mailing list to communicate. An email was sent to the ‘heads of e-learning forum’ mailing list inviting them to participate in the research by filling out an online questionnaire. One hundred and eighteen (118) UK institutions each have a single representative as a member of that group (HeLF Membership 2013). The questionnaire was completed by 27 participants, eight of which were subsequently interviewed. Purposive sampling was used in the first round of the interviews as eight volunteers from those who completed the questionnaire were interviewed with an aim to achieve representativeness of both pre-1992 and post-1992 institutions, as purposive sampling techniques involve selecting certain units or cases ‘based on a specific purpose rather than randomly’ (Tashakkori and Teddlie 2003, p.713). Convenience sampling which ‘involves drawing samples that are both easily accessible and willing to participate in a study’ (Teddlie and Yu 2007, p.78) was used during the second round of the five additional interviews as these interviewees were selectively targeted directly via email.

Quantitative and qualitative methods were deployed as part of this research: data handled in a quantitative way were gathered via the online questionnaire and qualitative data were gathered via the semi-structured interviews, but also via some open-ended questions of the questionnaire. The whole research design is depicted diagrammatically in Figure 1.

![Mixed Methods Triangulation Study](image)

**Figure 1**: Research Design – Methodology – Methods.
Keeping the research data gathering to a specific group of people (HeLs) made the research more manageable. The selection of the HeLs to be informants of this research provided a number of advantages such as fair representation of UK HEIs, as each UK institution can have only one representative in the HeLs’ group. This means that the responses to the questionnaire reflect the perceived approach to e-learning by HeLs of 27 UK HEIs. Furthermore, the selection of the HeLs as informants of this research also provided expert input in the way TEL is approached institutionally in a number of HEIs in the UK, as these people are likely to be the most knowledgeable in terms of their own institution’s approach to TEL, including staff development and other wider institutional issues around TEL implementation, due to their most senior position in the specific post areas they hold.

4.1 Data collection methods

Data were gathered sequentially, in two phases. The first part of the research utilised an online survey; following some initial desk-based research, a questionnaire was the main tool for data gathering. The questionnaire was first piloted with two people in order to be tested for clarity as well as fitness for purpose. Taking into account the feedback provided by those who piloted the questionnaire, minor amendments in the wording of a couple of the questions subsequently took place for clarity.

This questionnaire, which was emailed to the HeLs in UK HEIs, was asking for information on the training sessions, workshops, seminars, courses and support offered to academic staff in their institution in the area of TEL. The questionnaire also tried to establish whether there were any staff development requirements for academic staff before they get involved in blended or fully online courses and attempted to highlight the relationship between TEL and academic practice through TEL’s integration within the PGCT/LPGCAP course. Most questions asked for responses that could be handled in a simple quantitative way, asking informants to identify whether their institutions were offering specific sessions and events or not; additionally, open-ended questions were part of the questionnaire where informants could provide more information about duration, uptake and frequency of those events as well as general comments about CPD in the area of TEL in their own institution.

During the second part of the research, utilising semi-structured interviews, the area of staff development in online learning was explored in more depth, to allow creation of, initially, eight illustrative case studies on how those HEIs in the UK were tackling the issue of staff development in TEL. These interviews with the HeLs focused on developing further understanding in the area of blended and distance learning provision, including staff development for TEL. The interviews were semi-structured in order to allow for more detailed data to be collected. The questions tried to explore the main targets and obstacles in the institution-wide implementation of TEL, to articulate the main ways that TEL is currently used and the staff development needed in order to enable academic staff to make the most of TEL. Furthermore, the interview questions approached other TEL-related issues such as staff's attitudes towards TEL and e-learning costing models. Subsequently, five additional interviews took place at a later stage that included additional questions in order to gain more clarity about the ways the HeLs' perspectives compare to Laurillard’s (2002) organisational infrastructure for the effective institutional deployment of learning technologies.

Equal emphasis was placed on both the wide survey and the selective in-depth interview data and it was initially thought that both types of data would be gathered concurrently, as this is common in triangulation mixed method designs (Creswell and Plano Clark 2007). However, this was not possible due to time limitations, as the whole research was conducted by a single researcher; furthermore, by administering the online questionnaire first, the informants for the interviews could be self-selected on a voluntary basis, by optionally providing their e-mail address at the end of the questionnaire. A possible disadvantage of this could be that the self-selected informants might not have been representative of different UK institutions. It turned out that this was not the case, as the interview participants were equally split between pre-1992 and post-1992 universities, but also represented institutions that differed in many other ways, including, size of the institution in terms of student and staff numbers, geographical location and mission, as some were research-led while others were teaching-led, with a focus on vocational subjects. This plurality in terms of the participating institutions represents the different types of UK HEIs.

This research employed electronic methods for data gathering; the survey was delivered electronically to the heads of e-learning via a link which was embedded in the email-invitation to the research. All interviews took place via Skype.
4.2 Data analysis

Initially, quantitative data were gathered on the various ways that the staff development needs of the lecturers in blended and online learning had been addressed by UK HEIs. Simple frequencies and cross tabulations were applied to the data. As no individual universities are named, HEIs are divided into two groups, pre-1992 and post-1992 institutions.

The interview case studies have been written as descriptive narratives first and following that, the interview data were coded by open-coding, a procedure by which the data were conceptualised. Subsequently, a list of conceptual categories was created (Strauss and Corbin 1997). That way it was felt that the individual approaches are most likely discovered and explored, allowing for detailed analysis of the data gathered. Verbatim quotes have been included in order to keep the flavour of the original data. Key emerging issues have been highlighted and any commonalities, similarities and differences among the case studies are further discussed. Open coding was used initially to uncover, develop and name concepts in order to open up text and expose the thoughts and ideas contained within them. The interview transcripts were coded on a question-by-question basis; the codes were constantly refined as each transcript was added in order for the data to be organised into meaningful groupings. Following that, broader categories (themes) have been developed. Once saturation occurred in categories and no more information was able to be extracted, categories were then integrated and refined.

The two data sets are merged by bringing the separate results together through interpretation. The quantitative data analysis proceeded from descriptive to inferential analysis in order to build a more refined analysis. Qualitative data analysis began with coding and proceeded in creating categories (themes). This is in line with Creswell and Plano Clark (2007, p.137) according to whom:

Two techniques are available for merging the quantitative and qualitative data: Transform one type of data to make the qualitative and quantitative datasets comparable and then compare the datasets, or compare the data without transformation through a discussion or a matrix.

The latter way of merging qualitative and quantitative data – through discussion – was followed in this research due to the fact that some of the data gathered were complementary rather than directly comparable.

4.3 Ethical issues

This research did not involve any vulnerable individuals, or any psychological experiments with its subjects, so no major ethical issues were involved. The main ethical-related issue was confidentiality, which was guaranteed by the researcher to those who volunteered to be interviewed. Questionnaire respondents remained anonymous to the researcher, apart from those who provided their email address in order to be contacted for an interview. Participants’ confidentiality was discussed with the interview informants both in writing and at the beginning of the interview. All interviews were recorded using the Skype (Moving Picture Experts Group Layer – 3 Audio (mp3)) recorder and the audio files were subsequently safely stored. Full transcripts were sent back to the participants whose approval was requested in order for the data to be used in the research, both in parts, as verbatim quotes, but also summarised and paraphrased. All information that could possibly identify them or the institution they were working for was removed from the transcript and not included in this research.

4.4 Generalisability of the research - legitimacy – validity – reliability

The validity of the data and the results is an important component of research. According to Creswell and Plano Clark (2007) ‘in quantitative research, validity means that the researcher can draw meaningful inferences from the results to a population’. In this context, the quantitative data gathered via the online questionnaire are indicative as the 27 participants out of a possible 118 represent approximately 20% of the HeLs who subscribe to the HeL forum in the UK. As the questionnaire was e-mailed to all HeLs twice, there was no selection bias either. In terms of self-selection bias, it could be a possibility that those with the stronger views on e-learning might have volunteered themselves to participate in further research and be interviewed. The interviews aimed for in-depth data to be gathered, knowing that due to their small number, interview findings would be illustrative rather than representative.
In terms of the qualitative data gathered through the interviews, 13 of the questionnaire respondents volunteered to participate, providing their institutional email address in order to be contacted for an interview. Ten out of them were contacted based on the richness of their responses to the open-ended questions in the questionnaire, and the eight who responded were interviewed via Skype. The informants represented a wide range of UK HEIs, as there was an equal split between pre-1992 and post-1992 institutions, with four participants of each. Participants represented institutions that included members of the Russell group and other research-orientated institutions, but also, other more teaching-focused institutions from different parts of England and Wales. The four pre-1992 institutions were described as research-led by the informants; one of them described their institution as research-led with an emphasis on teaching excellence. The four post-1992 institutions were described as teaching-led; however, two of the informants of the post-1992 institutions mentioned that they had aspirations to become more research active and that they seek to reposition themselves as more research-led respectively. All interviews were transcribed in full and sent back to the informants for their approval. Five additional interviews were conducted at a later stage; these included two pre-1992 research-led universities while the remaining three were post-1992 universities.

As this is a mixed methods study, validity is defined as the ability to draw meaningful and accurate conclusions which the researcher draws inductive and deductive conclusions (Tashakkori and Teddle 2003). The results of this research are indicative, as this research discusses the situation of how TEL is approached by approximately 20% of informants (HeLs who subscribe to the HeL Forum) through questionnaires and by approximately 10% through in-depth interviews. The following section provides a summary of the findings of this research.

5. **Addressing the research questions – Summary of the findings**

This section considers the research questions and provides a summary of the findings of this research. The first research question is mostly addressed in this study based on quantitative data gathered via an online questionnaire. This question aimed to provide the rich picture on staff development provision around TEL by UK campus-based HEIs. The second, third and fourth questions are addressed qualitatively, based on data gathered via semi-structured interviews with thirteen HeLs, drawing on their expert informed responses. These questions aimed to highlight the HeLs’ perspectives on staff development and TEL implementation, therefore they are addressed qualitatively.

5.1 **What provision do UK higher education institutions (HEIs) make for staff development in the area of technology enhanced learning (TEL)?**

Most universities represented in the survey offered a wide variety of staff development sessions/events for their academic staff that covers a range of digital skills as well as pedagogical considerations of various learning technologies; this includes hands-on training sessions, seminars on the pedagogically effective use of various learning technologies, online case studies, peer support via internal workshops/ conferences and, in some cases other CPD activities in the area of TEL such as e-moderating online short courses, Staff Educational Development Association (SEDA) certified e-facilitation courses and postgraduate modules. Training sessions on how to use the VLE, e-assessment tools, plagiarism prevention and detection tools as well as e-portfolios were the most popular sessions offered. Web 2.0 tools, personal response systems and web conferencing systems were also very popular among participating institutions (Almpanis, 2012). The only one option offered that proved to be less popular among training sessions was Second Life; however, virtual worlds were mentioned as examples of innovative use of technology in certain subjects by some universities, as evidenced in the interviews.

The perceived potential of technology to enhance the students’ experience in general and students’ learning in particular has led to the adoption of a wide range of approaches to staff development in this particular area. What is more, TEL is seemingly recognised as sound pedagogic practice as it is embedded in the PGCTL/PCAP course either as a module of study or as an integral part of the course.

5.2 **What do HeLs think lecturers need to know in order to deliver blended and online courses effectively? Are these needs addressed by a range of UK HEIs?**

Regarding lecturers’ knowledge and attributes needed for effective online moderation and facilitation, recurring themes included e-moderating skills, pedagogical rationale and digital literacies. In terms of technical skills needed, recurring themes included understanding of the system or tool in use, basic ICT and digital
literacy and joined up pedagogical and technical skills. The recurring themes in the question to sum up lecturers’ needs for blended and distance learning delivery were the following: pedagogy, curriculum design and learning outcomes, digital literacies, online engagement, experience of online learning and subject expertise.

The need for a pedagogical rationale and knowledge of constructivist pedagogical theories was emphasised by some HeLs who added that most academics are still holding onto an instructional pedagogy of content delivery and tend to replicate that online. The need to get academics away from thinking that online teaching is purely about content and their need to focus on student induction, support and student collaboration was reported too.

The digital literacies of academic staff was another recurring theme in terms of HeLs’ perceptions about staff needs for effective online moderation and facilitation. These needs, according to the HeLs, included competent use of technology to support specific learning goals, the use of social media and understanding online identities. It is worth noting that ‘digital literacy’ intersects with the pedagogy and e-moderating skills. Regarding the tools used, a certain level of competence and confidence with the technology is needed as is a conceptual understanding of the tools they might use; as pointed out by some HeLs, although knowing how to use the VLE and basic ICT literacy are important, there is an overlap between the pedagogical knowledge and digital skills required for using TEL effectively.

The tutors’ online presence is very important so that students are guided through the online environment; furthermore, students need to be supported online from induction to completion and their progress should be monitored. Therefore, teaching staff need to dedicate appropriate time to the online environment. The facilitation of discursive/dialogic learning requires a pedagogical understanding of constructivism and social constructivism and the lecturers involved should ideally have some experience of online moderation and facilitation in order to be able to support their students effectively online. On the other hand, experiential learning with technology can be resource heavy and specialist support staff are often needed to create the bespoke environment and the resources. Blended and fully online courses require more systematic use of TEL by their very nature and an explicit curriculum design.

The academic staff development needs in the area of blended and online learning are addressed by offering ample staff development opportunities as summed up in the previous question. While the aim by many participating HEIs is to upskill all staff in the area of TEL so that they are capable of being involved in blended course delivery, those members of staff involved in distance learning in particular often have to go through a specific development programme.

5.3 According to HeLs, what institutional approaches are required for TEL to be effectively embedded in the curriculum?

It became apparent that TEL’s successful implementation by HEIs requires a coordinated institutional approach and a long-term investment; while there is evidence that TEL has started to become embedded in the teaching and learning practice, it still takes time and effort and this conflicts with other aspects of university practice such as research, face-to-face teaching and student support as well as other administrative tasks that often overload the lecturers’ schedules. A coordinated institutional approach would require strategic buy-in from senior management and a vision around TEL, opportunities for staff development and incentives to teaching staff to develop themselves in this area and utilise TEL more in their teaching. These incentives may include some time allocation, as lack of time is one of the most common reasons behind staff’s reluctance towards TEL (Almpanis, 2015).

5.4 How do HeLs’ perspectives compare to Laurillard’s conversational framework for the effective use of learning technologies?

Examples of innovative use of technology were evident in some areas of all institutions whose HeLs were interviewed, as technology was used to support learning not only through acquisition but also through all other ways that learning is understood to occur, according to Laurillard (2002), such as practice and discovery, discussion, inquiry and collaboration. It became apparent that online learning materials in various formats to support learning through acquisition were provided in all participating institutions, many of which were making provision for audio-visual content as well. Although elements supporting learning through practice and
discovery were reported in many cases, in most of those institutions this was limited to specific subject areas. Similar was the situation regarding learning by inquiry as it was taking place in some areas of some of the participating institutions. Supporting learning through discussion and collaboration using technology was reported to take place in some areas by most HeLs who were all very enthusiastic about the potential of technology to support discursive online activities and facilitate peer-to-peer interactions and collaborative work.

Most institutions aimed to create opportunities for sharing tacit knowledge around TEL. While this is important, it needs to be coupled with wider staff development opportunities, according to Laurillard’s framework for an effective organisational infrastructure supporting TEL. Questionnaire responses and the interviewees confirmed the fact that staff development opportunities in the area of TEL are in place by all participating institutions providing a programme which is often varied and tailored to the needs of different staff teams. This explains the different offerings but also the varied levels of uptake of staff development activities around TEL which was evident in the questionnaires. While multi-skilled teams were in place in all participating institutions, some teams included multimedia experts with a focus on creating media-rich learning content as well, while other universities have started to move away from this idea due to the cost implications of such developments but also due to different approaches to TEL that aim to enable lecturers to engage with various learning technologies rather than creating learning materials for them. Regarding TEL costs, it became evident that costing of TEL projects and blended or fully online courses is an area where still a lot needs to be learned. In terms of time allowance for staff who engage with TEL developments, while sometimes staff get time allocation for participating in a TEL project, especially when this is an externally or internally funded, in most cases TEL is seen as part of the job and is often not part of the workload allocation model. In terms of the need for teaching excellence to be rewarded, a mixed practice was reported and while some institutions rewarded teaching excellence, the lack of recognition in teaching was confirmed by some participants.

6. Summary - Conclusions

A mixed methods approach has been adopted in this research in order to provide both breadth and depth in understanding institutional practices around staff development in TEL. MMR has been adopted in an attempt to utilise the best tools available to address the research questions, rather than imposing some strict ontological views to the research itself, limiting in that way the possibilities to get both breadth and depth instead of either one of them. MMR recognises the fact that both quantitative and qualitative research are important and useful.

This paper has provided an outline of the research design, methodology and methods employed as part of this research. The researcher’s worldview, which includes his ontological and epistemological stance, was discussed first. Following that, the chosen research design, data collection methods and data analysis procedures were described. Ethical issues and the way these were addressed were also covered as was the legitimacy and generalisability of this research.

The choice of research design as discussed in this paper provides the backbone of this research, informing the research questions and the selection of the methods used to address these. Furthermore, the research design has dictated the ways in which the findings of this study are approached and discussed (Almpanis, 2012 and 2015).

This research shows that staff development opportunities around various learning technologies in UK HEIs may be pervasive in the sector if the same pattern as indicated by this study occurs in all other universities. According to HeLs, effective online moderation and facilitation requires familiarity with the technology in use but also a pedagogical understanding. It also became evident that TEL’s successful implementation requires a coordinated institutional approach by HEIs, according to HeLs. Innovative uses of technology were identified, as technology was used to support learning not only through acquisition, but also in some cases through all other ways that learning is understood to occur according to Laurillard (2002), such as practice and discovery, discussion, inquiry and collaboration.

This research study started with questions that arose from professional involvement with TEL. Once the research questions were formed, a conclusion was reached that these questions would not be adequately
addressed by either of the two dominant paradigms. MMR was adopted to address the research questions in a more comprehensive manner. According to Rorty (1999), what really matters is not whether our ideas correspond to some external reality, but more whether they help us carry out practical tasks and create a fairer and more democratic society. Therefore, the author makes the case that MMR is a sound research paradigm to be adopted by researchers in e-learning settings and, more generally, in education and social sciences.

References


HeLF Heads of e-Learning Forum Membership (2013), [online] Available at: <http://w01.helfcms.wf.ulcc.ac.uk/membership.html>


Empirical Data and Emerging Power Critiques: Lessons Learned

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Abstract: This paper evidences the importance of maintaining a dynamic interpretive stance in e-learning research. In particular, it shows how a rigorous methodology, tailored to the research question, overlooked the importance of power and knowledge in technology acceptance research for education. It was perhaps the affordance of the mixed methods design, explained in this paper, which allowed for a blind spot to come to the surface, and prompt a renegotiation of the data. Empirical studies on the use of technology from an original empirical study are re-examined. The analysis offers a new understanding of the critical manifestations of a performance culture in UK schooling, which goes hand in hand with a culture of observation and accountability. This is further underlined by the authority of time pressures. Both of these go at the cost of pedagogical considerations, which is arguably the primary concern of educators. That is where a power critique shows it value, but also its necessity. It traces the breaking points of the system; the moment where it undermines the rationality which it uses as its own justification. We correctly motivate our research choices through methodological paradigms and domain loyalties, but including a power critique suggests a new imperative for e-learning research. It offers the possibility to question normalised forces and better understand technology acceptance in education. We need to consider this critical position in any research design to continue challenging our theorising about e-learning.

Keywords: technology acceptance, power, culture, Foucault, Ofsted

1. Introduction

Any research design should of course be tailored to a specific research question. While accepting this fundamental guideline, the specific motivation for this paper is twofold. Firstly, it wants to draw attention to the influence of domain choices in creating blind spots between research objectives and relevant findings. Secondly, it wants to encourage a more dynamic stance in e-learning research. Certain types of (empirical) research will bring about certain results. But sometimes new insights emerge from the data itself, even when this was not originally anticipated. This creates an interesting dialogue between the researcher and the data. It emphasises the importance of maintaining a dynamic interpretive stance – in qualitative as well as quantitative approaches. Or, what Paul Willis (1980) called the vital element of ‘surprise’ in research. As this paper will show, this is something to consider specifically in e-learning research, when we align the design to our research questions.

In the study presented here, the aim of research was to discover cultural influences on the use and acceptance of a particular technology for education. Here, culture is interpreted as ‘processes of meaning-making’ (Spillman, 2002). Or, in other words, what the technology means to somebody depends on the interpretive framework they bring to the moment (Spiro, 1987:163). In turn, this will inform their acceptance behaviour. The research question zoomed in on that interpretive process, but it disregarded an important element: if we accept culture as a ‘way of living’ (Baetens, 2005:2), then of course power would be an inextricable part of that. The study was naive at the outset, regarding the pervasive ‘always already there’ of power relations. They emerged, spontaneously and undeniably, through the data. Therefore, it was necessary to re-examine the findings through a theory or framework of power.

The concepts of power and knowledge, as theorised by Michel Foucault, will be used as analytical lens in this paper. This is not uncommon in education research, though not free of misuse either. The latter is for example due to the reduction of power to a particular authority, or the detachment of power and knowledge (Ball, 2013:19). This, of course, next to the fact that Foucault has often been read in different ways, and his writings seem to provoke the ambiguities almost purposefully. His resistance to a single understanding of his work typifies his refusal to accept inscriptions. And therefore, it continues to push the readers of his work to voice new questions again and again, never to assume or accept anything as ‘normal’. Without this, we would forget that our set of practices are only considered normal because they have been so deeply engrained and institutionalised. Without the guard of a critique at this point, education becomes self-limiting. Particularly in
e-learning research, Foucault’s lens has not been given much attention (Hope, 2015) despite clear affordances to the depth of our findings. This shows how other research communities or filters can still add to the growth of knowledge in the domain of e-learning research.

‘A critique’ is one of those intangible constructs with a myriad of definitions, not just within Foucault’s work. He questioned the meaning of the word extensively himself (Butler, 2001). In any case, the purpose is certainly not to impose a normative point of view. We have to consider that a certain bias is immediately clear when we pursue technology ‘acceptance’ studies. This potential pitfall in utopianism is not uncommon when culture and technology studies meet (Baetens, 2000:156). As said above, the analysis presented here is an exercise in trying to push beyond what is accepted and normal. Perhaps there we can find some of the fundamental building blocks of culture. A submerged place where ‘normal’ hides its roots. It is an exercise in unearthing what’s beneath the surface of the ordered and established ways. A culturally relativist analysis, in that it seeks to understand the power dynamics of the prevailing educational praxis without passing judgement or suggesting the ‘right’ or ‘wrong’ behaviour. In this sense, a critique is an intense scrutiny, which hopes to raise a few questions about the standardised practices in education. It is a case of adopting a never-relenting critical stance in research, following what Foucault said: “everything is dangerous” (1983:256).

The methodological choices of the original study will be explained in the next section, with a specific focus on its domain loyalties. This will show, in a nutshell, how the traditional choices in the research design were well-justified, and yet the findings prompted the discovery of a blind spot. Using the concepts of power and knowledge to re-examine the findings, the paper then shows how another research community can aid the growth of knowledge in e-learning research. All participant quotes, which illustrate the analysis, are drawn directly from the data of the original study. In other words, this paper represents a dialogical mode of enquiry between a researcher who initially disregarded an important element of analysis, with naturally emerging insights in the research data.

2. The Original Study and Its Approach

The original study developed as an interdisciplinary endeavour, which shows how different research communities (linked with different methodological paradigms) can bring added value to e-learning research. The basic question was why someone would use a particular technology, or not. This question is shared by a large body of work collectively called ‘technology acceptance studies’. Many of these studies stem from business and engineering domains, which naturally have a commercial or design interest at heart. They typically adopt a quantitative approach in data gathering, analysis and report, as several meta-analyses have shown (Legris et al., 2003; Ma & Liu, 2004; King & He, 2006; Schepers & Wetzel, 2007; ...). In fact, the culture of quantitative research is so deeply engrained in technology acceptance studies that qualitative research elements are sometimes misapplied (Lee & Lehto, 2010:198), or approached with a certain disdain (Ma & Liu, 2004:62). So most often, the approach materialises in a questionnaire, with an underlying mathematical model, and subsequent statistical analysis.

Much of the strength of this sort of research lies in the possibility of large-scale generalisations, which are seemingly objective. The potential downfall of the data which a questionnaire will produce, is mostly the caged nature of the findings. Like a student completing a multiple choice test, a participant will have no room for negotiation. Perhaps even more alarming is the fact that many of these studies do not begin their investigation directly in the context. Rather, they build on prior theory and literature, which has built on prior theory and literature, and so on (Benbasat & Barki, 2007). This clearly creates a self-limiting tool in exploratory research. As Paul Willis (1980) said: “a theory can only, ultimately, demonstrate its own assumptions.” (1980:77). So it is perhaps unsurprising that the increased number of technology acceptance models and factors have not improved predictive potential (Legris et al, 2003:202). Such variance-based research where factors are drawn from existing literature with imposed definitions give little attention to the contextual ‘why’ of things (Maxwell, 2004). In fact, where contradictions occur, this is often seen as a failure of research effectiveness; while for a Cultural Studies researcher, the discovery of a tension point may be of great value. It perhaps shows a shifting dynamic, a locus of power, a re-orientation, ...

Not only is the participant locked into the pre-existing answer options, each of these also have pre-imposed definitions which are sometimes left implicit. For example, many studies describe the effect of ‘perceived usefulness’ on the acceptance of technology, rather than investigating what actually makes a system useful to
an individual in a particular context (Benbasat & Barki, 2007). That sort of question is the core business of Cultural Studies. It wants to understand how social interactions and mediating environments together create a dynamic exchange of meaning. This foundation, together with its historical developments in anthropology and semiotics, bring about a strong preference for qualitative methods (Deacon, 2008). However, critical awareness of this stance shows the field of cultural research is determined by the filters of culture itself. The disengagement with statistics is connected to the emphasis on the subjective, particular dimension of a human’s configuration of life. Despite well-known pros and cons, there is certainly a case to make for a greater exploration of quantitative possibility. Culture is shared by people. In fact, their meaning-making depends on a successfully shared framework. Therefore, it is a reasonable assumption that there will be generalisable trends across a population – to put it in statistical terms.

This radical opposition between the empirical preferences of the two domains involved, explained here in a nutshell, was of course a challenge. It motivated a mixed methods approach (through the above, but also additional considerations which do not fit in the scope or purpose of this paper). It is perhaps thanks to this methodology that an emerging insight was produced.

In the initial phase of the study, interview data was triangulated with document analysis. Specifically, news headlines from TES magazine (Times Educational Supplement) during the year of this research phase were collected and used as a set of data on its own, and then cross-referenced with interview data. TES is a weekly print magazine with nearly 400,000 readers per week, and many teachers play an active role in its production. It formed a good general signpost for what was at play in the target culture. This overall approach was straightforward and effective in the aim to discover and understand teacher motivations, as inspired through a larger cultural framework. In-depth interviews with eleven teacher-participants in three different schools (selected through maximum variation sampling) provided the needed direct negotiation of meaning with the target culture. The findings from this initial exploratory phase were extrapolated to a larger national sample for quantitative analysis (with 435 participants across England). The data was analysed through descriptive statistics, Chi Square and linear regression. The results were then brought back to the target culture in a final, confirmatory phase, or a ‘member check’ in the form of a focus group (Saukko, 2003:18). Both the first and last phase were therefore qualitative, and analysed through thematic coding – using Michael Q. Patton’s guidelines and a model called QUAGOL. The methodological choices, including considerations for reliability and validity in the different phases, were in a sense traditional and easily justified.

The participant group in this research were MFL teachers (Modern Foreign Languages) in England’s secondary education. Zooming in on the use of a particular technology, the study investigated what made teachers use their language lab. A first, very strong factor which came forward immediately was ‘performance’. In short, behaviour which positively impacts on job-related performance, is favoured. Teachers revealed they would avoid the lab during Ofsted inspections, for example, because they felt it would reflect badly on the quality of the lesson. Through the background provided by TES, it was found the exam culture also played a part here. There’s a positive correlation between the perception of higher exam scores by using a particular technology, and the use of that technology. The statistical analysis and focus group confirmed how strong this factor was. Another dominant factor was ‘time’. Basically, technology which takes up a lot of time (to set up, learn, troubleshoot, etc.) will be less favoured. In every phase of the research, this factor was extremely influential.

One hypothesised variable did not occur: pedagogy. This is an aspect of any education system which is largely culturally determined. In relation to the use of technology in the classroom, it has been described as a potential cultural barrier (Ertmer & Ottenbreit-Leftwich, 2010). However, it did not emerge as a salient factor at all. Moreover, teachers intimated during both qualitative phases of research that they would use a particular technology even though they didn’t believe it would make a difference to pen-and-paper teaching. It was taken forward for quantitative analysis, but this phase also did not discover a significant linear relationship, without any problems in the assumption, validity or reliability checks. It was perhaps this finding which highlighted a potential blind spot, and prompted a new analytical dialogue.

The study specifically did not set out to form a power critique, only to investigate the meanings in the teacher’s interpretive framework. But in doing so, it critically ignored a key purpose of Cultural Studies as we know it today. Certainly there is still the key focus on the dynamics of meaning, but Marxist ideas replenished attention to power relations (for example in the ideology critiques by Louis Althusser, or thoughts on hegemony by Antonio Gramsci, or the idea of the cultural industry by Theodor Adorno and Max Horkheimer) (During, 2007:21). Today, Cultural Studies often distinguishes itself from other domains by this
tendency to provide power critiques in their analyses (Turner, 2003:5). When culture and technology studies meet, it often ignores this dimension (Baetens, 2005:10). Despite the insistence not to pursue such a power critique and instead focus on the search for meaning, power emerged from the data in an undeniable and pervasive form. It served as a reminder, and a lesson learned, that its influence should not be underestimated or forgotten for educational research. Taking the findings in this study as an example: it is not enough to know that time-consuming technological devices which are blue are likely to be avoided, or those that require installation, or that have too many sound effects, or not enough. It is a consideration for an isolated trait — precisely what Ruth Benedict (1934) criticised in *Patterns of Culture*. Why does time matter? What makes it an influential factor on behaviour? This requires a more holistic analysis of the educational context, and a theory of power provides the framework for exactly that.

3. *Foucault’s Power and Knowledge*

Foucault’s relevance to education studies is much wider than the focus on the concepts of power and knowledge. His examples are equally eclectic, and his style of writing often a touch lyrical. We can assume he would be resistant to a comprehensive account of his work — and this paragraph will only touch the very tip of the iceberg. As he points out, the aim of his own *Archeology of Knowledge* was “to map it in a dispersion that no pre-established horizon would embrace” (1972:202). On this book, he poetically comments: “It rejects its identity, without previously stating: I am neither this nor that” (1972:17). This is illustrative for the entirety of his work. His studies of discipline, punishment, sexuality, and so on, provide not only in depth subject matter for learning and discussion, but also complex analytical tools for wider issues. But Andrew Hope (2015) has pointed out that Foucault’s work has been neglected in educational technology scholarship.

This analysis will focus on the concepts of power and knowledge. Both concepts go hand in hand. There is no knowledge that does not serve power; nor any power that is effective without knowledge (Foucault, 1991:27). What are those elements of knowledge that shape a teacher’s decisions on using technology in the classroom? That influence is where the ‘microphysics of power’ present themselves, according to Foucault. In that sense, this paper does not focus on a major force in the sense of ‘the power of the state’, or a downward operation of control. Every individual or institution plays a role in the invisible force that influences our behaviour. For e-learning, everyday decisions a teacher makes with regards to technology are inextricably linked to the web of power and knowledge which surrounds him, and which he actively creates and recreates himself. In that sense, power is not repressive — it is productive. In all social action, we enact and reaffirm, because we all share and (re)produce that base in knowledge. So it is often the minor processes, such as everyday individual choices, which are particularly revealing of this force.

Of course, that is not to say that government and politics do not play a role. But they are not the sole possessor of power. They are only one of many in the invisible force over which nobody can claim ownership. There may be a disciplinary authority, which institutionalises knowledge, and therefore power. But the unspoken authority of that power and knowledge lives in a social body, not just the one institution, government, or law.

There are several mechanisms of power, such as hierarchical observation, normalising judgement, and the examination. All of these have surveillance at their core. The judgement (or normalising gaze, to emphasize observation) is a discretionary force, which evaluates decisions and behaviours either positively or negatively depending on the framework of standards. Closely related, the examination is a “highly ritualized [...] ceremony of power” (Foucault, 1991:184). It is a distinct and organised judgement which qualifies, categorises, and justifies intervention or punishment. Its relevance to education is pertinent. Hierarchical observation too, not just in literal school hierarchy where one party will monitor another. Physical learning spaces and school buildings have been designed to keep that ‘watchful eye’ going at all times (Foucault, 1991:172). It is “at the heart of the practice of teaching, not as an additional or adjacent part, but as a mechanism that is inherent to it and which increases its efficiency” (Foucault, 1991:176).

Some have remarked that most education studies have used Foucault to emphasise the impossibility of attaining freedom from power relations (Ball, 2013:146). That is not the case here; even though a power critique is not necessarily synonymous to a call for overthrowing those powers anyway — that is not exactly what Michel Foucault proposed either. However, it does imply a resistance to an unquestioning acceptance of
what the powers dictate. As researchers of education and e-learning, we perhaps have that duty in all of our projects more than any other stakeholder. It is impossible to negate the effect of power dynamics in research, and unwise to ignore their existence. An awareness of their presence, however, might actually transform itself into a brilliant new angle of analysis. This study is one instance of a thoughtful research design, which nonetheless revealed a blind spot prompting a renegotiation of the data. It underlines the importance of maintaining a dynamic stance in e-learning research to further the growth of knowledge in the domain.

4. A Power Critique

Teachers are often considered to be the driving force of technological innovation and change in schools (Bruner, 1996; Fullan, 2001; ...), yet many have pointed out that their actual use of technology remains quite ‘low level’ (Cuban, Kirkpatrick & Peck, 2001; Ertmer & Ottenbreit-Leftwich, 2010:256). Previous studies often begin with the view that a teacher has considerable autonomy in making the choice of technology for their teaching, and how they will use it. The original study from which this analysis draws its data makes that mistake as well. Foucault pointed out that freedom and control are in fact closely related, when he discussed the liberalist economy (2004:68). As the panopticon dictates, there is “a state of conscious and permanent visibility that assures the automatic functioning of power. So to arrange things that the surveillance is permanent in its effect, even if it is discontinuous in its action; that the perfection of power should tend to render its actual exercise unnecessary; […]” (Foucault, 1991:201). There is a philosophical question at the heart of this debate which is also deeply engrained in Cultural Studies. That is, to what extent a human being can really act out of his own independent, volitional behaviour, or to what extent he or she acts because of a certain ‘programming’. Cultural anthropologist Ruth Benedict described in her book Patterns of Culture (1934) that we make our choices on a large, but pre-defined arc of possibilities. There is an underlying web of meaning which provides a framework to make those decisions. Certainly in Foucault’s view, people will act less of their own accord than they perhaps think. That is the way of power, which can but does not always take the form of explicit authority as the ‘panopticon’ above illustrated. The data aimed to bring an answer to the question why teachers use technology – and it certainly did, but the pervasiveness of an invisible power on their decisions had gone entirely underestimated. It occurred naturally through documents, interviews and the final member check which the study incorporated.

Firstly, ‘performance’ was found to be a dominant theme. The stakes are high in education, and every teacher in the study was crucially aware of this. “We are burdened with the responsibility to perform, and if we do not we are in danger of being seen as irresponsible.” (Ball, 2013:138). As a unified factor, it was statistically significant in the decision-making of teachers with regards to e-learning. It came forward through the initial qualitative phases in various topics; the most prominent being exam pressures. Paula, a French teacher in the North of England, said during the focus group: “I kind of quite long for the day where I where it doesn’t come to external exams... cause it’s just working towards tests.” Andrew, who also teaches French in an all-girls school near Reading, agrees: “we’ve, we’ve come to the same conclusion recently here. That we’re just trying to train students for the purpose of passing an exam”. Similar sentiments have been noted for teachers of other subjects such as English and mathematics (Perryman et al, 2011).

In the UK, national examinations called GCSEs (General Certificate of Secondary Education) are administered to mark the end of compulsory education, typically around the age of sixteen. These are set, administered and assessed by independent awarding bodies, called exam boards. Students may go on for another two years of what is called ‘sixth form’ and then take exams called A-levels (prerequisites to enter higher education), and these are organised in the same manner. It is, of course, important for students to do well on these exams, but it matters on school level as well. Average results per school are published openly in national league tables, and that may increase their attractiveness as education providers. “Performativity then makes a crucial contribution to the rendition of teaching and learning into calculabilities, it generates market information for choosers [...]” (Ball, 2013:141). By categorising, organising, dividing and imposing a hierarchy, knowledge is created (Foucault, 1991:159). Student’s progress is endlessly parsed in ‘objective’ competencies, which also allows to determine which teacher is doing well in their job, and which schools are the top performers. “The learner is made visible, but power is rendered invisible, and the learners sees only the tasks and the tests which they must undertake.” (Ball, 2013:49). Thanks to the exam results and league tables, it is possible for power to assert “the possibility of a detailed control and a regular intervention (of differentiation, correction, punishment, elimination)” (Foucault, 1991:160). For example, during the 2014 GCSEs, exam boards “told schools that GCSE results may be “volatile” and appealed to governors not to sack head teachers over
disappointing grades” (Paton, 2014). For the individual teacher, part of their job assessment is based on the exam results their students receive (the difference between their predicted grades and actual outcomes): “Here power produces reality as a domain of objects articulated in specific rituals of truth-measurement.” (Ball, 2013:48). Needless to say, all this combined with the evidence-based approach to education mounts the pressure on the educators. Andrea, who teaches in the North of England, illustrates how power and knowledge in the system of education influence her everyday decision-making on using technology: “We incorporated into our end of unit testing a speaking test now in years 8 and 9 so that they’re, so that they’re not learning to speak for the first time at length at the GCSE. And the only way we managed to do that is the is by capturing them all on the language lab. [...] I don’t think it would be possible without the lab.”

To ensure the highest educational standards, there are several measures in place. These commonly draw from both formal and informal observational data (O’Leary & Gewessler, 2014). Teachers often have visitors to their classroom; which can be colleagues, senior management, outside stakeholders, school governors, teacher trainees, students themselves... Regardless of the effectiveness of these observations, it does create a culture where a teacher feels watched and judged. This corresponds to Foucault’s concept of hierarchical observation: “the student, teacher, and school are each subject to the gaze of the next, and all are subject to the gaze of the state” (Youldell, 2011:37). Of course, a positive observation grade is more desirable than a negative one. Therefore the aim is to multiply the signs assuring a good classroom environment, so the observer can decode the message as such. Hierarchical observation provokes ‘self-surveillance’ as the observed, examined and judged ‘individual’ turns her/his attention on her/himself and acts in particular ways in order to make her/himself and others particular sorts of persons” (Youldell, 2011:37). To illustrate, one young Spanish teacher in a sixth form London college said: “People that come into my lessons and they sit there and I’m working through and maybe they’re [the students are] making a lot of progress in my lesson with a textbook, you know? Loads. But the person that is sitting down there is gonna be like ‘oh, really old-fashioned’. Not the kind of teaching we’re looking for at the moment, that we’re contemplating. So I could have a really brilliant powerpoint um and that resource in um I don’t know... in a YouTube video, or whatever, you know like the person sitting there will say ‘ah, good’” As anything in culture, the factor of performance is sustained by the symbolic realm of formal expressions to convey its message in the social world. One of those expressions, or signs, is the use of technology in a situation where successful message delivery is vital. It has not gone unnoticed in education, though it has not been subject to extensive systematic evaluation: in a study in the context of a laptop programme for teachers, for example, the researchers found that the way their participants integrated the technology was powerfully mediated by “what constituted ‘good teaching’ in the context of the institutional culture” (Windschitl & Sahl, 2002:165).

A key player in that culture of observation and accountability is Ofsted, a recurrent theme in every phase of the research. To watch over educational standards, the government has created Ofsted as their inspection service, also called ‘the government watchdog’ (De Waal, 2008). Since 1992, inspectors have been sent to schools, but also to further education institutions, children and families services and early years childcare. Their reports are open access documents published online. Teachers are very aware that Ofsted is a mechanism of direct power and control (not to be confused with the interpretation of Ofsted as an agent of power in a Foucauldian sense). A young English teacher in a new academy in Kent said that “everything is directed by Ofsted, and it seems if Ofsted wants this then all schools need to shift to that.”

In Ofsted’s view, schools are categorised into four grades: ‘outstanding’ (the highest), ‘good’, ‘requires improvement’ or ‘inadequate’. This is of course a case of ‘normalising judgement’ or ‘normalising gaze’: “a surveillance that makes it possible to qualify, to classify and to punish. It establishes over individuals a visibility through which one differentiates them and judges them.” (Foucault, 1991:184). As punishment, a school may be placed in ‘special measures’ which means very frequent, short-notice inspection visits or further actions such as dismissal of senior staff, appointed replacements, or even closing the school. Schools, parents and unions often vent disagreement with Ofsted reports or the way inspections were held through media, open letters, blogs and forums. These complaints refer to intentional marking down (Le Duc, 2014), copy-pasting report fragments to other schools (Garner, 2012) and altogether working along a hidden agenda which is not in the best interest of education (Cartledge, 2014). It was forwarded as an explicit motivation not to explore more innovative ways of teaching with technology, and instead stick to ‘box-ticking’. In the same academy in Kent, French teacher Edward commented: “I think what they need to do is get rid of Ofsted. For a start. Cause Ofsted were formed twenty years ago and it just seems that they’re supposed to be monitoring
standards, but it doesn’t seem that standards are improving. [...] trying to tick boxes all the time cause somebody is coming round with a clipboard. There is always that pressure on you.”

There is a tension point in what technology wants and what Ofsted seems to want. Technology comes with a demand of its own. It wants to be used. This partly results in a constant feeling that all participants share: that they are not using technology enough in their lessons, even when they were considered very keen and competent by their colleagues (who expressed this view in separate interviews). Those less willing to engage with technology continue with their teaching almost defiantly, and in their self-proclaimed rebellion, they again confirm the technological utopia. Quite often, the most frequent use of technology had reached a state of normality and was kind of overlooked by the participants. They did not seem to notice the pervasiveness of electronic keycards, the use of email communication, Powerpoint, fingerprint scanners in the cafeteria, ... This creates a reliance on technology of which they are aware, but do not consider problematic. It’s just how life is, they would say. “I mean, it is just a sign of the times. And I know if I haven’t got my mobile phone, I start to feel a little bit edgy.” This was Daisy, head of department in a modern, state-of-the-art school building. However, as an earlier quote showed as well, teachers feel it is important to be seen using technology, as it would be decoded as a sign of a good teaching: the performance factor. As Lucille, a French teacher in a busy London college commented: “I always used to feel, when they [Ofsted and internal observers] came in, if I didn’t have anything up on the projector, if there was nothing up there, that I would be marked down, ‘oh she hasn’t prepared her lesson properly, she’s got nothing on the screen, there’s no Powerpoint, there’s no...’ I always used to feel like that.”

Such is the power of technology, that it has gained a normalised position in society and schooling, while at the same time, its absence would be a poor performance indicator. However, all participants indicated that this does not mean technology should be used in an advanced way. The last quote illustrates this. To play it safe and stay on a basic level is a much preferred tactic, rather than risking potential failure. “I think... if they see that you’re ... you’re not competent and it doesn’t work, they [the students] will get frustrated and then I will be frustrated as well.” A German teacher in an all-girls boarding school in the English countryside confessed. If it has the potential to hinder performance, technology might be avoided altogether in favour of positive impressions. During the focus group, a teacher of Italian in an all-girls school in North London said that she believed her students made a lot of progress by being in the language lab. However, she would avoid using it for an Ofsted visit. She explained: “It’s not a it’s not a good activity in my view for Ofsted. They could make so many [emphasis] objections. [...] There are many other ways of um of getting a good grade from Ofsted. Which is all for cast the experience as quickly as possible and carry on with our work. That’s my, my approach. And what I do well with Ofsted is very... very classical ways just um so the with the um like um see them without the technology” (01:30:56) So although she believes Ofsted are looking at the student’s progress, and she believes her students are improving by being in the lab, she would not conduct a lesson in the lab during an Ofsted inspection because this improvement is not apparent to the observer – it’s not a convincing classroom performance. As a final plot twist, it should be noted that Ofsted reports never seem to include much specifically on the use of technology within the school, and informal conversations with Ofsted inspectors confirmed it is not something which they would pay much immediate attention to.

Next to the overarching theme of performance, there is also the authority of time. Time is in part a subjective phenomenon, with an analytical base in a person’s psychology. For example, a person may experience an activity as of a short duration when they enjoy that particular activity a lot, which may be expressed as ‘time flies’. However, time is also a cultural construct. For example, the Germans, French and Americans in present-day business contexts have different understandings of time (as explained in Understanding Cultural Differences (1990) by Edward T. Hall). The salience of this construct can hardly be overestimated. It has been noted before as a particular trait of English teachers to bring ‘time’ forward in such a strong manner, or rather the lack of it, in comparison to for example their French or German peers abroad (Pepin, 2000). In a profit-oriented society, time is money. In education, it is equally seen as a precious commodity: you can ‘lose’ it, ‘spend’ it, ‘waste’ it or ‘gain’ it. However, the waste relates to what could have been spent on learning. Andrew illustrates: “I think that is one of the dangers of technology, unless there is some kind of control over access, as well as being very useful, it enables students to gain a lot of time and increase performance and so on, it can also be sometimes lead to a lot of wasted time.” The investment is not, as in the literal application of the financial metaphor, focused on activities to obtain more money, but activities which will ultimately boost exam results. Its relation to technology is straightforward. Technologies which are experienced as time-consuming because they require a lot of effort to use, to set up in class, to troubleshoot, and so on, are far less
likely to be adopted. Andrea, from the North of England, said: “I think we tried to set it [Google Docs] up but because it is very fragmented um... it is a lot of time to sort of set up your own Google um sort of shared drive... it takes quite a lot of time, we don’t do it. So if it’s set up by the school I mean, I can access as a parent, I can go in with parents access, data I can access you know um attendance, his attendance, his interim classification create knowledge, and that knowledge allows surveillance and normalising judgement — and how these dynamics influence technology acceptance.

There is a set linearity in education in every step of the way, focused on a goal at the end of the path. “The disciplinary methods reveal a linear time whose moments are integrated, one upon another, and which is orientated towards a terminal, stable point” (Foucault, 1991:160). That final exam, the end of term, the end of the school day, the school bell marking the end of a lesson, that moment where one lesson activity finishes and another begins, ... The bell is unforgiving, marking each segment of the day exactly. Indeed, Foucault identified the timetable is a clear tool of control (1991:149). It’s one of those signs which is decoded unequivocally in an educational context. Everyone understands this serial space of serial knowledges. The clocks on the wall, the daily schedule arranged to the precision of minutes, the sanctions for arriving late,...

Again these are materialisations of power of knowledge. Everyone understands; everyone follows its call. As already noted in the brief discussion of the original study, pedagogical considerations did not appear in the forefront. Decision around using or not using a particular technology were not always inspired by meaning-making around its pedagogical value. In fact, it was sometimes explicitly disregarded in favour of the performance factor. In view of the surveillance mechanisms of power, Perryman (2009:622) has called this ‘fabricating the stage’. Therefore, an alarming result is that the decision to use or not use a technology is more likely to be guided by a perception of what the classroom visitor wants to see, or time pressures, rather than instructional theory (a finding which was also made by, for example, Windschitl & Sahl, 2002). This final quote, by Paula, sums it up: “I also do think that there is a lot of teachers not interested in their subject it’s all it’s all because the things said before, performance-related pay and Ofsted criteria, getting your kids through exam results, it’s actually a very personal thing for a lot of and we’ve forgotten, I’ve I’ve personally um that’s probably why the job frustrates me an awful lot at the minute because I would love to do... and I do do what I do best but I know that my if my headteacher can come in any time but I will not get an outstanding, because I’m a bit daring I do things in a bit of a different way you know so many kids may go off task because it’s the sort of kids I teach you know um a very sort of low ability, from deprived areas and that’s what they all do but I ... but I know they that they know that I teach them.” This shows an individual’s knowledge that the normalising gaze will not appreciate that she teaches ‘a bit different’, despite her belief that this would be beneficial for her students. Power, in her words, materialises through her salary, Ofsted reports, the pressure of linear time, and internal observations, all with potential disciplinary action as a result of not fitting in line. They directly affect her engagement with innovative e-learning practices, by inspiring avoidance. In her words, we also find the traces of resistance, which always go hand in hand with the forceful relationships of power (Ball, 2013:32).

The strong observation culture, which includes Ofsted but also the league tables, in-lesson observations, student expectations, and so on, pervades the culture of education in England’s secondary schools. Somewhat alarmingly, it affects the decisions teachers make as to whether or not (and which) technology to use in the classroom. It warms teachers to the idea of using ICT if they believe the observer will want to see it used (or avoid its use if otherwise) and this knowledge overrides pedagogical beliefs. Interestingly, similar observations on the lack of pedagogical reflection have been made for teachers in England prior to this study. In an international study on social support structures, it was found that: "English teachers had the social network and support structures within their schools and, compared with their German and French colleagues, they spent more time in schools. But the culture in English schools appeared to be that within those structures teachers did not use that time to reflect on their pedagogy [...]” (Pepin, 2000:9). There are other, more pressing considerations which influence their practices. That is the objective of a critique: not only “to isolate
and identify the peculiar nexus of power and knowledge that gives rise to the field of intelligible things, but also to track the way in which that field meets its breaking point, the moments of its discontinuities, the sites where it fails to constitute the intelligibility for which it stands.” (Butler, 2001).

5. Conclusion

To summarise, this paper hopes to demonstrate the importance of remaining open to emerging insights – even when the research design was well-suited to the research question. Good research is rigorous, but does not reject being flexible and dynamic on the same account. The example provided here also serves as a reminder for e-learning research that even when a power critique is not the aim of a study, it will still influence the context, and therefore also the findings. It offers a research technique which profoundly challenges our theorising of technology acceptance in education. In this case, a different research community had clear added value for the growth of knowledge in e-learning research. More importantly, overlooking the power relations is disadvantageous to education altogether. Without questioning the normalised boundaries, we allow ourselves to get stuck rather than evolve. As this paper showed, it would be wrong to ignore the pervasive impact of a culture of accountability, observation and time efficiency, which directly affects e-learning practices. This culture, which has been put in place to ensure high quality provisions in educational institutions, has clear negative effects on the quality which it aims to protect. For example, the results show that some classroom decisions (such as the use of a particular technology) are not made on the basis of pedagogical value considerations, but on the basis of what the classroom observer may want to see. That is how knowledge, and power, affect our everyday practices in a direct and pervasive way. This could not be discovered without the correct negotiation of the research with and within different domains.

Power critiques are vital to understand our own position and possible alternatives, refusing to accept things as ‘normal’ and keeping the horizon of possibility firmly open. This also goes for e-learning research. It is at play in the choices we make in our research method. It is even linguistically present when we undertake technology ‘acceptance’ studies. Therefore, although this analysis has been entirely anti-normative, it will end with the cautionary suggestion that technology in education must not fall into the trap of utopianism, but neither can it become a case of keeping up appearances. Every e-learning research will have the opportunity to question those frameworks, and look beyond what has been presented as ‘normal’ data, with the ambition of not letting the dynamics of power affect us unawares. For any research question, our methodological choices need to allow a dynamic interpretive stance, even in a well-justified, traditional research design.

References


An exploration of autonetnography as an eResearch methodology to examine learning and teaching scholarship in Networked Learning

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Abstract: As an experienced face-to-face teacher, working in a small Crown Dependency with no Higher Education Institute (HEI) to call its own, the subsequent geographical and professional isolation in the context of Networked Learning (NL), as a sub-set of eLearning, calls for innovative ways in which to develop self-reliant methods of professional development. Jones and De Laat (2016, p.43) claim that NL is different from other eLearning sub-sets, for example, Technology Enhanced Learning (TEL) and Computer-Supported-Collaborative-Learning (CSCL) because of its “focus on pedagogy and understanding how social relationships (and networked practices) influence learning rather than having a predominantly technical agenda for change in education”. NL, rather than TEL or CSL, therefore, locates the context for this paper. My intent was to develop a bespoke professional development framework to facilitate independent and self-directed NL teaching development. To scaffold my professional development autonetnography (ANG) was chosen to facilitate my learning. The concept of ANG was introduced by Kozinets & Kedzior (2009) as an autobiographical extension to the ethnographic genre Netnography defined by Kozinets (2006) as an interpretive research methodology to examine online observations and interactions. Whilst recent researchers of digital learning claim that has potential to add to a growing body of knowledge that accepts the post-modern use of self as an insider researcher (Ferreira, 2012; Persdotter, 2013; Mkono, Ruhanen & Markwell, 2015) none have explained how to undertake ANG. There appears here, to be a theory-practice gap (Kessels and Korthagen, 1996) and the problem lies within the argument that there is no current theory upon which to practice ANG. This opportunity to examine more closely the subjective and reflexive insider researcher perspective of being an online scholar (as a learner or teacher) would respond to this gap in current eResearch knowledge. This paper uses meta-ethnography (Noblit & Hare, 1988) as a method to systematically examine methodology relating to autoethnography, with the purpose of working towards developing a framework for undertaking ANG as an emerging eResearch methodology. Seven phases of meta-ethnography formed the method for synthesising autoethnographic methodological data and translating these into ANG methodological data. Findings from this synthesis are reported through the autoethnographic tripartite scheme of mimesis, poiesis and kinesis (Holman-Jones, Adams, & Ellis, 2013a). From this synthesis, the autonetnographic "I" framework was developed and forms a methodological basis for future ANG studies to examine teaching and/or learning scholarship in NL and the potential for considering adaptation of ANG for use in eLearning more generally.

Keywords: Autonetnography; ANG; autoethnography; meta-ethnography; eLearning; networked learning; reflexivity; eResearch methodology; online learner and teacher scholarship; online professional development

1. Introduction

As a sub-set of eLearning, the context for this paper is Networked Learning (NL), which is defined as learning that takes place using information communication technologies, specifically “between one learner and other learners, between learners and tutors; between a learning community and its learning resources” (Jones, 2015, p.5). Jones and De Laat (2016, p.43) claim that NL is different from other digitally mediated learning opportunities, for example, Technology Enhanced Learning (TEL) and Computer-Supported-Collaborative-Learning (CSCL) because of its “focus on pedagogy and understanding how social relationships (and networked practices) influence learning rather than having a predominantly technical agenda for change in education”. It will be argued that despite the focus on NL, it is likely that the criteria interpreted as pertinent for ANG as an eResearch methodology, is transferrable to eLearning more generally, as the enabling paradigm for NL.

For those Higher Education (HE) teachers who wish (or are expected) to teach online, professional development is essential if they are to extend their teaching repertoire from face-to-face teaching to include digitally mediated teaching. As an experienced face-to-face teacher, working in a small Crown Dependency with no Higher Education Institute (HEI) to call its own, the subsequent geographical and professional isolation in the context of learning to teach online calls for innovative ways in which to develop self-reliant methods of professional development. In response to this situational dichotomy, my intent has been to develop a bespoke professional development framework to facilitate my NL teaching development. This paper reviews the
findings of a systematic examination of methodological literature relating to autoethnography, with a view to developing a framework for undertaking autonetnography (from herein presented using the acronym ANG to differentiate autonetnography from autoethnography) as an emerging eResearch methodology to examine learning and teaching scholarship in NL. ANG has a limited empirical evidence base (Ferreira, 2012; Mkono, Ruhanen, & Markwell, 2015; Persdotter, 2013) and the aim is to review autoethnography as the closest ethnographic genre to ANG, to adapt and characterise ANG as an extension of the myriad of genres claimed as online ethnographies: Virtual Ethnography (Crichton & Kinash, 2003; Hine, 2015), Digital Anthropology (Boellstorff, 2012; Horst & Miller, 2012), Network Ethnography (Howard, 2002), Webnography (Evans, 2010), Internet Ethnography (Sade-Beck, 2004), Online Ethnography (Androutsopolous, 2008), Cyber Ethnography (Akturan et al., 2009), Digital Ethnography (Murthy, 2008) and Netnography (Kozinets, 2006; Kozinets, 2010; Kozinets, Dolbec, & Earley, 2014; Kozinets, 2015). The increasing interest in online ethnographies in all of their forms leaves room for extension beyond online ethnography towards the consideration of how postmodern online autoethnography or ANG might highlight my own experiences of scholarship in the context of NL. My epistemological stance is influenced by a firm belief that knowledge construction is a social process whereby online scholarship is enhanced through interactive collaboration, cooperation and critique of others’ contributions. Although this interpretative, socially constructivist qualitative research paradigm is relatively recent, it is gaining increasing credibility within a hierarchically dominant positivist, quantitative empirical research base (Etherington, 2004). Muncey (2010) agrees, claiming “that knowledge of self and others develops simultaneously, both being dependent on social interaction; self and society represent a common whole and neither can exist without the other” (p.12). Currently, within the qualitative paradigm, and reflective of my epistemological stance, is an appreciation of postmodernism. Postmodern researchers (Clarke, 2005; Nash and LaSha-Bradley, 2011; Soukup, 2012) appear yet to convince those with a preference for earlier qualitative paradigms, that the reliance upon the self as the research tool is credible and trustworthy. I have experienced this rejection of the postmodern turn by colleagues and peers who argue that postmodernism is so far removed from the modernist qualitative researchers’ objectivist worldview that the postmodern subjective, self-orientated paradigm is considered far too introspective to be empirically sound. The need, therefore, to expose my own philosophical stance, through a critique of the evidence-base to develop an informed perspective on the evolution of ANG is vital to ensure that the most robust and trustworthy evidence comes to the fore. The section that follows critically examines and defends meta-ethnography as an approach for synthesising autoethnographic methodology for translating into ANG as an emerging eResearch methodology.

2. Why ANG?

An early proponent of online ethnographies is Rheingold (2000) and his exploration of The Virtual Community: Homesteading on the Electronic Frontier, unambiguously founds him as not only a member, but also an “architect of the community of interest” (Gatson, 2013, p.248) that is suggestive of the emergence of ANG as methodology. Whilst recent researchers of NL have provided evidence for those who regard ANG as an extension of autoethnography and netnography as a possibility (Ferreira, 2012; Kozinets and Kedzior, 2009; Mkono et al., 2015), none of these authors have explained how to undertake ANG. There appears here, to be a theory-practice gap (Kessels and Korthagen, 1996) and the problem lies within the argument that there is no current theory upon which to practice ANG. This opportunity to examine more closely the subjective and reflexive insider researcher perspective of being an online scholar would respond to this gap in current eResearch knowledge.

My representation of ANG is not so focused on the self in terms of personal, life changing epiphanies, but more about “aesthetic moments ... [incorporating] the habits of work” (Adams, Holman-Jones, and Ellis, 2015, p.69). I consider the importance of ANG as a lens through which to interpret my understanding, whilst acknowledging and celebrating my presence as an insider researcher of NL.

3. Epistemological Stance

As an experienced eLearner, my epistemological stance is influenced by a firm belief that knowledge construction is a social process whereby online scholarship is enhanced through interactive collaboration, cooperation and critique of others’ contributions. Although this interpretative, socially constructivist qualitative research paradigm is relatively recent, it is gaining increasing credibility within a hierarchically dominant positivist, quantitative empirical research base (Etherington, 2004). Muncey (2010) agrees, claiming “that knowledge of self and others develops simultaneously, both being dependent on social interaction; self and society represent a common whole and neither can exist without the other” (p.12). Currently, within the qualitative paradigm, and reflective of my epistemological stance, is an appreciation of postmodernism. Postmodern researchers (Clarke, 2005; Nash and LaSha-Bradley, 2011; Soukup, 2012) appear yet to convince those with a preference for earlier qualitative paradigms, that the reliance upon the self as the research tool is credible and trustworthy. I have experienced this rejection of the postmodern turn by colleagues and peers who argue that postmodernism is so far removed from the modernist qualitative researchers’ objectivist worldview that the postmodern subjective, self-orientated paradigm is considered far too introspective to be empirically sound. The need, therefore, to expose my own philosophical stance, through a critique of the evidence-base to develop an informed perspective on the evolution of ANG is vital to ensure that the most robust and trustworthy evidence comes to the fore. The section that follows critically examines and defends meta-ethnography as an approach for synthesising autoethnographic methodology for translating into ANG as an emerging eResearch methodology.
4. Meta-Ethnography

To gain a holistic perspective of any given phenomena, it is preferable to synthesise multiple evaluations of research findings. Meta-analyses of quantitative data have long been established as the ‘gold standard’ in the hierarchy of evidence that informs evidence-based practice (Aguirre & Whitehill-Bolton, 2014; Graham, Harris, & Santangelo, 2015) whilst the synthesis of qualitative research remains in its infancy (Walsh & Downe, 2005). Arguably the inclusion and exclusion criteria used to establish the quality and therefore appropriateness of specific quantitative research to undergo meta-analyses can afford to be more prescriptive, and agreement upon such criteria in the form of rating quantitative studies is well established (Higgins & Green, 2008). Due to the more interpretive nature of qualitative research, the application of inclusion and exclusion criteria based on the quality of the paper is more complicated (Toye et al., 2013).

To address the complex nature of qualitative synthesis, Noblit and Hare (1988) as early proponents of using meta-ethnography in educational research, introduced meta-ethnography to synthesise their understanding of ethnographic accounts. This paradigm-specific synthesis is resolutely grounded through an interpretivist as opposed to a positivist lens. Meta-ethnography is defined as “the translation of one study into another that encourages the researcher to understand and transfer ideas, concepts, and metaphors across varied contexts while emphasizing the preservation of meaning” (Kinn, Holgersen, Ekeland, & Davidson, 2013, p.1287). With this definition in mind, Noblit and Hare’s (1988) meta-ethnography framework has since been claimed an appropriate tool to synthesise multiple forms of qualitative research, for example, in the contexts of education (Hoover & Harder, 2015), healthcare (Ho & Chiang, 2015) and health technology (Campbell et al., 2011). My intention is to take meta-ethnography beyond the synthesis of research papers, towards the synthesis of research methodology. The emphasis on meta-ethnography being an iterative process, rather than one that is linear (Aguirre & Whitehill-Bolton, 2014) draws my attention towards synthesising research methodology related to autoethnography. Arguably, the skills of Levi-Strauss’ conceptualisation of a ‘bricoleur’ (Hatton, 1989) are required of the synthesiser, as they move away from the “linear step-by-step processes” (Kinn et al., 2013, p.1287) and towards an iterative one. The bricoleur’s synthesis of methodology through meta-ethnography will “go beyond narrative and systematic reviews” (Britten et al., 2002, p.209) to develop deeper conceptual understanding of the autoethnographic methodology under review. Significantly, Atkins et al., (2008) suggests that meta-ethnography has the potential to afford an elevated level of analysis, engender new research questions, and diminish duplication of research studies. My aim is not to (re)create, (re)write or (re)work data gathered from autoethnographic research methodology, rather to focus upon the reported methodology to find synergy among the variants of autoethnography which “creates a new, deeper and broader understanding” (Aguirre & Whitehill-Bolton, 2014, p.283) of ANG as the topic under review. I argue that the principles of meta-ethnography can be adapted as a framework to examine autoethnographic theory and the pragmatics of undertaking autoethnographic research, in an attempt to synthesise then translate my findings to the context of ANG. Whilst I contend that caution should be taken when transferring the principles of one methodology to inform another, I argue that to gain an in-depth understanding of autoethnography as a methodology from which to define and interpret ANG, meta-ethnography will act as a useful tool to proffer a meaningful thematic synthesis. Meta-ethnography is not without criticism in that “a meta-ethnographic synthesis reveals as much about the perspective of the synthesiser as it does about the substance of the synthesis” (Noblit & Hare, 1988, p.14). Arguably however, in the context of identifying a new perspective on ANG, meta-ethnography fits not only with a review of ethnographic texts, but also the philosophy of autoethnographic methodology that strives to acknowledge the value and expertise of the researcher as participant as they write with others’ in mind (Adams et al., 2015; Denzin, 2014). Whilst I recognise and concur with the strength of the argument made by Anfara and Mertz, (2015, p.15) that “no theory, or theoretical framework, provides a perfect explanation of what is being studied”, my perspective remains valid and will be open to critique like any other.

Noblit and Hare (1988) devised a seven-phase approach for conducting meta-ethnography, to guide the synthesiser through the iterative process (figure 1), and the findings reported throughout each phase follow hereafter.
Figure 1: Model developed from Noblit and Hare (1988) Meta-ethnography 7 phases to creating synthesis

5. Synthesis through meta-ethnography

Phase 1: Getting Started. In a recently published second edition, Kozinets (2015) reiterates the potential of ANG as methodology and claims that the rapid evolution of technology development in conjunction with the exponential outreach of the internet on a global scale has radically altered the way in which humans communicate. An examination of data from Miniwatts Marketing Group (2015) on world internet usage and population statistics indicates that on the mid-year update in June 2015, the world population was estimated at 7,260,621,118 with the number of internet users at 3,270,490,584. The penetration of internet users within the global population was 45%, with data from Europe, North America and Oceania/Australia indicating that there was more than 70% penetration of internet users apiece. The growth of internet usage, claimed between 2000-2015 is 806%. If this data is accurate, then there are significant implications for the future of NL field research as a way of examining more closely the relationships and experiences of those who learn online, in addition to the ever-changing dynamics of global cross-cultural interaction, communication, collaboration and cooperation of those learning together.

Whilst researchers of NL have provided evidence of those who regard ANG as an extension of autoethnography and netnography as a possibility (Ferreira, 2012; Kozinets & Kedzior, 2009; Mkono et al., 2015), none of these authors have explained how to undertake ANG. My aim is to forge a path towards articulating ANG as an emergent framework for NL researchers, with the purpose of providing not a prescriptive approach, but “a map of the [autonetnographic] terrain to guide those seeking to learn more, who [wish to] benefit from specificity and instructions” (Ellingson, 2009, p.4). To continue in the words of Ellingson (2009, p.4) as she describes her intent to introduce crystallisation as a qualitative framework, the following applies to my intent to develop an autonetnographic framework: this emergent autonetnographic framework seeks to combine “multiple forms of analysis and multiple genres of representation into a coherent text ... building a rich and openly partial account of a phenomenon that problematizes its own construction, highlights researchers’ vulnerabilities and positionality, makes claims about socially constructed meanings, and reveals the indeterminacy of knowledge claims even as it makes them”.

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**Phase 2:** Deciding what is relevant to the initial interest includes acknowledging the potential audience. The aim of this meta-ethnography is to inform other postmodern researchers within the NL field of the potential for ANG as an eResearch methodology to examine scholarship. I also aim this paper at those researchers who are less convinced that ANG can offer a credible and trustworthy perspective of the self that has the capacity to inform others in the NL field. This is not to persuade those who are cynical of the value of ANG as methodology to convert their perspectives to assimilate mine, rather to be transparent in my claim for ANG as methodology from my own equally legitimate lens of postmodern social constructivism. If Mkono et al., (2015, p.167) unique claim that “parallel to autoethnography in philosophy and practice, [ANG] is located within an interpretive paradigm that responds to the debate about reflexivity and voice in social science, by allowing a more active authorial voice to emerge” is deemed credible, then I argue that peer-reviewed autoethnographic methodology is the most relevant to my interest in conceptualising the potential for ANG as methodology to examine scholarship in NL.

**Table 1:** Literature search strategy

<table>
<thead>
<tr>
<th>Literature Search strategy</th>
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</thead>
<tbody>
<tr>
<td><strong>Database</strong></td>
</tr>
<tr>
<td>Lancaster University One Search</td>
</tr>
<tr>
<td>EdTLLib Digital Library</td>
</tr>
<tr>
<td>EBSCO HOST</td>
</tr>
<tr>
<td>CERUK</td>
</tr>
<tr>
<td>Education Resource Information Centre, Google Scholar</td>
</tr>
<tr>
<td><strong>Keywords</strong></td>
</tr>
<tr>
<td>'autonetnography', 'autoethnography', 'auto-netnography', 'online autoethnography', 'netnography', 'virtual ethnography', 'network ethnography', 'cyberethnography', and 'webnography'.</td>
</tr>
</tbody>
</table>

A literature search (Table 1) highlighted a significant volume of literature exemplifying the use of autoethnography as methodology. This literature was appraised until saturation was reached (Anderson and Glass-Coffin, 2013; Anderson & Braud, 2011; Burnier, 2006; Custer, 2014; Davis, 2005; Denshire, 2014; Ernst and Vallack, 2015; Hall, 2012; Hansson and Dybbro, 2012; Henning, 2012; Holt, 2003; Hoppes, 2014; Keefer, 2010; Mitra, 2010; Mizzi, 2010; Ngunjiri, Hernandez, and Chang, 2010; Pace, 2012; Pelias, 2003; Peterson, 2015; Spry, 2001; Struthers, 2012; To, 2015; Truong, Graves, and Keene, 2014; Wall, 2006) to identify the authors who were considered leaders in the field of autoethnographic methodology. Of these perceived leaders, I searched for methodological texts to inform a deeper understanding of what constituted autoethnography as methodology, and arrived at eleven published literature relating to autoethnographic methodology, and four papers introducing the notion of ANG as methodology (Table 2).

**Table 2:** Methodology relating autoethnography to ANG

<table>
<thead>
<tr>
<th>Autoethnographic methodology texts in ascending chronological order</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)/Year</strong></td>
</tr>
<tr>
<td>Hayano (1979)</td>
</tr>
<tr>
<td>Reed-Danahay (1997)</td>
</tr>
<tr>
<td>Chang (2008)</td>
</tr>
<tr>
<td>Muncey (2010)</td>
</tr>
<tr>
<td>Holman-Jones, Adams, and Ellis (eds) (2013b)</td>
</tr>
<tr>
<td>Short, Turner, and Grant</td>
</tr>
</tbody>
</table>
Phase 3: Reading the studies. Familiarisation with each of the texts cited in Table 2 occurred through reading the whole text and highlighting specific areas of text that appeared informative. Preliminary notes were made about the broad understanding of autoethnography as methodology and saved in a spreadsheet. Extensive attention was paid to each methodological text (Aguirre & Whitehill-Bolton, 2014), whereby reading and re-reading the text gave me a level of saturation of the data to inform the next phase.

Phase 4: Determining how the studies are related. Supportive of Noblit and Hare’s (1988) focus on iteration for this phase, I followed the suggestion from Britten et al. (2002) to create a table to formalise the characteristics of autoethnography I had acquired from saturation of methodological data within phase 3. To enhance trustworthiness and credibility of the meta-ethnography, I incorporated quotations from the original texts, as suggested by Aguirre and Whitehill-Bolton (2014). The meta-ethnography table, when complete, contained in excess of 33,000 words of quoted text, which prepared the ground for undertaking phase 5.

Phase 5: Translating the studies into one another. In response to limited evidence to guide the meta-ethnography synthesiser, I followed Atkins et al. (2008) suggestion to place the autoethnographic texts in chronological order in the table. This allowed me to translate Hayano’s (1979) early text into Reed-Danahay (1997), and so on, until I reached Adams et al., (2015) as the most recent autoethnographic methodological text, and Kozinets, (2015) as the most recent theoretical acknowledgement of ANG.

Phase 6: Synthesising translations. Using the table created in phase 4, themes were synthesised from the 1st (originator of autoethnography methodology) and 2nd (others’ interpretation of the original methodological perspective) order constructs, which in turn determined a 3rd order construct whereby I have synthesised and interpreted a framework to guide my own autonetnographic studies in the future.

Phase 7: Expressing the synthesis, in a form that makes sense to the reader is essential. This paper will be one form of expressing the findings from a meta-ethnography to inform other NL field researchers about the potential for ANG, so that they too might consider using ANG as a methodology to explore and enhance their understanding of scholarship within NL. A framework (figure 2) illustrates the significant (to me) aspects of ANG for use in future research, which will be supported by explanation of the potential value of ANG as methodology.
Having introduced the concept of the autonettrographic “I” framework, the latter part of this paper will shift focus from the predominantly third person theoretical development of ANG towards the first-person conceptualisation of ANG. At this juncture, I wish to make it clear that the way in which I express ANG herein is not prescriptive; it is my interpretation of the way I intend to glean a deeper understanding of what it is to be an online learner and teacher developing her academic voice. However, for those who might prefer a more focused methodological guide to ANG, I have developed a methodological model (Figure 3).

**Figure 2: My autonettographic “I” framework**

**Figure 3: ANG Methodological Model**
I begin within each findings section by defining the concepts of *mimesis*, *poiesis* and *kinesis* then examine in more depth how each of these concepts can act as a guide to utilising ANG as an eResearch methodology to explore scholarship in NL.

**Mimesis**

*Mimesis* in the context of autoethnography has been defined as the “idea that autoethnography acts as a mirror or reflection of life and living in ways that are useful for contemplation as well as a mode of engagement with understanding” (Holman-Jones et al., 2013a, p.38). Within the context of online learning, mimesis affords an opportunity for me to focus on ANG as an eResearch methodology to explore and reflect my online scholarship and interactions, how those interactions are influenced by my connection to others within my online learning group, and the subsequent implications of online social change. Here, I explain the way in which I intend to follow a theoretical, analytical and interpretive (Anderson, 2006; Denzin, 2014) pathway on the axes of the auto (self), net (NL culture), and graphy (research process).

6. **Reflection of self and engagement with others**

Chang (2008) recognises the importance of self-reflection as a form of data collection, and this can result from analysis of field notes, reflective journals, auto[net]nographic interviews and self-observational behaviour. It has been argued by Anderson and Glass-Coffin (2013), that those who do not view the world through a postmodern lens, might dispute the oxymoronic nature of an auto[net]nographic interview, whereby the researcher becomes the researched. They go on to claim, however, that “as life-story scholars have long recognized, our memories of the past are filtered through the interpretive lenses we bring to our self-reflections” (p.69). This claim is supported by Chang (2013), who posits that whilst memory and recall might encapsulate autobiographic data, self-reflection upon such data is likely to echo the auto[net]nographer’s current perceptions and attitudes, which might in future autonethnographic studies, expose explanation for my own and others’ online engagement habits. Nash and LaSha-Bradley (2011) claim that auto[net]nographers as a top priority, utilise ethnographic cultural methodologies that are accepted more readily by the majority in the qualitative field of inquiry, to examine the self in relation to the culture under review. I recognise and embrace the argument that ANG is a “highly self-reflective and introspective process, [and] unless there is a methodological way of keeping a distance from this process, [I could] easily fall in to self-absorption” (Chang, 2008, p.96). As I focus on ANG I limit the likelihood of self-absorption, through my preferred (re)presentation of ANG combining an analytic and interpretive stance.

7. **Focus on ANG**

If claims by proponents of autoethnography (Adams et al., 2015; Allen-Collinson, 2013; Chang, 2008) that autoethnographies are (re)presented within varying emphases on the triadic axes that inform the balance of the self (auto), culture (ethno) and research process (graphy), then I argue that it is reasonable to suggest that autonethographers might follow suit. Having synthesised autoethnography as methodology, my current worldview and interest in being an online scholar as both a learner and teacher within the culture of NL favours less the emotive (Jago, 2002) or evocative (Muncey, 2010) perspectives of autoethnography through excessive use of autobiography, and values more the analytic (Anderson, 2006; Anderson and Glass-Coffin, 2013; Anderson & Braud, 2011) and interpretive (Denzin, 2014; Denzin, 2004) exploration of my online learning experiences as primary data. Analytic ANG would call for incorporating the five key features proposed by Anderson (2006, p.378): 1) “Complete member researcher status” through researching my own online scholarship; 2) “Reflexivity” will be interwoven throughout my research; 3) “Narrative visibility” of myself as a researcher represented through my writing; 4) “Dialogue with informants beyond the self” through reflexive interviews and peer debriefing, and 5) “Theoretical analysis” of my data by interpreting (Denzin, 2004) and analysing my findings compared with peer reviewed literature. One of the difficulties of adopting this form of ANG is the dichotomy I will face as a native member of an online learning group, developing my understanding of the internal language and functioning of the online culture (emic perspective) at the same time as being the researcher who is required to translate my findings through the theoretical analyses of relevant peer reviewed literature (etic perspective) (Kozinets & Kedzior, 2009). This potentially complicated dual stance may be representative of the aforementioned literature that critiques autoethnography as too subjective, whereby the researcher may be too close to the emic perspective to be able to form one that is etic.

I contest the argument, however, that “the methodological focus on self is sometimes misconstrued as a licence to dig deeper in personal experiences without digging wider into the cultural context of the individual stories comingled with others” (Chang, 2008, p.54). As an indigenous member of an online learning
community, I will use my own experiences “reflectively, to look more deeply at self-other interactions” (Holt, 2003, p.19). The concept of culture in this respect is fundamentally based upon co-present online interactions between the self and others, because culture is dependent upon humans interacting with each other (Chang, 2008). Specific to the evolution of digital globalisation, the highly public potential for online interconnectivity of self with others, is reflective of Geertz’ perspective on ethnography where he contends that “culture is public because meaning is” (Geertz, cited in Chang, 2008, p.19). As an online scholar in the NL culture, I am required to learn the cultural terms of engagement (or rules), whereby the way in which I interact may exhibit different meanings (Kozinets & Kedzior, 2009). For example, the rules of netiquette explored by Clouder et al. (2011) suggest that learning to communicate online involves establishing ways and means of working through agreeing and disagreeing with peers, and argue that once the rules of netiquette are well established, that healthy disagreements might lead to a “greater understanding through co-construction of knowledge” (p.113).

Poiesis
Poiesis is defined by Schrag (2003, p.19) “as artefactual production is distinguished both from the sphere of human action and from theoretical philosophizing”. This is a way of considering ANG as an eResearch methodology that guides reflexivity relating to self, subjectivity, and the online learning culture to indicate how I make meaning and construct relationships with others in NL. Indeed, Holman-Jones et al. (2013a, p.39) posit that poiesis contributes to the “creation and shifting of various auto[net]nographic subjectivities (selves, audiences, and communities), the practice of auto[net]nography as a relational …endeavour, and auto[net]nography as a doing that creates, marks, and makes visible various voices and ways of knowing”. This relational research practice is centred in a lived, embodied experience of online learning. Here too, the ethical considerations and obligations of autonetnographic methodology will be considered.

8. Reflexivity, embodiment, subjectivity and relational research practice

Researcher reflexivity has been defined as “the capacity of the researcher to acknowledge their own experiences and contexts (which might be fluid and changing) [to] inform the process and outcomes of inquiry” (Etherington, 2004, p.32). To meet the academic rigour required of good qualitative research, I must be cognisant about how my thoughts, feelings, life-culture, epistemological and ontological influences (Mauthner and Doucet, 2003), inform me as I interact as an online scholar with others. Reflexivity is a process through which I can acknowledge my role within my ANG research, with awareness that my findings are open to the interpretation of others (Kozinets, 2010). A requisite of reflexivity is that I reflect back on my experience and current understanding of my identity as an online teacher and part-time online PhD student, and the relationships I have with my peers and learners (Adams et al., 2015). To make sense of how these experiences influence my research, then I need to consider to what “extent am I included, relevant, and essential in this description of culture and to the various audiences who engage my work” (Berry, 2013, p.222). I will need to consider then, not only how my membership as a learner and teacher within the NL culture, influences my sense of self (Boylorn and Orbe, 2014a) and interactions with online peers and tutors, but also how my offline ‘selves’ as a professional (nurse and lecturer) and in my private life as a wife, mother, grandmother, daughter and sister might influence my research behaviour. In addition, reflexive behaviour should take into account how findings from my ANG research represents or construes the online learning and teaching culture and the potential risks of claiming to speak for others (Berry, 2013; Etherington, 2004). For example, the claims that I make based upon my own experiences of online scholarship may not be reflective of other online scholars and I must be cognisant of this when reporting my findings.

I contend that reality is only a perception based upon the subjective understanding of one’s bio-psycho-socio-spiritual existence combined with the historical, cultural and genetic predisposition of embodiment. This perception of self in ‘reality’ is both interpretive and intersubjective. Human subjectivity, therefore, “is a source of knowing, not dismissible as solipsistic expression or opinion” (Anderson and Braud, 2011, p.64). Grant, Short, and Turner (2013, p.4) agree that “subjectivism is welcomed and seen as a resource” and that the “subjectivist stance in autoethnography is predicated on quite the opposite: that culture flows through the self and vice versa, and that people are inscribed within dialogic, socially shared, linguistic and representational practices through their daily occupations”. Acknowledged by Ching, Carter and Foley (2012), subjectivity, in the context of self-construction through engagement with text in a virtual learning environment, is a critical factor in making sense of the digital world within which one interacts, co-constructs, collaborates and cooperates. Schrag (2003) argues against those whose philosophical stance claims to reject the permeation of self (and therefore subjectivity) into the research process. From my perception of what constitutes reality, I
suggest that one might struggle to detach the self from the subjective in the form of objectivity. Thus, subjectivity is essential to autoethnographic (re)presentation.

9. Ethical considerations

Despite a focus on the self within autoethnographic research, ethical considerations for undertaking ANG are extensive. Divulging personal data, for example, collected through journals, field-notes, autoethnographic interviews and conversations with others, can implicate others (Turner, 2013) in a way that they may not appreciate nor have the power to challenge. Even strangers can become connected to the self “through membership of common experiences, if not through personal contacts” (Chang, 2008, p.65). Muncey (2010, p.106) suggests that three interrelated ethical responsibilities should be considered by the autoethnographer: “Acknowledgment of narrative privilege” whereby the author should protect those who (by the very nature of the author’s declaration of self-examination) are implicated as co-participants; “Acknowledgment of narrative media” by considering whether or not those affected by the autoethnography are able to engage with the medium in which the author’s narrative is presented (whose interests such presentations are intended to serve); and, “Acknowledgment of ethical violence” whereby the author’s “interpersonal obligations affect [their] work” with the potential of leaving those implicated within the autoethnography at risk of harm. Etherington (2004) and Tullis (2013) call for a process of consent, where the author shares their findings and checks with participants (where possible) that each phase of the research is accurate from the participant perspective. Indeed, ethical consideration within ANG does not finish with exploring potential risk to the self and/or others. Authors must also be cognisant of the audiences who read their work (Tullis, 2013) and the effect the content of such research may have on the potential audience.

Kinesis

Kinesis is claimed as the point at which mimesis (reflection) and poiesis (meaning) “now invoke intervention and change” (Madison, 2012, p.188). Kinesis as a “dynamic practice that creates movement and change” (Holman-Jones et al., 2013a, p.39) empowers the autoethnographer to understand their voice and identity as an online learner and/or teacher, and create change within the self in the context of their membership to the NL community. Here, ANG is fundamentally different from other forms of NL research that has tended towards a more objective view of online learners’ and/or teachers’ perceptions and experiences through utilising, for example, Activity Theory (Conole, Galley, and Culver, 2011), Actor Network Theory (Fenwick and Edwards, 2012) and Case Study (Dodds, 2011). By utilising ANG in NL research, I can explore the development of mindful, autoethnographic knowledge in relation to being an online learner and teacher as part of an academic community, in the context of doing ANG.

10. Creating change and mindful understanding of the NL culture

It is feasible to suggest that self-transformation through exploring the autoethnographic “I” (Figure 2) makes visible ways in which the “I” has been changed by the process of inquiry (Anderson and Glass-Coffin, 2013), and is reflective of the way in which self-transformation impacts on interactions with others within the NL culture. Indeed, Berry (2013) postulates that the “possibility for change, the chance to understand ourselves more closely, and to re-reflect on what was and who we were, in contrast to what is and who we are now, is one of auto[net]nography’s greatest gifts” (p.216). Changes that occur through self-examination, by the very nature of self being inextricably linked to others, will impact on interactions with the communities and cultures of which one is a part. For example, an examination and critique of positive or negative ways in which I collaborate and cooperate with other online scholars as a result of autoethnographic research, is likely to elicit a response from those with whom I interact. Depending on what my interactions are, such changes may be perceived by my peers/tutors/learners as detrimental or beneficial to the learning culture within NL.

11. Compositional (re)presentation

Have I as a writer created an experiential text that allows me (and you) to understand what I have studied? Understanding occurs when you (and I) are able to interpret what has been described within a framework that is subjectively, emotionally, and causally meaningful. This is the verisimilitude of the experiential text, a text that does not map or attempt to reproduce the real (Denzin, 2014, p.82).

Traditional academic writing is often characterised (and criticised for) being laden with jargon (Holman-Jones et al., 2013a) and exclusive to the academic reader. With a capacity and requirement for reflexivity, a
heightened sense of awareness empowers autoethnographic authors to re(present) their findings in many different ways (Muncey, 2010). Within the myriad of compositional representations employed by autoethnographers (including for example, analytical, evocative or performance writing), authorial voice is considered significant, not only as a way of connecting with others through our chosen (re)presentation (Adams et al., 2015), but as a source of knowledge (Kozinets & Kedzior, 2009). The authorial power held by any researcher, to control how our stories are represented, necessitates that “we need to be relationally responsive in telling them [and] the cost of our autoethnographic narratives must never be higher than the benefits to ourselves, others, and the communities we represent” (Hernandez & Ngunjiri, 2013, p.279).

12. Implications for practice

This meta-ethnography set out to examine the potential of ANG as an eResearch methodology to examine scholarship in NL. My findings indicate that through the lens of meta-ethnography, methodological data specific to autoethnography can be synthesised into the online context to extend the theoretical emergence of ANG to build on, and contribute to, eResearch methodology specific to the field of NL. This paper provides additional insights into ANG as a theoretical lens through which to interpret experiences as an online participant in any form, indicating the potential for its adaptation to inform eLearning research more broadly. The development of my *autoenthetic* *“I”* framework (Figure 2) in conjunction with a practical guide to undertaking ANG developed from my findings (Figure 3) will serve as a guide for future research exploring how I perceive online learning and teaching scholarship is experienced as different from other forms of scholarship. In keeping with the purpose of autoethnographic accounts to share experiences and perspectives that might resonate with the reader, this paper extends the knowledge of learning in the context of NL scholarship by introducing the potential of ANG as an eResearch methodology to other NL researchers who may be interested in extending this, or other sub-sets of eLearning fields of inquiry. Whilst I argue that ANG has the potential to be applied in eLearning the focus for my meta-synthesis has been NL in keeping with my interest in online connectivity and interaction between students, their teacher and online resources. I am, therefore, unable to claim direct transference of ANG to eLearning, although I do believe ANG could be adapted for use as an eLearning research methodology.

References
Allen-Collinson, J. (2013), "Autoethnography as the Engagement of Self/Other, Self/Culture, Self/Politics, and Selves/Futures", in S. Holman Jones, T.E. Adams & C. Ellis(Eds.), Handbook of Autoethnography Left Coast Press, Inc., Walnut Creek, California, pp. 281-299.


Chang, H. (2008), Autoethnography as Method, Left Coast Press Inc, Walnut Creek, CA.


Ellis, C. (2004), The Ethnographic I, AltaMira Press, CA.


Hall, J.C. (2012), "Okay so remember, this is a drape - not a sheet": A critical autoethnography of (per)forming the practice(d) body of a gynecological teaching associate.


Holman Jones, S., Adams, T.E. and Ellis, C. (Eds.) (2013b), Handbook of Autoethnography, Left Coast Press, Inc., Walnut Creek, CA.


Schrag, C., O. (2003), Communicative Praxis and the Space of Subjectivity, Purdue University Press, West Lafayette, Indiana.
Struthers, J. (2012), Analytic autoethnography: a tool to inform the lecturer's use of self when teaching mental health nursing?, Department of Educational Research, Lancaster University.
A Roadmap to Cope with Common Problems in E-Learning Research Designs

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Abstract: E-learning research is plenty of difficulties, as also research in education is. Usually, the high number of features involved in e-learning processes complicates and masks the identification and isolation of the factors which cause the expected benefits, when they exist. At the same time, a bunch of threats are ready to weaken the validity of the research, for example, disregard of previous research, use of small samples, absence of randomization in the assignment to groups, ineffective designs, lack of objectivity in the measuring process, poor descriptions of the research in publications (which implies few possibilities of replication), wrong statistical procedures, inappropriate inference of results, etc. All of these obstacles accumulate and are carried along the whole research, resulting in low quality studies or irrelevant ones. This theoretical paper suggests a roadmap in order to face the most common problems in e-learning research. The roadmap informs about some cautions which must be considered at each stage of the research and recommendations to increase the validity and reproducibility of results. The roadmap and conclusions included in this paper have been obtained from our experience in educational and e-learning research, also from our long path as reviewers in key journals of these fields, and from readings of significant research handbooks. This is not a strict guide but a set of milestones on which it is necessary to stop and reflect.

Keywords: e-Learning research, educational technology, research designs, e-learning effectiveness, methodology, validity.

1. Introduction: How is E-Learning Research Being Conducted?

The history of educational technology has much to do with unspecific and poorly conducted research. As Alexander et al. (2006) noticed, even after 50 years of e-learning (about 30 of them online) there is little evidence to support a strong body of knowledge in this field. Educational technology research has had a limited impact in transforming the use of technological tools in the classroom (Amiel and Reeves, 2008). Simultaneously, educational research is seen “as a practically sterile activity that has conspicuously failed to produce a rational base for educational policy and practice and is largely irrelevant to the needs of the educational policymakers and practitioners” (Carr, 2007, p.272). The lack of credibility in educational research and poor transferability of research results to the real world is a consequence of diverse issues, as the conflicting concept of teaching and learning effectiveness, incoherencies between definitions of research problems and methods to explore them, unmanageable amounts of data and others (Raffaghelli, Cucchiara and Persico, 2015). The same weaknesses are found in e-learning (Conole and Oliver, 2007), where a bunch of different methodologies coexist to treat a single problem: how to improve learning.

The reasons for that deficiency in research are multiple. But firstly, it must be answered, what is e-learning research for? As He Kekang (2014) said, “it is well known that the inherent characteristic of educational technology (i.e., its qualitative prescription) is the use of various technologies to optimize the educational and teaching processes to achieve the goal of improving the effectiveness, efficiency, and benefits of education and teaching” (p.13). In a similar way, Masie (2008, p.379) defined e-learning as “the use of network technology to design, deliver, select, administer, and extend learning”. Having in mind that the main objective of e-learning is obviously the improvement of learning, most of the research is based on how to tackle this issue. “Articles that report research studies with technology-based teaching strategies should begin by making it clear that they address a significant educational problem, as opposed to a proposed technology solution” (Roblyer, 2005, p.194–195). Nevertheless, recently, problems have shifted from the measurement of e-learning effectiveness to the study of teaching and learning practices and pedagogical methods (Hung, 2010).

In e-learning research, there is a large number of fields of study. In Hung’s taxonomy of e-learning research, the most frequent themes in the groups related to learning were: e-learning communities and interactions; multimedia in e-learning; adaptation and usability; gaming in e-learning; simulation in e-learning; support system design and development; teaching and learning strategies; how to improve the effectiveness of e-
learning and student motivation; large-scale national or state-level e-learning projects; and emerging technologies’ impacts in educational fields.

For Haythornthwaite et al. (2016), the questions over which e-learning has evolved around have been: how to teach online; how to bring resources for distributed learners; and how to study and practice at the technology–learning interface; but nowadays e-learning questions are also about video-based resources, gamification, MOOC, virtual worlds, virtual communities, annotation of video lectures, dashboards, adaptive learning and about how to use the digital traces of engagement, interaction, communication, argumentation and learning which e-learning systems record (learning analytics), among others. For example, in virtual communities of learning, current research is raising questions on technical and social prerequisites to build and support them, and in gamification, about how to use strategic thinking to make choices or solve problems (Hillen and Landis, 2014).

In either case, any e-learning research should clearly define the area of application, because research in education usually deepens into a labyrinth of interactions.

“Applied to e-learning, socio-technical perspectives draw attention to the complex of interacting elements that make up an e-learning case: the array of technologies; the individual and collective practices of teachers, learners, and educational institutions; the meaning associated with degrees, universities, and higher education; the technological readiness of stakeholders; the identity and accepted practice associated with the roles of teacher and student; and more”. (Haythornthwaite et al., 2016, p.6)

The high number of features involved in e-learning processes complicates and masks the identification and isolation of the intervening factors. The separation of the different contributions of each factor to variance, which is a key issue, is extremely complex. The students’ backgrounds, their interactions, the tasks done and learning paths followed by each individual are different and uncontrollable, in spite of the existence of modern learning analytics, which record large data streams produced by the activity of the students within some learning management systems.

Therefore, an initial consideration about how current e-learning research is done has to do with the lack of definition and control.

On a separate level, the fast pace of technological developments does not help to scholars. Research on a particular technology or tool is quickly obsolete and the tool replaced by another one, more extended, accepted or trendy, independently of the educational potential of the replaced tool. And “we can assume that the e-learning landscape will become even more diverse” (Hillen and Landis, 2014, p.218). Within this context, an inconvenient is that “educational technologists are frequently more concerned with the possibilities of using a new technology (means), such as a newer course management system or the hottest wireless device, than seriously considering the ultimate aims of its use and its consequences” (Amiel and Reeves, 2008, p.33).

Indeed, e-learning is always evolving and of course media attributes too. Old conclusions are not always applicable to current technology: “...much of the research being conducted is designed for earlier forms of education resulting in no significant differences being found for new forms of education” (Spector, 2013, p.22). Media attributes in e-learning are now different from those found some years ago; for example, augmented reality using virtual glasses may facilitate the comprehension of complicated concepts, some systems of delivery of rich video lectures allow watching streaming video in combination with annotation and interactive activities, etc. These are emerging cognitive tools which support new forms of knowledge representation, acquisition and interaction, and would not have been possible with ancient media. Yang, Wang and Chiu (2014) stated that the tenets of Clark (the importance of instructional methods, 1994), Kozma (the importance of media attributes, 1991) and Mayer (the importance of the cognitive characteristics of the individual, 2008) should be taken into account all together in technology-enhanced learning and, of course, in e-learning research. Media attributes have to be considered at a similar level as instructional methods, since certain instructional methods can only be performed using a particular media or tool (e.g. 3D printer). Therefore, both technological and pedagogical-cognitive aspects should go hand in hand. As Rushby and Surry (2016) assert, “a key problem that particularly besets information and communication technologies (ICT) in learning is that the
champions tend to be well informed about technology itself but often less competent in the broader aspects of learning” (p.2).

Nomenclature does not help either. There are a myriad of names used for labeling e-learning derivatives (m-learning, u-learning, distance learning, web based learning...) and its associated tools and services (e.g. only in the case of video: digital video, streaming video, webcast, vodcast, webinar, vlog, video lecture, enhanced video lecture, etc.). It is hard to know what someone is referring to when there is a vague description of the study. Is e-learning equal to reading digital books, pdfs, interactive books, videoconference, video lectures, collaboration tools...? What kind of collaboration tools? Discussion forum, wiki construction, online shared documents? A big muddle, for example, is found with the concept of ‘impact’, which is used in very different ways: improvement in scores, better ICT competences of students, influence over the educational system, etc. (Balanskat, Blamire and Kefala, 2006). Some current e-learning research is carried out without taking into account the specific nature of each tool and the way of using it; again, a vagueness in the approaches can be noticed.

Another main consideration is largely determined by the heterogeneity of the studies, which hinders comparisons, and by their recurrent focus towards the gathering of (qualitative) subjective judgements. Indeed, differences in the way in which the problems are tackled is a difficulty for establishing research guidelines. Hung states that “Scholars in leading countries on e-learning development focused on its educational aspects. Scholars in early adopter countries tended to study e-learning from technical perspectives” (2010, p.10).

Since the statement of the four-level model of Kirkpatrick (1979) to evaluate e-learning, the first level, called reaction, has been commonly used. That means that many researchers evaluate mainly the participants’ reactions to a specific e-learning program, tool or resource, that is, opinions, perceptions, motivation, satisfaction... about the program. After this, they draw conclusions related to its quality, its advantages, or surprisingly, they infer how much the students have learnt, instead of how much students think they have learnt. A typical question in this type of studies could be, do you think the inclusion of a quiz feedback helped you to learn more? This kind of findings is supported by subjective answers which lead to a dramatic decrease of the validity of results and contribute to a lack of credibility. Strother (2002) stated that pretest-posttest designs were not used by the majority of organizations in e-learning evaluation; only the satisfaction levels were considered. So, she concluded saying: “measuring learning requires a more rigorous process than a reaction survey” (p.5).

“It must be noted that the field of educational technology is a discipline characterized not by methodological unity but by methodological diversity” (Amiel and Reeves, 2008, p.404). But, in any case, and above all, methodological rigor must prevail. Both authors maintain that “educational technologists should not continue to simply investigate the impact or describe ‘best cases’ in post facto applications of technological devices” (p.33). Indeed, in educational settings, this kind of approach may result too much superficial.

Quantitative and qualitative methods are condemned to get along with each other, even after the U.S. Department of Education’s (2003) decision “to give funding priority to research that adopts random sampling and experimental designs” (Randolph, 2008, p.13). The reason for adopting this resolution is the increasing need to find empirical evidences which can be replicated. Unfortunately, too many studies using experimental or quasi experimental designs also fail in one or more steps of the research process. Like in a high-fidelity system, if there is a low-quality part (speakers, amplifier room acoustics...), the whole system will sound bad.

Bulfin et al. (2014), from a survey carried out with 462 experts in educational technology, report “a preference for relatively basic forms of descriptive research, coupled with a lack of capacity in advanced qualitative data collection and analysis” (p.403). They also cite different authors to point out that, in educational research, methods and designs are usually under-specified and scientific design and accurate statistical analysis are often avoided. Perhaps, the reasons why this happens is due to the lack of knowledge of research designs or because of the statistical difficulty. On the opposite side, Hewson et al. (2003) stated that, while the majority of research on Internet has been making use of surveys and interviews, there have been many rigorous studies using experimental designs, in which individuals were randomly assigned to the experimental conditions.
The study carried out by Bulfin et al. (2014) showed that descriptive research was commonly used by a 50% of the surveyed researchers, 32% used collaborative research (as participatory methods), 25% comparative research, 21% experimental research, 15% design-based research, 15% ethnographic research, 14% longitudinal research, etc. Randolph (2008) found 41% of studies experimental/quasi-experimental, 26% quantitative, 16% qualitative, 12% correlational and 6% causal-comparative. In MOOC, Raffaghelli, Cucchiara and Persico (2015) identified almost every type of e-learning research methods, including quantitative, qualitative, mixed-methods, design-based research, literature review and theoretical-conceptual research. With reference to qualitative research, the top five inquiry methods are: narrative research, phenomenology, grounded theory, ethnography, and case study (Cresswell, 2013).

At the same time, in e-learning there is an increasing trend towards participatory/social and design-based methods (Kafai, 2005). But when individuals are involved in contexts which require a high social interaction, their autonomy can be diminished, and it hinders to take advantage of the benefits of digital media to advance at their own pace (Annand, 2007). For Kuboni (2013), requisites of social interaction enter into direct competition with the student autonomy.

Amiel and Reeves (2008) defend design-based approaches because of the complex interactions which take place in educational settings, where human, social and cultural aspects are linked to technical ones. In this way, a design-based method is developed within a specific educational context, contributing to create a connection with real-world problems. The two key aspects in design-based research are: on the one hand, the negotiation of the research goals between practitioners and researchers and, on the other hand, an iterative research process within a real educational context, in a cycle of investigations (Ibid.). So, classrooms become living laboratories (Sakai, 2005). Under this point of view, classical one-independent-variable studies would provide a very limited insight of the educational outcomes. Design-based research use mixed-methods, such as surveys, expert reviews, evaluations, case studies, interviews, retrospective analysis and formative evaluations (Wang and Hannafin, 2004).

In general, the way in which a lot of studies are conducted is too lax, especially regarding to the control of validity and reliability. This problem may happen at any stage of the research: definition, literature review, sample, gathering tools, statistical analysis, etc. Actually, it is one of the key problems which lead to the lack of credibility in e-learning research.

2. Common Errors in E-Learning Research

As a result of these difficulties, "e-learning evaluation is still deficient and does not have evaluation guidelines" (Tzeng, Chiang and Li, 2006, p.1040). Hence, this theoretical paper suggests a roadmap in order to face the most common problems in e-learning research. The roadmap informs about some cautions which must be considered at each stage of the research and recommendations to increase the validity of results. The stages on this map include warnings which correspond to the following phases:

1. Appropriate definition of the research problem and questions
2. In-depth reviewing of the specific state-of-the-art
3. Sufficient sample and assignment to groups
4. Appropriate methodology and powerful design
5. Variables and data gathering tools
6. Correct usage of statistics in the analysis of results
7. Cautions about inference
8. Detailed report generation and possibility of replication.

In this way, this roadmap can serve as a useful tool for beginners but also for researchers who like to check and avoid some risks at every step they take, mainly focusing on evaluative e-learning problems. This paper does not provide strict rules but some milestones on which to stop and reflect, always aiming to find out strong evidences.

2.1 Appropriate definition of the research problem and questions

The research problem and the questions derived from it are among the more important parts of the research. However, too often, questions are generic and imprecise. A typical but bad example of research question in e-
learning would be the following: did the online group do better than the face-to-face one? But, what means to do it better? Higher scores? More competences? Did they work more? Higher motivation? It is also necessary to wonder whether students spent the same time, or whether they interacted each other, if they used every tool, etc. Even though the researchers were able to measure accurately the key variables, there would not be many possibilities to disentangle the contribution of each factor because of the interactions among them. To avoid this complication, as mentioned above, many researchers choose to interrogate about the field of reactions, using questions like, do online students were more encouraged using such tool or technology?

Answers to general questions can be unreliable. Randolph (2008) recommends to broken down general research questions into more specific issues. An accurate problem and specific questions are mandatory in e-learning research. As one of Cohen’s (1990) principles proposed, “more highly targeted issues” benefit research. In e-learning, another example of poor formulated question could be: can students learn more about medical contents using e-learning? A better and more specific question would be: do the retention of anatomy concepts improve when students can manipulate images in 3D? In this research question the retention of medical concepts will be the dependent variable and could be measured through a test, for example.

Furthermore, educational technology questions should always facilitate to provide answers from a cognitive perspective, i.e., having into account the human cognitive architecture. That implies it is necessary to elaborate research questions which allow obtaining answers about the effects of an educational treatment (Is it working? How much is it working? What is happening?), but, at the same time, also consider how we learn and discover all the causes which are producing benefits or damages (Why is it working? How is it working?). The question writing should be specific enough to be able to detect the part of the contribution of each tool or methodology used in the treatment and why or why not it works. Sometimes significant effects can be found, but the mechanisms by which they happen remain unknown. To achieve this, qualitative approaches (qualitative questions), in which students give their opinions about why they think the treatment yielded an effect, are needed.

2.2 In-depth reviewing of the specific state-of-the-art

It is necessary an in-depth review of the previous research for each e-learning specific situation or problem studied. Rushby and Sury (2016) found that almost all the research questions about ICT had been already addressed and even answered during the two decades between 1980 and 2000 but, obviously, not using the current technology. They warned that many researchers only looked into articles published online, while they had saved time and resources if they had read earlier works before. Indeed, the progress in educational research is conditioned to the attention paid to established solid theories (Burkhardt and Schoenfeld, 2003).

In educational technology research, it is uncommon the replication of experiments aimed to confirm or reject previous results, and to advance in the consolidation of theories. Often, studies remain isolated; many studies start from scratch, leaving previous findings unattended. Starting e-learning research from scratch, and also the use of mutually incompatible research perspectives, does not lead to accumulation but to chaos; as Gros (2012) states, it seems we are always making the same questions. The cumulative criterion is one of the pillars to improve the relevance of e-learning research (Roblyer, 2005).

Moreover, in order to create a robust body of knowledge, reproducibility is mandatory; the most reasonable choice for e-learning progress would imply deepening into already existent research lines, taking previous studies as a reference and reproducing them. Only the consideration of previous research can lead to build a cumulative and robust body of knowledge. Mayer’s Cognitive Theory of Multimedia Learning (2008) and Sweller’s Cognitive Load Theory (2011) are two examples of theories which have been developed thanks to a well-driven set of studies and have achieved to set up a group of scientific and accepted rules.

Researchers must review what variables have been used previously to deal with equal or similar research problems. For example, in an e-learning program, can the time spent watching videos, the number of pictures used, the interactivity dose, the adequacy to students’ learning styles, etc., improve the educational effectiveness of the materials? The unveiling of equivalent studies for each one of these variables can be a big help to find out other variables, to guide on the research design, to detect threats, etc.
2.3 Sufficient sample and assignment to groups

In e-learning research, participants use to be volunteers (convenience sample). Forcing students to participate is considered difficult and sometimes unethical. This problem can lead to get small and biased samples; samples which are not representative of the entire population. But “there is no sampling method which guarantees a simple is representative of the population under study” (Canal, 2006, p.122).

Some authors criticize sampling methods used in e-learning. Bulfin et al. (2014) point out that this self-selection sample method, lacking of randomness, is not suitable for obtaining statistical significance, even using non-parametrical testing.

However, as Hewson et al. argue (2016) although experimental designs rarely obtain probabilistic samples, statistical inference is justified if they are randomly assigned to conditions. Fortunately, in e-learning settings, many times it is possible to establish different groups freely and assign students to one or another group randomly. An advantage of this procedure (in those cases where random assignment to groups is possible) is that the most part of validity problems can be avoided. In any case, if there are doubts, a pretest is recommended to check the initial equivalence of the groups in the variable of study. When it is not possible that individuals are randomly assigned to groups, the study could be framed within quasi-experimental research.

Usually, in educational settings, to recruit a sufficient number of individuals, researchers have to resort to offer rewards in the form of additional points or other kind of gifts to convince the students to join. And even so, it must be envisaged that the sample mortality can be high. At least a number of 30 individuals per group is considered enough to perform parametrical analysis. “The number 30 seems to have arisen from the understanding that with fewer than 30 cases, you were dealing with ‘small’ samples that required specialized handling with ‘small-sample statistics’.” (Cohen, 1990, p.1304). In general, the bigger the sample is, the better reliability will have, and the more sophisticated statistical test will can be done (Cohen et al., 2007). Of course, in qualitative studies, where generalization is not a goal, probabilistic samples are not necessary, since another kind of data, for example narratives, are sought.

2.4 Appropriate methodology and powerful design

Discussion between quantitative and qualitative focuses is still alive. Ramage (2002) argued that comparisons studies between the results of different groups of students remained among the best methods to determine the effectiveness of educational technologies. However, these methods, predominantly experimental or quasi-experimental, are neither free of problems, but on the contrary, they have to be carefully planned ahead to avoid the ‘annoying’ inconvenience of guaranteeing the validity and reliability of the results. Furthermore, higher rates of validity can be achieved using some form of triangulation. For Randolph (2008), “there is good reason for this mixing of methods of analysis... researchers can get a more holistic and valid view of a phenomenon by viewing and interpreting the phenomenon from different perspectives” (p.89).

Unfortunately, there are few guidelines which can be applied to all kind of research, since methods are context-dependent (Randolph, 2008), but all of them share the requirement of validity and reliability (although different for each one) and, in all of them, the combination of quantitative and qualitative explanations would be desirable. The important dilemma is “to decide what methods are most appropriate for what questions” (Bulfin et al., 2014, p. 404).

Cause-effect pure models tend to simplify realities in which many variables interfere with each other (Gros, 2012). This can justify why some experimental or quasi-experimental designs have been done in real-contexts, provided that the majority of strange variables and threats can be controlled. Experimental designs which are developed in real contexts gain in external validity (ecological validity) at the expense of internal validity and causal inferences, but they allow to explore what works better than artificial laboratory scenarios.

Even when experimental and quasi-experimental designs are highly valued by impact journals and educational administrations, mixed methods are gaining in acceptance (Randolph, 2008). Mixed methods combine quantitative and qualitative methods to obtain data which complement each other. Some questions cannot be answered using only quantitative data, because quantitative data seldom inform about the context. As an example, “most research into the use of recorded lectures by students has been done by using surveys or...
interviews” (Gorissen, Van Bruggen and Jochems, 2013, p. 20), although reliable data about its effectiveness on learning cannot be evaluated in this way. In the particular case of MOOC data collection is mainly carried out through classical methods like surveys and analysis of learning analytics data (Raffagelly, Cucchiara and Persico, 2015), which are often subjective or inaccurate. That is why the triangulation between quantitative data and qualitative data is so important. While quantitative studies try to approach objectivism and to find explanations or predictions, qualitative ones are interpretative and are seeking deep understanding (Lincoln, Lynham and Guba, 2011).

Traditionally, evaluative e-learning research has compared the effectiveness of a treatment in a face-to-face group versus an online second one (sometimes adding a third hybrid group). In this schema, the first group was the control group, while the second was the group who received the e-learning treatment or program. This kind of research is obsolete and plenty of difficulties to guarantee internal validity, due to the high number of differences between both scenarios, which make it difficult to identify which factors are responsible of the effects, when they exist. In this kind of distribution, the majority of students are involved in a sea of educational tasks which mask and complicate drawing reliable final conclusions. Usually, on the one hand, the face-to-face group is attending traditional classes with presentations, taking notes, making questions, participating in face-to-face discussions, etc., while on the other hand, the online group is studying at home, reading digital documents, videos, engaging in online discussions, etc. In order to understand whether a factor is causing an effect, groups have to be similar in all those possible characteristics different to the applied program itself. Abrami et al. (2011) suggest to compare an online treatment with another online treatment, using better research designs (controlling sample imbalances) and more precise measurements. As mentioned before, even though the sampling method is not random, the random assignment allows considering both groups as probabilistically equivalent and the use of experimental designs.

A 43% of the experimental studies in Randolph’s (2008) meta-analysis used one-group posttest-only design, which is a pre-experimental design (Campbell y Stanley, 1963), and 19% a pretest-posttest without control group. Among the good designs to check the effectiveness of specific treatments in e-learning, it is possible to use the simple two-group posttest-only experimental design which allows using a t-test or one-way ANOVA for measuring statistical significance of posttest scores. Another better option is to use a two-group pretest-posttest design which allows to subtract the pretest effect using an ANCOVA test (using pretest scores as covariable).

As third option, but more difficult to tackle, the four-group Solomons’ design (1949) —two with treatment and two for control, two with pretest and two without it— allows to compare the initial equivalence of the pretested groups, eliminate the pretest sensitivity effect using ANCOVA for the pretested groups, and check the effect of the independent variable in the pretested groups as well as in only-posttest groups. So, the Solomon design is among the most powerful experimental designs, because it enables the initial comparison between the pretested groups and the consideration of the posttest for all groups (statistical analysis was described by Braver and Braver, 1988). Experimental designs are able to eliminate all the threats to internal validity but it is not possible to guarantee external validity (Campbell y Stanley, 1963).

Quasi-experimental designs are very common in education and e-learning. Almost all non-equivalent-group designs contain many threats to validity. Since the assignment to groups is not random, it is not possible to affirm that both are initially equivalent (even using pretest). Besides, in real-world contexts, groups usually experience very different histories during the period of the study, apart from the treatment itself, like different teachers, materials, contacts with the other groups, etc. Many of these differences should be considered and planned ahead, or avoided, in e-learning contexts, before starting the research.

The application of mixed methods and design-based methods neither disqualify the realization of comparison between groups, nor the application of statistical tests. Quite the opposite, while quantitative methods are able to detect whether a treatment was significantly effective, qualitative methods, used in synergy with quantitative, allow strengthening the hypothesis, unveiling, especially, how and why the quantitative results took place. That is, they give important clues about the reasons which have produced the effectiveness or ineffectiveness of the treatment, and might have not been born in mind as factors initially.

The internal validity of many experiments is reduced by the various threats that, in too many occasions, become evident. Two of the most known threats in education and e-learning research are the experimenter expectancy effect or Rosenthal effect (Rosenthal and Jacobson, 1963) and the Hawthorne effect. The first one
takes place when the researchers applies a treatment or program which uses a novelty technology (it could be a new social network or an app of augmented reality). He or she introduces, consciously or unconsciously, an artificial encouraging component which modifies students’ behavior. The Hawthorne effect occurs because individuals often modify their behaviors when they know that are being observed (e.g. a student who is evaluated using a participant observation method). Perhaps, these are some of the most difficult to control threats, although balanced designs can minimize it.

The control and elimination, if possible, of all kind of threats to internal validity should be the main concern for any e-learning researcher. It forces him or her to sit down, think meticulously and anticipate what might happen during the intervention, trying to achieve the treatment is the only difference between groups. For example, making a balance of participants between experimenters (when there are more than one) can contribute to avoid the Rosenthal effect. The experimental and control groups would ‘suffer’ the same teachers. Other useful designs in order to avoid internal validity problems are those which balance the treatment or program between groups, like the switching replications design. As third example, it is also possible to evaluate what happened in both groups in those parts of the course not subject to treatment. Did you find any difference? Of course, not.

2.5 Variables and data gathering tools

Data collection is one of the most important phases of e-learning research. In e-learning, individuals are usually distant and researchers cannot resort to the whole range of gathering tools. This limitation is more pronounced in 100% e-learning programs, because it is not possible to apply some face-to-face data collection tools in identical conditions (e.g. in-situ interviews).

With regard to quantitative research, the prevalent data were obtained from experimental and quasi-experimental measurements (23.8% expressed to have expertise) and visual/audio techniques (23.4%) (Bulfin et al. 2014). In the 21 experimental designs studied by Randolph (2008, p.67), data were obtained from questionnaires (91%), log files (29%), test (23%), interviews (23%), direct observation (21%), exercises (14%), teacher survey (10%), standardized test (10%), narrative analysis (10%), time on task (5%), focus groups (5%), etc.

In qualitative research, the gathering tools commonly used are interviewing (recordings), surveys (questionnaires) and observations (field notes). The study conducted by Bulfin et al. (2014) revealed that more than 50% of the participating researchers in educational technology had expertise with interviews, more than 40% with surveys and 39% with observations. However, in e-learning situations, while surveys can be easily applied online, interviews are very difficult to carry out and observations almost impossible.

Concerning the validity of the different tools used to collect data, it has to be noticed that, although all of them provide with valuable information, such information is often biased or inaccurate. Even experimental or quasi-experimental studies are not able to exclude all the possible alternatives to explain a particular effect, that is, they are unable to avoid the influence of all the strange variables which can affect the dependent variable (in particular, the researcher’s influence and the applied instrumentation).

Regarding to variables, the “less is more” principle, defended by Cohen (1990, p.1304), entails the use of few independent variables and even fewer dependent variables in research. But Joy and García (2000) warn that many studies lack of validity because designs are wrong, some variables ignored and results questionable. They found, for example, errors in the sampling method, sample size, assignment to groups or ignorance of other influential variables (prior knowledge control, teacher effects, time spent in the task, learning styles, etc.). They highlight that is it very important to carefully control which factors are explaining the variance, whenever there is a suspicion that results might be influenced by one or more uncontrolled variables.

2.6 Correct usage of statistics in the analysis of results

Bulfin et al. (2014) have listed the percentage of familiarity of researchers with different methods of data analysis. First places were occupied by quantitative descriptive statistics (graphs and charts 41%, means and standard deviations 38%, frequencies 36%), followed by qualitative content analysis (29%), cross-tabulations (28%), comparison of means (t-test, or ANOVA, 28%), comparison of frequencies (chi-squared, or Mann-Whitney, 24%), correlations (Pearson, or Spearman, 24%), regressions (21%), discourse analysis and textual
analysis (18%), etc. However, many studies do not check variables requirements before applying parametric statistics (Kolmogorov-Smirnov, Shapiro-Wilk, Levene, etc.).

Continuing with Bulfin et al. (2014), they emphasize the absence of advanced data collection and analytical techniques such as data mining or learning analytics, which would provide with data for statistical and visual analysis. At the time learning management systems gather accurately user interactions, it will be possible to draw more interpretations from them, including group comparisons (Giannakos, Chorianopoulos and Chrischooides, 2015). With regard to MOOC, Raffaghelli, Cucchiara and Persico (2015) identified that the most commonly used analysis methods were traditional statistics and, recently, data visualization based on learning analytics.

In addition to P-values to determine the statistical significance of a variable, it is very necessary to use some indicator about effect size, which indicates how much the treatment or program is affecting. “The absolute effect size is the difference between the average, or mean, outcomes in two different intervention groups” (Sullivan and Feinn, 2012, p.279). Effect size is considered the substantial significance in a study, because P-values inform about whether an effect exists but not about how much it affects. Therefore, “the primary product of a research inquiry is one or more measures of effect size, not P values” (Cohen, 1990, p.1310).

Standardized indices of effect size make possible comparisons between studies, hence these indices (Cohen’s d, Kappa, Odds ratio, correlation indexes, etc.) should be included in reports to advance in e-learning research. As an example, in the meta-analysis of Means et al. (2009) of empirical studies about the effectiveness of online learning, they found 176 of them using experimental or quasi-experimental designs, 99 had done at least one contrast test, but only 45 included effect size data.

Cohen (1990) also recommends “simple is better” (p.1305). He suggests starting descriptively but representing data in graphical ways when possible. For example, a frequency polygon or a Tukey stem and leaf diagram would be better than media, standard deviation, skewness and kurtosis values to describe a distribution; and a scatter diagram better than $r$ coefficient (Ibid.).

2.7 Cautions about inference

One of the important limitations in any e-learning study is the difficulty to make inferences. Results are also heavily context-dependent and limited by the sample. Probably, one exception is the case of MOOC, whose possibilities to obtain large and demographically representative samples facilitate the extrapolation of results.

“External validity refers to the degree to which the results can be generalized to the wider population, cases or situations.” (Cohen, Manion and Morrison, 2007, p.136). External validity of lab controlled e-learning experiments is always compromised, at least related to ecological validity, since the artificiality of the situation has not much to do with the real settings. “In education, ecological validity is particularly important and useful in charting how policies are actually happening ‘at the chalk face’” (Brock-Utne 1996, p.617). Here, design-based methodologies allow to achieve a higher external validity, since interactions take place in real settings; however, internal validity is reduced whether strange variables cannot be controlled.

2.8 Detailed report generation and possibility of replication.

The need of a more detailed description of e-learning research is a common requirement. Often, there is no information about how the sample was obtained, how they were assigned to groups, detailed description of the intervention, clear relations between variables and hypothesis, whether parametric statistics could be applied (normality and homoscedasticity conditions), internal validity considerations (studying possible threats), why statistical test are used, effect size values, etc. Apart from these descriptions, it is always recommended to measure and describe the amount of time spent by each group in the research objective. What happens if the experimental group has spent a 300% more time using the treatment than the control group?

Abrami et al. (2011) demand a better description of all the treatments, both in face-to-face and e-learning, and the inclusion of full statistics. In the particular case of the treatments used, a superficial description of them could invalidate the research. What would happen if the experimental group received a treatment which included the questions that were going to be used in the posttest, while the control group would not? Results would be notoriously significant, but the research would not be valid.
“Without an adequate description of procedures, it is difficult or impossible to achieve replication – a cornerstone of science. Also, without an adequate description of settings and participants it is difficult or impossible to establish parameters for generalizing findings” (Randolph, 2008, p.68).

3. The Roadmap

This roadmap has been designed to provide researchers with a set of suggestions to detect and avoid some common errors in e-learning research designs. It has been designed from our experience in educational and e-learning research, also from our long path as reviewers in key journals of these fields, and from readings of significant research handbooks. Note that this roadmap is not a complete guide but a set of recommendations for a typical profile of e-learning research.

Stage 1: It is necessary an appropriate definition of the e-learning research problem and questions which must be relevant for improving learning. Generic questions should be broken down into more specific ones. Questions must respond to quantitative issues, like the effects of the program or treatment (e.g. has the application of video been significantly effective? How much did the students improve their grades? How long were they watching videos?), but questions should also be open to qualitative explanations of the reasons why those effects exist (including cognitive aspects), like, why do they think the application of videos took effect? What cognitive aspects were responsible? Are there alternative explanations?

Stage 2: The study of previous research (literature review) is useful for accumulation, which leads to the establishment of theories, and also for replication, which helps to configure a group of comparable studies.

Stage 3: A minimum sample of 30 individuals is mandatory to apply parametrical statistics (which are more powerful than non-parametric). When individuals have been randomly assigned to the groups, and the variables can be strongly controlled, designs can be considered as experimental or near-experimental nature. Nevertheless, it would be desirable to check the initial equivalence of the groups. When random assignment is not possible, it would be preferable a quasi-experimental consideration, even though equality in the initial observations was found.

Stage 4: Questions, methods and designs must be in tune. A mixed methodology would be desirable to answer both types of questions (quantitative and qualitative), that is, to check if there were significant effects and to carry out a detailed research of the reasons why the effects took place, considering alternative explanations. Triangulation through interviews, discussion and case studies are among the preferred options for qualitative inquiry.

A strong control of validity problems (threats to validity) is extremely important. It would be desirable to avoid pre-experimental designs and select two, three or four-group designs with pre and posttests, and elaborate carefully both tests (they must not be equal). Contamination and differential drop-out rates among the groups might jeopardize the internal validity. Conversely, balanced designs (especially balances whose aim is to find when the hypothesis is not satisfied) can serve as a way to confirm the hypothesis and gain in internal validity (for example, a balance of the treatment between groups).

Stage 5: Data gathering tools must be simple (few variables) and reliable (objective measures). Variables must be defined adequately (in accordance with questions and hypothesis) and without using artificial transformations (commonly found in ordinal scales which are treated as numerical ones). Sources must be reliable, because a non-reliable (manipulated or subjectively interpreted) gathering tool distort data and invalidate any posterior result.

Stage 6: Statistical analysis is an important phase. It must be explained in detail: why a statistical test has been selected, an in-depth description of the values (not only significance values, but also effect sizes), checking normality and homoscedasticity conditions, application of the right tests (parametric or non-parametric), etc.

Stage 7: Before making inferences it is necessary to reflect on what particular conditions of the research would be different in other contexts (students, teachers, subjects, e-learning technology...). In highly controlled
experimental settings, it should be considered and explicitly expressed whether results would be the same in real settings (ecological validity).

**Stage 8:** A detailed description of every research phase must be included in the reports, especially concerning the sampling method, the statistical analysis, the validity of the gathering tools and data, possible alternative explanations for the results and replication possibilities.

Figure 1 shows the 8 stages considered —framed with round-corner boxes— and their associated recommendations —in rectangular boxes with the same color—.

## 4. Conclusions

Along this document, various recommendations to avoid some errors made in e-learning research have been given. Too many studies lacking of scientific rigor have caused that the establishment of generally accepted e-learning theories has been almost null. Among the reasons found are: unspecific problems and questions, shortage of theoretical foundations, disregard of previous research, insufficient or biased samples, application of unreliable methodologies, inappropriate designs, dismissal of threats, wrong statistics, few controls, incorrect generalization of results, incomplete reports, impossibility of replication, etc.

This roadmap provides novice researchers with a small guide which, although generic and flexible, is useful to avoid errors in typical e-learning research projects which are oriented to respond if a particular treatment, intervention or program is able to improve learning and, hence, helping to advance towards the ultimate goal of educational technology and e-learning: the improvement of learning.

Future works could be focused in two directions: 1) the development of more detailed sub-maps for each one of the stages considered here, and 2) the creation of different versions of roadmaps for specific types of e-learning research. The first work would allow to deepen into every phase, since the present roadmap is a simplified model. The second work could be focused on other types of research methods, like qualitative methods or design-based research; in any case, always searching how to obtain high rates of validity and credibility.
Figure 1: The roadmap of recommendations for effective e-learning research
References


Strother, J. (2002). An assessment of the effectiveness of e-learning in corporate training programs. International Review of Research in Open and Distance Learning, 3(1).


