IMPROVING IMPACT ON PRACTICE AND PATIENT CARE OUTCOMES OF ONLINE HEALTHCARE CONTINUING PROFESSIONAL DEVELOPMENT WITH REFLEXIVE NETWORKING

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The candidate confirms that the work submitted is his/her own and that appropriate credit has been given where reference has been made to the work of others.

Dedicated to my parents,

and to

all my teachers

and

students

Acknowledgements

It is never easy to leave the comfort of a secure job, go abroad to a cold country, with few resources and little family or community support, cross boundaries, and kick up a fuss about something that is taken for granted by the great and the good. One must stay the course while enduring brickbats and scorn from the naysayers, the cynical and the unimaginative, all the while wondering if one's initial optimism had been little more than naïve overconfidence, and praying against all the odds not to drown, but ride the waves of the turbulent seas that have been inadvertently stirred up. As I prepare to emerge from this violent storm, my faith in humanity has been restored thanks to a few amazing people. They trusted my intuition, shared my passion, allowed me to show them my compass and map, helped me steer my little boat to navigate the journey, and had just enough patient confidence in me to stay the course until we reached not quite the promised land, but some calmer waters – at least for now. To them, I want to say a big Thank You for letting me be their captain for a brief moment in the seas of time.

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Finally, I would like to thank the one and only Big G - his unconditional love and faith continues to inspire me to improve the world and stay humble.

Abstract

IMPROVING IMPACT ON PRACTICE AND PATIENT CARE OUTCOMES OF ONLINE HEALTHCARE CONTINUING PROFESSIONAL DEVELOPMENT WITH REFLEXIVE NETWORKING

By

Gurmit Singh

This thesis theorizes and investigates Reflexive Networking, an innovative conceptual model for online healthcare continuing professional development (CPD) to improve impact on practice and patient care.

Recently, financial pressures and the rise of the Internet have triggered a massive growth in online CPD globally. This shift assumes that online CPD causes behavior change and improves practice and care. Normative research on the impact of online CPD has mostly been in the form of positivist or realistic experiments. The evidence shows, however, that current online CPD models are failing. Because they do not affect the agency of professionals constrained by existing and new online structures, these models do not improve impact on practice and patient care. This design failure impels this thesis.

I conceptualise online CPD as a dynamic process from Bourdieu's sociological perspective on practice. Changing practice is an emergent outcome of the actions of various agents interacting across structures. I propose using technologies and pedagogies to enhance professionals' capacity for agency and improve impact.

This thesis critically and realistically evaluates the hypothesised model through an exploratory single case study with a commercial CPD provider. To test the intervention, a tutor delivered an online CPD programme to a small group of 7 doctors distributed across the UK. They had 4 facilitated online discussions over 2 months using a virtual classroom. I interpret data sets from online observations, interviews, and a before/after agency questionnaire-scale into a scientific narrative, with a touch of irony, to enable readers to understand if, how and why the process improves impact.

The analysis suggests that in this case, participants' capacity for agency increased by 13.4%. Participants were more likely to consider changing practice by discussing cases, exploring treatment options, and sharing information, opinions and advice on a targeted topic. Interpreting these findings, the more the process - including the technology – builds symbolic capital and exchanges social and cultural capital that counts as learning, the more likely busy professionals are to spend time online meshing scientific knowledge from clinical guidelines with their judgement and prior experiences, to produce practical knowledge on improving practice and patient care.

Effective online CPD programmes should employ technologies and pedagogies strategically to design Reflexive Networking processes across organizations, time and distance and redirect the fields of healthcare and online CPD to deliver on ideals of evidence-based medicine. As one-off one-size-fits-all online CPD approaches such as communities of practice and e-learning modules do not affect the relative allocation of power (capitals) between professionals, educators and managers, they are disempowering. Rebooting Bourdieu for the Internet era disrupts structural boundaries and makes visible the hitherto invisible dimensions of agency for changing behaviour and practice, contributing a theoretically informed practical model to solve an urgent problem in healthcare human resource management.

At a time when universal access to healthcare remains a hopeless goal, the dominant biomedical culture that has perverted online CPD to transmit knowledge and skills must be fought. Valuing ethical social relations and moral interactions is critical to produce pleasurable conformity as practice.

Future researchers will craft self-regulating Reflexive Networking experiences in various CPD contexts to liberate educators and empower all practitioners - particularly those denied access in remote locations – to learn collaboratively across structures and continuously evaluate improvements in impact on practice and patient care.

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List of Abbreviations

CPD	Continuing Professional Development
CME	Continuing Medical Education
IAS	International AIDS Society
FAQs	Frequently Asked Questions
ICTs	Information & Communication Technologies
RCT	Randomized Control Trial
RCGP	Royal College of General Practitioners
ILM	Informed Layman
GP	General Practitioner (family doctor)
EBM	Evidence Based Medicine
EC	Emergency Contraception
FRSH	Faculty of Sexual & Reproductive Healthcare
UPSI	Unprotected Sexual Intercourse
KM	Knowledge Management

Chapter 1: A background to the research problem

" 'Get me hot water and cold,' he threw out to the nurse. 'And basins too. Quick! Quick!'

Frantically, he splashed cold water into one basin; into the other he mixed water as hot as his hand could bear. Then like some crazy juggler, he hurried the child between the two, now plunging it into the icy now into the steaming bath, for half an hour…

'For mercy's sake, Doctor,' whispered the midwife. 'It's stillborn.'

Andrew did not hear her…he persisted in one last effort…trying to get breath into that limp body.

And then, as by a miracle, the pigmy chest, which his hands enclosed, gave a short convulsive heave…another…and another….Andrew turned giddy. The sense of life springing beneath his fingers, after all that unavailing stirring, was so exquisite it almost made him faint."

Extract from A.J Cronin, *The Citadel,*

In Whit Burnett (Ed.),

The World's Best, 1950, The Dial Press, New York, pp.589-590.

Note to readers: Every chapter of this thesis begins with a call-out box in blue. Each chapter also begins with a question and ends with a comment by that ubiquitous opinion leader, the 'ILM' (Informed Layman). These framing devices are justified in Chapter 4.

1.1 Introduction

Educators of healthcare professionals face a major challenge today: how to design online healthcare continuing professional development (hereafter online CPD) that improves impact on practice and on patient care. My thesis is a research study that aims to address this challenge. I show a coherent theoretical perspective, conceptual framework, pedagogical model, research design, and evaluation of online CPD, with the potential to improve impact. The findings of this study aim to contribute to the knowledge base to guide policy makers, managers, educators and researchers.

I now set the background for this study by providing a brief overview of:

- The current approaches to CPD in the healthcare context, including current online approaches,
- The need to consider improving the impact of online healthcare CPD,
- The rationale for this study,
- My prior work,
- The key issues of online CPD,
- The basic conceptual framework,
- The initial research question, and
- The projected thesis structure

1.2 The range of CPD in the healthcare context today

CPD currently takes the form of a wide range of educational efforts. There are formal approaches such as courses, lectures, and workshops. There are informal approaches such as conferences, study days and retreats. There are reflective approaches such as practitioner research and action learning sets. In addition to these face-to-face approaches, online approaches are

now emerging. These include e-learning modules, online communities, and information repositories for healthcare professionals.

1.3 Why it is important to consider improving the impact of online healthcare CPD on practice and patient care

As the Internet continues to revolutionise so many aspects of education, there are several reasons why researchers, practitioners and policymakers consider it important to improve the impact of online CPD:

- To meet pressing global healthcare requirements and develop a well-trained workforce,
- To reduce time and money, and educate greater numbers over distance,
- To help healthcare professionals to learn efficiently,
- To provide training in appropriate digital literacy skills,
- To provide opportunities for collaborative learning and knowledge sharing without taking professionals away from their work,
- To provide valuable qualifications to meet revalidation requirements, and
- To makes a difference to practice and patient care outcomes.

(Taylor, Abbott & Hudson, 2008; Knebel, 2001; Department of Health, 1999, 2000, 2001; McPherson, Nunes, Sandars, & Kell, 2008; Singh, 2011, The Lancet, 2009, 2010; Sandars & Schroter, 2007).

Yet, the impact of online healthcare CPD is not a given. Not all online CPD interventions follow sound theoretical approaches. Nor do most programs track the impact on patient care outcomes as a result of online CPD. A critical understanding of the process that can enable change and improve impact through the enormous potential offered by the Internet is lacking. How impact on practice can be designed for, and why professionals change behaviour, to improve patient care is still open for debate. Whether professionals value the opportunities for learning provided online is not clear either, given the different policies, norms, beliefs and discourses by which healthcare professionals' learning is organized and regulated in a variety of contexts. What kind of online learning opportunities are healthcare professionals given access to, how, when, and to what end? These questions must be critically considered to justify continued investment, and

to get beyond the hype about using the Internet for professional learning (McPherson, et al., 2008).

1.4 Rationale for this study

Although a variety of online healthcare CPD approaches exist today, there is a lack of an approach to improve impact on practice and patient care in the literature. This lack provides the impetus for this study. Thus the purpose of this thesis is to investigate how to effectively design, deliver and evaluate an approach to online healthcare CPD to improve impact on practice and patient care.

1.5 Improving impact on practice with online healthcare CPD: A case study from my personal experience

Before I proceed to consider how to design online CPD to improve impact, I first discuss an online CPD approach I developed during my previous job. From 2007 to 2010, I worked as Professional Development & Educational Programmes Coordinator at the International AIDS Society (IAS) in Geneva. The IAS is a non-profit professional society dedicated to fighting HIV/AIDS. It organizes conferences, workshops and networking events to support its members. These members included doctors, nurses, programme managers, health sciences researchers, and community health workers around the world.

The Abstract Mentor Programme (Singh, 2011) I designed and implemented was an online CPD approach that aimed to empower healthcare professionals to improve practice. The programme sought to build the capacity of junior healthcare professionals – particularly those from developing countries – to write quality scientific abstracts before submission to international HIV /AIDS Conferences.

In this project, I deployed online mentoring to support professionals improve their writing practice. I designed an online template to write abstracts based on their practitioner research. These were sent to online mentors, who used structured feedback templates to provide guidance, prompts, and queries. This feedback was returned via e-mail and healthcare professionals used it to improve their scientific writing. I also created an open-access online learning environment with resources such as a list of frequently asked questions (FAQs), examples, process guides, and toolkits.

The project was evaluated by conducting an online survey with participants at the end of the programme. Their responses indicated that the programme was very successful in building their skills and knowledge (Singh, 2010). Quantitative indicators also showed an increase in the number of successful abstracts from developing country healthcare professionals after online mentoring (IAS, 2009, 2010).

My online CPD approach had a few distinct features that were responsible for its success and expansion over 3 years. These features include:

- Providing strategic support for isolated professionals,
- Using the Internet to facilitate online collaboration on a specific task with a clear end-goal,
- Targeting interaction with peers, mentors and experts that professionals did not have access to,
- Designing a simple, easy-to-use digital tool, and
- Involving users in the programme development and evaluation.

1.6 Emerging issues with online CPD

As a result of my personal experience, my initial perceptions were that online CPD could potentially improve impact by paying attention to the *strategic alignment of pedagogies, technologies, social networks and impact evaluation*. In this section, I highlight why it is important to consider these issues.

1.6.1 Pedagogies

Pedagogies are the curriculum, instruction, assessment and their associated meanings, ideologies and models that educators work with in social-political contexts. Alexander explains the difference between teaching and pedagogy in these terms:

> "Pedagogy I define as the discourse which attends the act of teaching. Teaching and pedagogy are not the same. Teaching is a practical and observable act. Pedagogy encompasses that act *together with* the purposes, values, ideas, assumptions, theories and beliefs which inform, shape and seek to justify it."
>
> (Alexander, 2002, p. 2)

However it is probably true in most areas of healthcare CPD, including continuing medical education (CME), that those who work as educators see

themselves primarily as medical subject matter specialists. Moreover, they may not have any formal study or qualifications in pedagogy, even less so in the field of adult or professional education. As a result, the literature is replete with discussions of specific instructional strategies about how to deliver content effectively and which technologies to employ, rather than critical inquiry into how to provide valuable online learning experiences for healthcare professionals to improve practice. In general, the field has been grounded in the dominant behaviouralist, social constructivist and reflective approaches to CPD. These assume that professional learning will cause behaviour change, and improve practice and patient care. I examine these approaches critically in the next chapter. Here, I want to emphasise that the wider contextual issues that Alexander alludes to above are largely ignored. Yet, context plays a crucial role in the choices and opportunities healthcare professionals have to change practice. For online CPD design, this means that moving from instruction to pedagogies can contribute to developing context-specific approaches to support online professional learning to improve practice (Curran & Fleet, 2005), which this thesis will explore.

1.6.2 Learning technologies

Online CPD designers have assumed that using information and communication technologies (ICTs) in learning will change how professionals do things, or that professionals will adopt the provided technologies to meet their learning needs. Research therefore has tended to concentrate on "when and how to use e-learning effectively" (Cook, 2009, p. 158), comparing the strengths and weaknesses of different interventions.

As my prior work shows however, simply claiming that particular learning technologies are 'useful' or 'effective' fails to appreciate the subtle changes that happen when these technologies are introduced into professionals' practice. Moreover, implementing learning technologies - such as blogs, wikis, podcasts, videos, and online forums – can fail to improve impact because they may divorce professional learning from their learning emergent in daily practices. In order to overcome the deterministic assumption about changing practice with learning technologies in existing online CPD approaches, the second key issue of designing online CPD to improve impact is how to deploy learning technologies to support professional learning 'inside' routine social practices.

1.6.3 Social Networks

The third key issue of online CPD design I discovered was the valuable role of a social network of healthcare professionals, mentors, experts and educators. In the project mentioned above, my task as an educator was to build, maintain and activate an intentional network – a "personal social network workers draw from and collaborate with to get work done" (Nardi, et al., 2002, p. 207). What I realized was that networking can be done strategically around an online CPD programme that cuts across organizational boundaries and connects people worldwide. When supported by specific pedagogies and enabled by learning technologies, networking could also be deployed in online CPD for the goal of improving impact.

In contrast to a network approach, an online 'community of practice' (Wenger, 1998) approach dominates existing online CPD designs. While I will critically explore the flaws of the community metaphor in the next chapter, my insight was that unlike a community, a network approach did not require spending the time and effort to build trust that an effective community requires. In contrast, the network I set up was flexible, non-hierarchical, relied on weak connections, and did not expect healthcare professionals or mentors to engage at a deep level over a long time. Because of the flexibility of networks and the low level of trust required, I argue that networks can be more effective in delivering short-term context-specific online CPD programmes. Thus, a key design issue to improve impact is how to network people and institutions/organizations strategically to support healthcare professionals learn efficiently.

1.6.4 Impact Evaluation

If online CPD is to produce desired, rather than arbitrary, improvements to practice and patient care, a key issue is aligning and building in impact evaluation with the design, implementation and delivery of programmes. Changes to healthcare professionals' perceptions, learning, knowledge, skills, attitudes, and behaviours are only treated as steps along the road to improving impact.

Yet, demonstrating that online CPD has an impact cannot be done in isolation as an after-thought. How is impact produced? What impact is produced during complex, non-linear learning processes? What impact is worth measuring – and how – to demonstrate effectiveness and improve efficiency? At the moment, existing healthcare CPD research has a very limited understanding of the complex phenomena of how practice changes.

End of course questionnaires and self-reported behaviour changes may give some insight into what learners thought of the course, but they give no theoretical explanation of how and why they implement what they claim to have learnt, and if any improvement in practice and patient care results.

Hence, a key issue is how to design and research the impact of an online CPD programme as a process. This is in contrast to dominant assumptions that impact is to be evaluated only after a course has ended. Some examples are the product outcomes of CPD, such as a test or a record in a professional's personal development portfolio or appraisal. Such approaches give no sense of how the online learning process produces outcomes. In this sense, impact evaluation of a process can be a strategic tool to help educators explain not only if a programme worked, but also how and why it can be designed and delivered to produce impact.

To summarize, the key emergent issues that are crucial for the design of effective online CPD to improve impact on practice and patient care in the context of this research are the strategic alignment of pedagogies, learning technologies, social networks and impact evaluation.

1.7 Overview of the study

1.7.1 Basic conceptual framework

Given the key issues for the design of online CPD outlined above, improvement of impact on practice and patient care can be achieved by empowering healthcare professionals to produce change *during a learning process*, rather than traditional assumptions that online teaching and learning will then cause change to practice after a course finishes. Therefore, this study will focus on how to design, deliver and evaluate an online CPD approach as a strategic process to produce change. The key issues for the design of online CPD to improve impact on practice and patient care can be depicted in a basic conceptual framework as presented below in Figure 1.1.

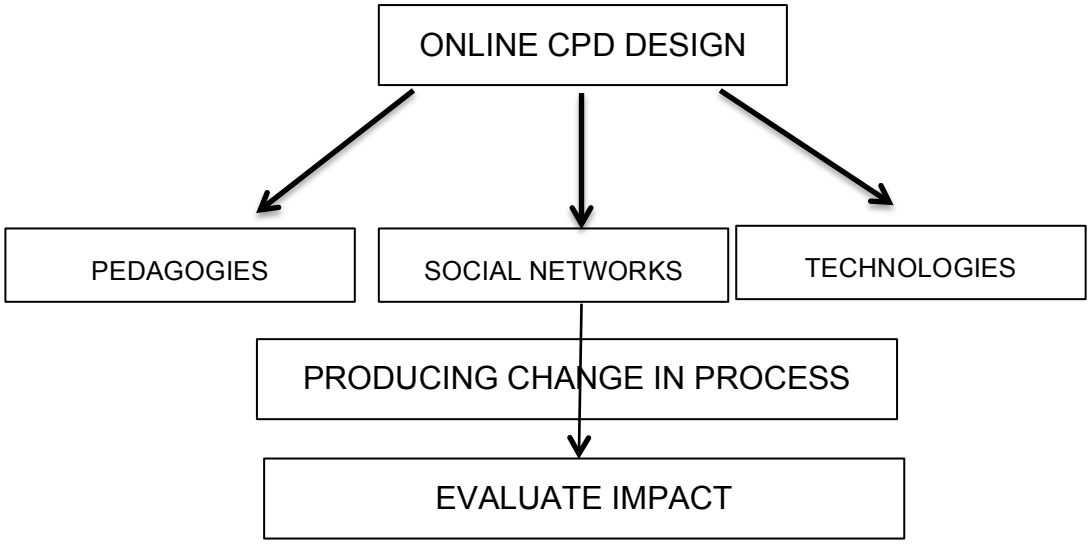


Figure 1.1 Basic conceptual framework for the study

1.7.2 The initial research question and the overall approach to the study

My initial research question in starting out this study is:

> *"How can the impact on practice and patient care of online healthcare continuing professional development be improved?"*

The overall approach of this study is to develop, pilot, and evaluate a model for online CPD to improve impact. This approach will include:

- critically engaging with the literatures on healthcare CPD to synthesise the key factors that are most likely to support healthcare professionals improve practice,
- developing a theoretically informed framework of online CPD to improve impact,
- developing a pedagogical model of online CPD,
- implementing and evaluating the model with a case-study in 3 phases comprising a survey, a proof-of-concept pilot study, and interviews, and
- interpreting the impact of the model to inform policy and practice.

Yet, doing research in the real world is a dynamic and complex process that requires flexibility and agility to respond to unpredictability. Thus, I refined and aligned my conceptual framework and research question as I

progressed with my investigation. I will detail these refinements in depth in Chapter 3 and 4.

1.8 Projected thesis structure

Having provided the background and the rationale for the study in this chapter, the rest of the thesis will be structured as follows. The structure can be imagined as a map of the research process in 3 parts, as shown in Figure 1.2 below.

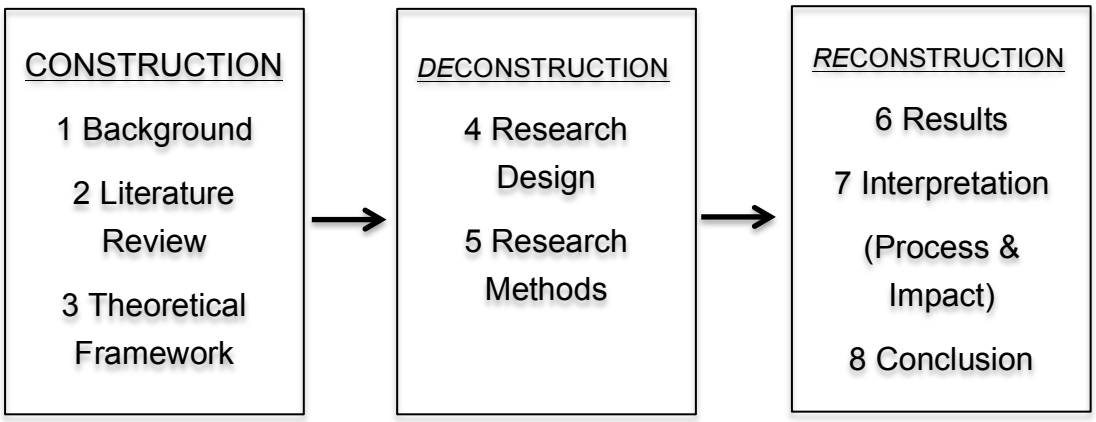


Figure 1.2 Map of the research process and thesis structure

Part 1 Construction

Having set the background and rationale in Chapter 1, Chapter 2 critically analyses the key factors from the literatures that are most likely to support healthcare professionals improve practice. Chapter 3 develops a theoretical framework and strategy for online CPD to improve impact.

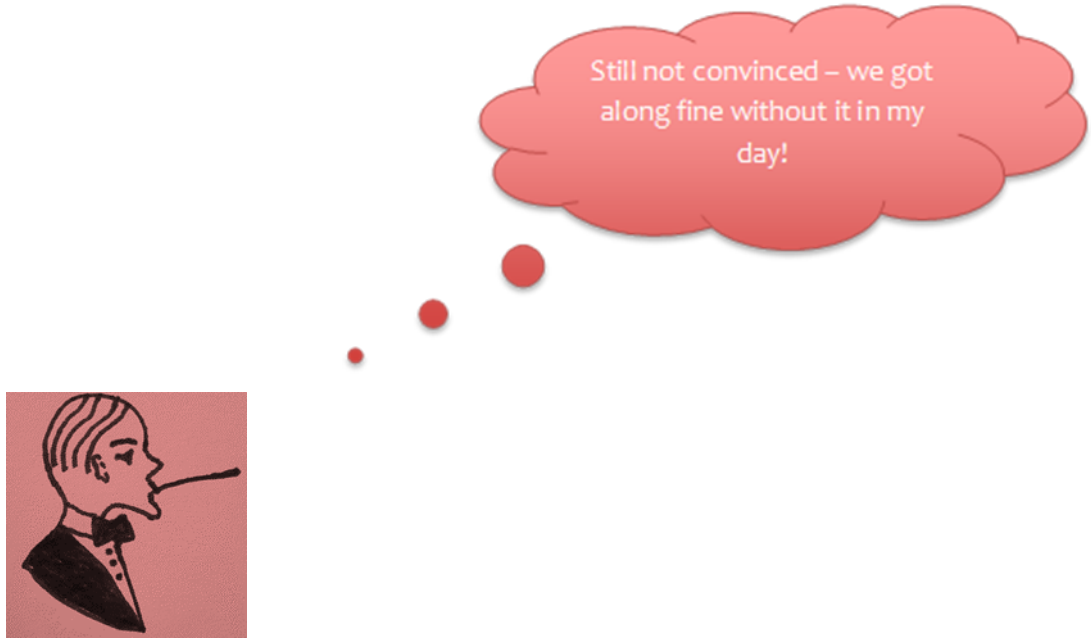
Part 2 Deconstruction

Chapter 4 sets out the rationale for the case study research design and methodology for investigating the model with 3 inter-related phases - a survey, a pilot study, and a reflection and evaluation with the participants. This will include my philosophical, epistemological and ontological stances. Chapter 5 will discuss the site of the intervention and the participants; elaborate the chosen data collection and analysis methods, the data presentation, and the ethical concerns.

Part 3 Reconstruction

Chapter 6 will present the results of the case study. Chapter 7 will interpret the process and impact, organized in terms of the features of the change

process that took place, the patterns of change, and the impact produced. This is followed by a discussion of the findings to refine the conceptual framework. Finally, the thesis concludes by discussing the theoretical contributions, limitations, policy and practice implications, and opportunities for further research.



Chapter 2: 5 key design features of online CPD to improve impact

> "Ignorance is like a delicate exotic fruit. Touch it and the bloom is gone…Fortunately in England, at any rate, education produces no effect whatsoever."
>
> *Lady Augusta Bracknell*
>
> in Oscar Wilde's The Importance of being Earnest, 1895

2.1 Introduction

Today, healthcare continuing professional development (CPD) is routinely delivered electronically through Internet-connected devices such as computers and laptops (Sandars, 2010). Online CPD courses take the form of self-study modules with videos and podcasts, as well as interactive blogs and discussion forums. Online CPD aims to support healthcare professionals update knowledge and skills, as well as share and collaborate, so as to improve practice and patient care (Sandars, 2010; Schostak, et al., 2010). Yet, despite research showing the low impact of current online CPD (Curran & Fleet, 2005; Cook, et al., 2008), there are few interdisciplinary studies that examine the problem of how to improve impact. I tackle this problem by undertaking a critical literature review. In this chapter, I present the rationale for a critical review, the methodological approach, and critically discuss the 5 key design features of online CPD that are most likely to improve impact.

2.2 A Critical Perspective

Because professional learning is complex, and practice is dynamic, normative linear, behaviouralist and constructivist approaches to designing online CPD are not effective for improving practice. Designing and understanding what is 'effective' online CPD is challenging because of the complexity and dynamism of the processes, interactions, and outcomes involved.

To handle complexity and dynamism, a critical perspective on education is useful. Critical theory appreciates that the social relationships between educators and learners affect the processes and outcomes of online CPD (Cottrell, 2005). By focusing on processes, a critical perspective enables educators' to overcome traditional behaviour change approaches – that can end up blaming the professional for not changing practice – and ignore the question of how processes can empower practitioners to change practice.

2.3 A Critical Review as opposed to a Systematic Review

To overcome the inability of the dominant systematic literature review approach in grasping complexity and dynamism, a critical interdisciplinary review is necessary (Clegg, 2005).

Whereas a systematic review assumes that "all researchers need to do is see what is out there and then summarise it to see what 'it' says" (Thomson & Kamler, 2010, p. 149), the aim of a critical review is to produce a "more sophisticated understanding of context and a much clearer theorization of knowledge produced in practice" (Clegg, 2005, p. 415). Because the goal of online CPD is improving practice and patient care, a critical review analyses how the interactions and processes of online CPD produce outcomes. In contrast, a systematic review reduces complex educational problems and solutions to socially-thin medical research models such as the randomized gold standard (RCT). Table 2.1 below summarises the main differences between a systematic review and a critical review, underscoring how a critical review provides a robust foundation for online CPD decision-making by policymakers and practitioners.

Table. 2.3. Key differences between systematic and critical literature review

Systematic	Critical
Learning is a 'treatment'	Learning is a complex process
Follow the procedures	Develop an intellectual argument
RCT as the gold standard	A wider range of evidence
What is out there?	What is going on out there?
Backward looking	Forward looking

2.4 Methodology

This critical review of the literatures on healthcare online CPD across disciplinary boundaries was guided by the question: *How can the impact on practice and patient care of healthcare online CPD be improved?*

The review was conducted in the 3 stages summarized below in Table 2.2.

Table 2.4. Three stages of the critical literature review

Stage	Approach
1	Searched the three most relevant healthcare databases from 1990 onwards – Medline, Embase and PsychINFO (Ovid 1996-2011), using the terms 'healthcare' 'continuing professional development', 'continuing medical education', 'change' and 'practice'. I combined these terms with 'Internet', 'online', 'web', 'outcomes' and 'evaluation'.
2	Searched grey literature, especially policy documents from UK Department of Health and unpublished studies.
3	Searched the broader literature on professional learning, professional development, reflective practice, implementation of change, improving patient care, organizational learning, online education, e-learning, and computer-supported collaborative work.

Studies were excluded only if they were formal courses such as Certificate or Masters programmes. Blended courses were included, as they appeared to be a common approach from the year 2000 onwards. I screened the title, abstract and keywords against the inclusion and exclusion criteria. I identified 250 English-language reports, primary studies, reviews, editorials, conceptual and position papers, as well as edited books.

Because of the wide variety of programmes, approaches, theories and research methods that emerged, I interpreted the findings inductively. I distilled the concept of online CPD, derived its themes and sub-themes from the data, and organized them under a series of headings as shown in Appendix 1.

As a result, I acknowledge that the themes that emerged are but one way of interpreting and representing the diverse literatures on healthcare online CPD. Because I did not set out to capture everything about everything, these themes are useful in conceptually restructuring literatures from multiple, inter-related fields. They provide a rich, historical and socio-political overview of the evolution of the aims, approaches, and impacts of healthcare CPD firstly, and healthcare online CPD thereafter.

Using this inductive analysis and thematising approach, I critically evaluated the claims from the competing debates to further advance understanding of what could improve impact. Overall, I learned that all the approaches I found improved knowledge and skills, but changes in behaviour, practice and improved patient care are only likely with certain features. These insights were leveraged to generate an interpretive conceptualisation of the 5 key design features of online CPD that are most likely to improve impact. In the next section, I discuss these findings.

2.5 Results & Discussion: 5 Key Design Features to Improve Impact

Supporting healthcare professionals implement guidelines to improve impact

The review showed that healthcare CPD programmes traditionally have been based on the view that improving practice is a process of acquiring knowledge passively through the dissemination of latest science in the form of evidence based clinical guidelines. In this positivistic tradition, medical experts provide the scientific knowledge and clinical skills, while healthcare professionals make the individual effort to change their behaviours and implement the knowledge and skills to improve practice and patient care.

Yet, the review found very little evidence that such didactic approaches resulted in improvements in practice and patient care (Oxman, et al., 1995; Davis, et al., 1999; Bero, et al., 1998). Freemantle, et al. (2005) put it this way:

> "Printed educational materials may have a predisposing effect for change, without being sufficient in themselves to achieve a substantial impact upon practice. However, I found no direct evidence to support or refute this." (p.8)

The low impact of this traditional model of CPD, which includes approaches such as audits, feedback, conferences, and workshops, appears to suggest that distributing propositional knowledge in the form of clinical guidelines and best practice manuals meets with little success because healthcare professionals are not able to integrate the decontextualised knowledge from these approaches in ways that improve their practice. It suggests that they need 'more active interventions' (Freemantle, et al., 2005, p. 10) to support them. For instance, Thomson O'Brien, et al. (2004) argue that CPD that provides healthcare professionals opportunities to participate and be continuously engaged throughout the implementation of new research evidence is more likely to improve impact.

One suggestion for online CPD, then, could be to incorporate social and interactive approaches that involve multiple stakeholders in the implementation of new evidence and enable collaborative learning to produce new practices. How to do so would require a clearer understanding of the process of social interaction online, which is the next key feature.

Facilitating social interaction and collaborative learning for impact

The literature on both face-to-face and online CPD approaches suggests that programmes can achieve gradual improvements in practice when they effectively support healthcare professionals learn by acquiring 'tacit knowledge and…skills…through social interaction and negotiation' (McPherson, et al., 2008, p.298). There is evidence that the sharing of tacit knowledge through online CPD can support healthcare professionals to make sense of the complexity of practice, and to support the integration of propositional knowledge from clinical guidelines with 'useful' knowledge from mentors and experts (Curran, et al., 2010; Scales, et al., 2011).

It appears there are two key ways that online CPD could effectively support tacit knowledge sharing that improves practice. Firstly, by designing online CPD around and for small groups (Thomson O'Brien, et al., 2004). Secondly,

the role of educators as facilitators seems to be to support small groups to engage in collaborative learning with mentors and experts to discuss issues, explore problems, and think through possible changes to practice (Thomson O'Brien, et al., 2004; Curran, et al., 2010).

But, while the notions of small groups, tacit knowledge sharing and collaborative learning sound do-able, and seem intuitively obvious to online educators, it is still questionable how to theoretically design the social interaction among the participants of small groups, how to select the participants, and how to use these notions to achieve the goal of improving impact on practice and patient care in short online CPD courses.

The dominant approaches thus far appear to be the use of discussion forums and online communities (Guan, et al., 2008; Sandars, et al., 2007). Other studies have tried e-mail reminders (Thorley, et al., 2009), virtual colleges, chat software (Boulos, et al., 2005), ‘open and flexible learning modules’ that combine self-study with peer and tutor dialogues online (Wilkinson, et al., 2004), and video-conferencing (Scales, et al., 2011). The list of approaches to enable social interaction in small groups is endless, no thanks to the varieties of technologies available at educators’ disposal today. Despite this variety, the common finding seems to be a low uptake of the opportunities for interaction due to the common grouses of a lack of time, confusing websites, lack of skills in using ICTs, and difficulty in accessing the right people to interact with.

In trying to figure out how to design online social interaction and collaborative learning that improves impact, findings from research into knowledge sharing in organisational research is instructive. Cross, et al., 2001, Ardichvilli, et al., 2003 and Poell, et al., 2000 seem to suggest that it is more valuable to link up informal networks rather than those that have been created by external bodies. As they showed, imposed external networks, where learning is controlled, rarely support the sharing of tacit knowledge necessary to improve practice. Their research is also consistent with evidence from the review on how healthcare and other professionals behave online, and how professionals today create their own networks. This showed that they are highly strategic and intentional networkers in seeking information to solve problems and build careers (Casebeer, et al., 2002; Nardi, et al., 2002) and are looking for valuable connections and targeted interactions rather than ‘one size fits all’ online communities.

However, even if online CPD were to use the notion of a network, it would still need to carefully consider how interactions in a network are provided for.

For instance, in Sandars et al. study (Sandars, et al., 2007), which compared three networks of healthcare professionals in England set up for online collaborative learning using asynchronous discussion forums, the evidence showed a "low level of overall activity" (p. e17). While all three groups seemed to like the structured discussion approach (p. e13), they equally had confidentiality concerns (p. e13) that inhibited sharing. Some participants yearned for more 'dynamic conversations' (p. e13), others simply wanted a 'quick-answer' service (p. e15), and yet others could not balance the discussion with their work pressures (p. e13). The study offers little more than clues as to why participants reacted differently to the opportunity provided to collaborate and share, and why interaction tailed off after the 'initial burst of enthusiasm' (p. e14). The authors claim this lack of stickiness to be a serious problem as reported by their participants – the feelings of nervousness in sharing with unknown others, the lack of organizational support, the lack of recognition, and the lack of protected time (p. e15). Overall, even when using a network, I agree with the authors that implementation of a network design for CPD needs to be based on a clearer theoretical "understanding of the phenomenon" (p. e17) of how and why professionals interact in online networks with learning technologies if it is to improve impact on practice.

Taking a step back from the design of networks for online CPD, the theoretical rationale for the social, interactive and collaborative aspects of professional learning to improve practice appears to be what has been termed social constructivism in education and e-learning. As characterized by Nunes & McPherson (2007), this learning theory defines learning as:

> "a process of acting upon what has been learnt and reflecting upon that learning and doing to contextualise the knowledge gained. By acting and reflecting upon the knowledge acquired, learners construct their own views of the world in relation to that new knowledge and put it into a useful context. This differentiates them from the passive learner who soaks up information without applying it and then never knows when it is appropriate to use it" (p. 24)

Following the conceptual lead of Vygotsky (1962), educators using social interactive approaches to create conditions for online learning reject the positivist notion that meaning can be passed from educators to professionals. Instead, professionals construct their own knowledge about practice with the support of others. However, while the social interactive approach is common in healthcare and online CPD, few researchers and

educators from the studies I explored explicitly state the challenges of doing online social constructivism within the hierarchical and performative context of healthcare. What could be the barriers that stand in the way of 'putting' knowledge that is socially constructed into context? As identified in my analysis of social and participatory CPD approaches, the structural barriers of healthcare, in particular the lack of agency to change practices and the lack of social capital among diverse groups of professionals, would still mitigate against changing practice, no matter how 'authentic' an online learning environment would be in facilitating social interactions and helping learners construct meaning.

In addition, from e-learning research in designing continuing professional distance education with technologies, Nunes and McPherson (2007) also warn us that the various forms of constructivism, whether individual or social, are but epistemologies and do not constitute 'easy to apply' foundations for the design of online pedagogical models. As such, if social interactions and online collaborative learning are to be used as approaches for online CPD, they would only be effective if they conceptually and practically overcame the structural fragmentation of an online programme from the informal networks of healthcare professionals, where their thoughts and actions are shaped and emerge in the dynamic of daily practices.

Thus, I need to be cautious about 'social constructivist' online CPD approaches that do not cohere with professionals' daily lives and uses of technologies and guidelines. While the positive features of social constructivist pedagogic processes such as interaction, tacit knowledge sharing, negotiation, and contextualizing knowledge are worthwhile in taking forward, the key issue still remains how to theoretically overcome the gap between supporting these processes, designing online pedagogical models for online CPD, and improving impact on practice. One suggestion from the review is to situate learning in practice, to which I now turn to.

Situating professional learning in practice to improve impact

Following from the above, what emerges as a more productive approach than stand-alone didactic or social, collaborative approaches to improve the impact on practice of healthcare CPD is to design programmes that build upon the notion of learning situated in practice. In fact, this appears to be the most common recommendation from researchers, both for face-to-face and online CPD, as an essential element of effective design to improve impact (Bero, et al., 1998; Sandars, et al., 2007; Curran, et al., 2010).

When professional learning is situated in social practice, it seems that CPD approaches can mediate behaviour change processes more effectively. At the core of this approach appears to be a shift in notions of professional learning from individual cognition towards situated cognition (Wenger, 1998; Rogoff, 1991). In this understanding, professional learning can be supported through examining beliefs and values, looking critically at experience, creating mutual inter-dependency and a sense of belonging, when trying to embed new knowledge and skills to change practices. To do so, the predominant approach to situated learning in healthcare CPD has been to create communities of practice.

But, situating learning in practice does not necessarily imply situating learning in communities of practice. Wenger's work did not involve healthcare professionals nor consider the challenge of the 'evidence-based medicine' discourse in healthcare. His work did not consider the social and political challenges of public health and improving patient care. Yet his notion has been accepted and applied by many healthcare and online CPD researchers and educators around the world. The evidence from the literatures I critically reviewed does not support the assumption that communities of practice, whether face-to-face or online, can cause behaviour change or improve patient care.

Given that most CPD programmes are short-term, the challenges of developing trust in communities would also seem to require serious investments, significant support from management, and a systematic long-term approach to provide consistent guidance for situated learning that improves impact. Alas, the hierarchical and competitive nature of healthcare, as well as the tendency towards stability and conformity of local communities of practice, militates against the ideals of the designed online community of practice.

I argue that researchers now need to stop uncritically adopting the myth of the community of practice without a fuller appreciation of its complex change processes, and accept that when applied uncritically for delivering short online courses, it can reify traditional practices rather than prompt change. Based on this review, I thus argue that while professional learning is best supported when situated in practice, how to design social, interactive and situated learning in practice with online CPD for impact is not through the dominant metaphor of the community of practice.

Supporting critical reflective practice and practitioner action research in safe spaces to improve impact

In critically thinking about the challenges of implementing reflective practice and its variations that were highlighted in the review, as well as the empirical evidence into the approaches of healthcare and online CPD that improve impact, the key issue that stands out once again is the dangers of grafting these reified concepts without a careful consideration of the structural barriers that affect professional learning, behaviours and practices in context. I noticed a tendency for researchers and educators using reflective practice and action research theories to simply incorporate key thinkers in this area - Schön, Argyris & Schön, Brookfield, Mezirow, Carr & Kemmis - and others about the issues of reflective practice and critical inquiry into short-course programme designs with little self-reflection on the contextual challenges and appropriacy of grafting these concepts into healthcare for the goal of improving practice and patient care. Because educators using these theories have worked within dominant medical paradigms, what seems to have happened is that they appear to have wittingly or unwittingly conflated reflection with structured portfolios, and autonomous with performative reflection, thereby hampering their liberating critical potential for improving practice. In what follows, I explore these issues in thorough detail.

Autonomous reflection is based on the identification of the professional with his needs and desires, while performative reflection is done when mandated, but has little contextual relevance or meaning to personal experience. In the UK for example, performative reflection in the form of Personal Development Plans for CPD (GM Council, 2003; Department of Health, 2001, 2003) appears to have adapted reflection into the healthcare culture of stability and conformity, prediction and control. As a result, critical researchers on professional learning claim that reflection has become an instrumental technology (Fenwick, 2009) used to regulate competence (Sennett, 2008), while practitioner research has been reduced to uncritical action to solve problems.

Reflection is central to any professional activity – both on action and in action. A healthcare professional needs to know about reflection and ways of being constructively reflective in order to improve. But there appears to be more to professional development than this.

Looking at the literature on professional and organizational learning that informs the use of reflective practice approaches in healthcare CPD, Argyris

& Schön (1974) have suggested that people acquire, through socialization, two types of personal theories for handling situations:

1. They call the first approach ‘espoused theories’ – what professionals say they believe and why they do. If I ask a healthcare professional why they have done something in the clinic or hospital, they are likely to give us their espoused theory. However, their behaviour may not be congruent with their espoused theory.

2. The second set of approaches and values derive from a ‘theory-in-use’. These are, Argyris and Schön maintain, the theories or assumptions that really lie behind our actions. Professionals’ ‘theories-in-use’ are bundles of ideas, routines, beliefs and values which guide them in their work, which inform their decision-making processes during practice, choices of actions and so on. In contemplating these in healthcare professional learning, I would characterise these ‘theories-in-use’ as a set of ‘mental maps’ about healthcare practice. These take years to form and may eventually coalesce into a recognisable ‘style’. Most often, however, a healthcare professional is unaware of why a particular course of action has been chosen in the heat of the moment. If I were to ask a healthcare professional about a particular course of action, they might give a response which could be true and be congruent with the action, or the healthcare professional might explain their action in a way that contradicts the message and content of the action. They will espouse a ‘theory’ (or give an explanation).

Until a healthcare professional becomes aware of their theories-in-use, change is out of the question, for espoused theories are very powerful and self-supporting. They can be used to create an elaborate defence if required. Under conditions of potential threat, the defence can be activated, despite the good intentions of the observer/helper.

In order to overcome the barrier of theories-in-use, CPD trying to improve practice with reflection would need to be done very carefully to support professionals through the dilemmas and challenges of questioning assumptions. This implies that reflection on experience only works when it goes beyond rational cognitive processes to include the emotional dimensions (Leitch & Day, 2000) of change because of the inherent risks of

reflection. The evidence of using such careful supported reflection to improve practice is lacking in short-course healthcare CPD designs found in the review.

In addition to the emotions of reflection, when reflection could be taken beyond individual navel-gazing to consider the wider social and political context of healthcare practice, that is, developing critically reflective practice, CPD could support healthcare professionals to question the assumptions behind their work (Brookfield, 1987). This process, done with the support of colleagues and educators, could empower professionals to question and adjust the power structures that stand in the way of improving practice (Zukas, et al., 2010).

When done effectively, processes of questioning personal theories and integrating new evidence, advice, and opinion gradually can potentially support professionals to think, reflect and learn by reframing their practice with a holistic awareness of context to make sense of just how and what kind of changes are possible (McPherson & Nunes, 2004).

As Schön explained:

> "As [inquirers] frame the problem of the situation, they determine the features to which they will attend, the order they will attempt to impose on the situation, the directions in which they will try to change it. In this process, they identify both the ends to be sought and the means to be employed." (Schön, 1983, p. 165)

Thus, reframing by looking critically at practice was what Schön was referring to in his concept of the reflective practitioner (see also (Schön & Rein, 1994). Reframing their practice can support professionals to develop an epistemology of practice, and capture the 'artistic intuitive process' (Schön, 1983) by which complex professional knowledge is socially and politically constructed. Again, dominant CPD approaches using reflective practice do not currently appear to support the complicated and difficult processes involved in conceptual reframing to support professional learning that improves impact on practice and patient care (Sweet, 2010). Instead, as the review showed, those who have carefully assessed the effectiveness of applying the reflective practice approach have questioned its' value within the existing dominant implicit training models of traditional CPD, and the performative and regulatory structures of healthcare organization today.

As a result of the critique of the instrumental application of reflective practice for revalidation purposes in the literature, I argue that 'doing' more and more

individual reflection logs in neat single cycles isolated from the messy reality of daily work is going to do little to change behaviour and improve impact on practice and patient care within the current structures of CPD. I argue that to improve impact, online CPD now needs to integrate critical reflection as a process done with others over time in multiple cycles.

One such approach that has attempted collective reflective approaches as shown in the literature has been practitioner action research to improve practice. Yet, the literature has also shown that attempts to apply the critical ideals behind such theories to empower professionals face the challenge of structural barriers without building and mobilizing the social capital required for action research to produce change and transform practice (Sandars, et al., 2012; Sandars, 2006). Furthermore, Fisher (1996) warns of the potential risks of reflection in causing anxiety and distress among healthcare professionals in an 'evidence-based' healthcare culture. In addition, 'double-loop' learning, where a professional becomes open to change, to try new courses of action, and to think critically, can be destabilising. Professionals cling tenaciously to particular ways of practice that have become grooved-in.

If what Argyris & Schön maintain about personal theories is true, then it is not difficult to see why large-scale top-down short CPD courses to diffuse new evidence or promote reflection through rational, cognitive processes have rarely been successful in improving practice. In the same vein, attempts to stimulate critical reflection in action research cycles at the workplace can equally fall flat. Professionals can only absorb small amounts of change at a time, through evolution and adaption in context. Given the anxiety and uncertainty that can be caused when new knowledge does not resonate with the lived experiences of professionals, it seems that critical reflection through action research could only support them through the processes of change by increasing their confidence in developing and trying out small new actions.

I argue that supporting incremental change becomes even more important given the rapidly evolving knowledge base in a postmodern world. With little certainty and a lot of doubt about what 'knowledge' can be trusted in the information rapidly circulating online, it is not surprising that healthcare professionals can prefer to retreat to the certainty of clinical guidelines, rather than examining their practices or working through the anxieties and dilemmas of change caused by critical reflection and action research.

Online CPD to enable critical reflection to improve practice then perhaps needs to be approached more incrementally, within realistic time frames.

And even then, practices will only shift to the extent that professionals can manage and feel at ease with (Mann, et al., 2009).

In addition to incremental changes, online CPD approaches will be hard pressed in enabling critical reflection without providing a supportive, safe environment. The importance of safe spaces has been recognized by the systematic review of reflective practice by Mann, et al. (2009) as one of the key factors necessary if reflection is to have an effect on improving impact on practice. Safe spaces in turn would need to be facilitated by skilful educators to conduct critical reflection processes towards improving practice. As identified by Brookfield (1987), these processes include:

> "…identifying and challenging assumptions, and exploring alternative ways of thinking and acting." (p.71)

Interestingly for the purpose of designing online CPD to improve impact, Brookfield (1987) has suggested that the safe space required for his theory of critical reflection is "located in a social network" (p.79). Brookfield (1987) has outlined the benefits of thinking with a network mindset for critical reflection:

> "These networks frequently serve to motivate their members, to provide a sense of support and belonging, to offer evaluative indexes (novices frequently chart their progress by comparing themselves to experts), and to comprise valuable information resources….When I develop critical thinkers, helping them form resource networks with others who are involved in this activity may make a crucial difference. Because identifying and challenging assumptions, and exploring alternatives, involve elements of threat and risk taking, the peer support provided by a group of others in trying to do this is a powerful psychological ballast to critical thinking efforts. Where such a network does not already exist, one of the most important tasks of those trying to facilitate critical thinking is to encourage its development." (p.79)

The key issues of this section is that for online CPD approaches to be effective at improving impact on practice by critical reflection and practitioner action research:

- the motivation and source of change come from the professional,
- critical reflection is done as collective rather than individual activity,
- facilitators are skilled in processes of critical reflection, and

- social networks are designed as safe spaces to support these processes.

With the intrinsic motivation for change, critical reflection in informal networks could then support professionals to consider what they do from a wider perspective. When the proposal for change originates externally, and does not support professionals through the struggle to take on board new ideas and try out small changes to practices in context, the review suggests that CPD approaches adopting reflective practice can end up perpetuating the status quo rather than lead to change and improvement.

The approach suggested above, based on an analysis of the challenges of applying theories of reflective practice and action research as reported in this review of the literature on healthcare online CPD, offers an avenue for further investigation in the design of online CPD towards improving impact. Little research exists in the literature on the forgotten yet vital aspects of critical reflection identified from the original theorists – conceptual reframing, collective reflection, how to provide safe spaces, and how to design networks for peer and experts to engage in action research.

But how could this be done online to improve impact without relapse into the unproven discussion forums and online communities?

Supporting self-directed learning with online resources, Web 2.0 technologies and social networks to improve impact

Traditional online CPD and CME over the last twenty years has seemed to be about replicating the didactic type of face-to-face CPD approaches, namely disseminating guidelines and providing self-study modules. This has then transitioned into taking online the social and interactive features of face-to-face CPD, mainly in the form of discussion forums, blogs and online communities.

The dominant models appears to be the same – the CPD provider, whether a university or a commercial provider, provides the theory, the workplace provides the setting, and the healthcare professional, alone or with peers, has to make the effort to apply ‘theory into practice’. The only thing that has changed has been face-to-face didactic teaching and group learning is now a mix of self-study and social learning taken online. Reflective practice approaches appear to have strangely morphed into something called ‘reflective learning’ in online CPD, whereby paper-based professional development portfolios have been taken online for professional learners to record their ‘evidence of learning’ from online courses. The dominant

'interactive' approaches used today include self-study modules that comprise a sequence of learning slides, with add-ons such as videos, forums, podcasts, blogs, social networks, and repositories of guidelines. Using marketing buzzwords such as 'read-reflect-respond', key questions, myCME, Appraisal Toolkit, ePortfolio, eGudelines, Test and Reflect, and GP Notebook, these approaches continue to reflect the strident curriculum message of traditional face-to-face CPD, in which improving practice is about disseminating propositional knowledge that will cause professionals to change their behaviour, which is assumed to be objectively measured by multiple-choice quizzes and self-auditing tools, and logged in portfolios for appraisal.

Unfortunately, as the evidence on the low impact on patient care of traditional online CPD from the review shows, this approach does not work (Curran & Fleet, 2005; Bloom, 2005; Wutoh, et al., 2004). Looking deeper into a few specific studies, the review shows that most reports of behaviour change are self-reported changes that do not consider whether these short-term changes are little more than learning 'new tricks'.

Walsh, et al. (2010), for example, in an evaluation of the impact of an e-learning module on NICE clinical guidelines using pre/post questionnaires, claimed that:

> A total of 88.6% of those who had cared for patients ….said that the module had helped them put NICE guidelines into practice…" (p.9)

It is not clear why the other 11.4% did not, suggesting something about context that has been ignored in such studies. It is also not clear what the impact on patient care was.

While self-study and interactive modular approaches to transmit knowledge and skills are easy to design and implement cheaply for economies-of-scale across healthcare sectors, the best such research can do is to claim that they are "effective in helping professionals learn about NICE guidelines and put these into practice" (Walsh, et al., 2010, p. 10) without explaining how and why.

Looking further, the study by Scales, et al. (2011) which reported improved care as a result of interactive approaches, used a randomized control trial to measure impact, without problematising the use of a medical research methodology applied to an educational intervention. In turn, the study by Curran, et al. (2010) which did a comparative evaluation of the learning outcomes of two different approaches, one with a facilitator and one self-

study, does not seem to get beyond measuring satisfaction, knowledge and confidence, to explore changes in practice.

Overall, little effort is seen in the current research to provide theoretically grounded explanations as to *how and why* the learning of professionals from accessing online CPD produces improvements in practice, as called for by Cook (2009). Moreover, such findings do not bypass the essential question of whether any significant, longer-term change in behaviours and patient care occurred as a result of such modular short one-off self-study or social interactive courses. The influence of the context, whether learning at the workplace through a computer, or at home, on the professional learning experience and the change process remains virtually unexplored. The reliance on experimental study designs and systematic reviews to assess the impact of online educational programmes on changing practice is also not critically examined.

The dominant message from the systematic reviews and the specific studies of online CPD examined is a low impact on practice and patient care. There is little discussion on the points raised earlier about effective CPD, namely the need to consider supporting professionals to implement new evidence and make sense of the complexity of practice while situating online learning in practice.

However, a new stream of research has also emerged in the literature, away from examining the effectiveness of traditional online CPD approaches such as modules and forums. It has involved a closer examination of the nature of healthcare professionals' use of the Internet and the attendant implications for designing online CPD to improve impact, which I now examine.

From the literature, evidence is emerging of what is being termed self-directed learning (Casebeer, et al., 2002; Bennett, et al., 2004; Schoen, et al., 2009).

In this approach to learning, Casebeer, et al. (2002) has shown that, in contrast to modular and discussion-based designed online CPD, busy healthcare professionals strategically 'manage their own self-directed curriculum' (p. 40). Their research using surveys into how healthcare professionals went online showed that looking for "information about something that comes up in patient care as a major impetus for Internet use." (p. 39) They further argued that this insight called for a rethinking of online learning systems such that rather than traditional didactic modules for

self-study or online forums for discussion, the Internet be perceived as an “open resource center with a range of options” (p.40).

These studies, that did not start off with evaluating a pre-designed programme but examined the actual behaviours of professionals with the Internet during work, hint at a problem with the traditional instructional designs of current online CPD – the difference in expectations between online CPD providers and healthcare professionals whose behaviours and practices they wish to change. It appears that the imposed change expectations, through either self-study modules or social interactive discussion approaches, is frequently not how professionals themselves are changing practices as they learn online strategically to address patient problems as and when they come up.

This contrasting evidence suggests that the low impact of traditional online CPD approaches on improving practice and care can be alleviated by designing online CPD as a flexible ongoing support system, rather than an imposed one-off course. Casebeer, et al. (2002) in busting the myth that the success of online CPD depends only on the design of teaching and learning strategies inside an online environment, argue that when healthcare professionals go online to seek answers in the moment of providing care, they are undertaking the first step of reflective practice. Thus, they call for redesigning online CPD such that it is ‘immediate, relevant, credible, and easy to use’ (p.40) and supports reflective practice. They claim that by starting with healthcare professionals’ need for specific information on a patient problem, what could be offered are a range of resources, such as accessing legitimate information repositories, support from experts, case-based learning, and helping healthcare professionals “construct the kind of knowledge they need to improve patient care.” (p.41)

These insights mark a radical departure from mainstream research into the effectiveness of the instructional designs of various types of online CPD. It could explain the low impact of programmatic online CPD on changing behaviour by disseminating knowledge without a clear awareness of how professionals themselves are able to self-direct their learning. It shows a clear conflict between the ‘natural’ behaviours of healthcare professionals going online versus the normatively constructed and imposed behaviours expected of them by providers of courses. The notion of a self-directed curriculum as opposed to a prescribed curriculum shows that healthcare professionals are savvy enough to construct their own learning situated in their practices, thereby changing their behaviours themselves, to solve

patient care problems they confront. This suggests a need to get beyond positivist notions that behaviours can be changed through external interventions, which assume an artificially objective separation between learning, behaviour and practice.

I argue thus that the issue for designing online CPD for impact seems to be how to provide a flexible support structure grounded in the lived experiences and the practical pressures faced by self-directed healthcare professionals in their authentic settings, in ways that strategically align with the agendas of policy makers and providers looking to improve the implementation of evidence-based medicine to change practices and improve patient care.

In critically considering this issue, moving away from the literature on online CPD in healthcare to draw in the wider literature on online education is instructive.

With the rise of the Web 2.0 social and 'prosumer' culture, online education research has itself advanced from traditional discussions on learning environments for delivering front-loaded courses, towards considering curriculum designs that balance self-directed learning with effective contextualized learning support (McPherson, et al., 2008).

To address this issue, the last ten years has seen a shift from e-learning towards theories of networked learning using Web 2.0 tools (Anderson, 2008) reflecting changing notions of education, learning, knowledge and work with the rise of the globalized networked information society (Burbules & Torres, 2000; Cogburn, 1998; Castells, 2000; Van-Dijk, 2005).

This emergent literature suggests promising opportunities for the design of online CPD as a flexible Web 2.0-enabled structure to support networks of healthcare practitioners to which I now turn to.

Educators using networked learning approaches now aim "to provide embedded tools to support specific instructor and learner activities" (Harasim, et al., 1996, p. 151). Drawing upon Anderson's (2009) conception of distributed networks of practice among people loosely connected across time and place, these tools can be used to stimulate, provide external information and knowledge to support and cross-pollinate localized communities of practice.

This research coheres with Casebeer, et al. (2002) earlier calls for online CPD as a flexible structure with a variety of resources available 'on call' to healthcare professionals seeking to solve problems. For instance, existing low-cost Web 2.0 social networking technologies offer a variety of

possibilities to design useful pedagogical practices that integrate self-directed learning, social interaction, collaborative learning and critical reflection with peers, mentors and experts to improve practice (Boulos, et al., 2006).

One strategic approach to provide such a support resource for self-directed healthcare professionals would be to complement self-study of modules with facilitated, time-bound synchronous discussions among a network. Facilitated synchronous discussions have been found to be effective and efficient in supporting online collaborative learning among dispersed learners because, as compared to asynchronous approaches, they increase dialogue, interaction, immediacy and social presence while reducing isolation (McPherson, et al. 2008; Boulos, et al., 2005; Schullo, et al., 2005).

To summarise, this section has discussed why the low impact on practice and patient care of traditional online approaches to CPD is most likely caused by the continued deployment of self-study modular approaches, the failure to create meaningful social interactions through asynchronous discussion forums, and the natural self-directed learning behaviours of healthcare professionals. Widening our discussion to consider the literature on networked learning with Web 2.0 tools, I have argued, in line with the argument put forward by Casebeer et al. (2002), of the need to rethink the design of online CPD as a flexible support structure around professionals' information-seeking behaviour, through the provision of resources, in particular access to a social network of trusted others. I have suggested, recognizing changing conceptions of the networked society, for the strategic use of Web 2.0 social networking technologies by educators to support social networks of healthcare professionals to enable collaborative learning and reflective practice when solving patient care problems to improve impact.

However, I do not wish to make the claim of simply translating networked learning theories as the new paradigm for online CPD. Similar to the dangers of translating behaviouralism, social constructivism, reflective practice, and action research theories into healthcare and online CPD, networked learning still would not provide a theoretical explanation as to how and why changes to practices in the unique context of healthcare, with the challenges of the lack of agency and social capital, could occur, in relation to relevant outcome measures of patient care. Thus, networked learning alone is not appropriate for the goal of designing online CPD as practice to improve practice.

Overall, while Casebeer et al.'s (2002) notion of a flexible support structure is appealing, the need for online CPD still remains to design programmes, measure impact, and affect the agency of healthcare professionals to make changes.

Hence, there is a need to leverage these insights from the review to incorporate these 5 design features of online CPD strategically by aligning pedagogies, social networks and learning technologies to deliver programmes that produce change *in* practice.

2.6 Summary

In this chapter, I have presented a critical engagement with the literatures surrounding the complex issues of healthcare CPD and online CPD so as to highlight the features that can improve impact. I cast my net widely because the area is fragmented; a wide variety of theoretical perspectives exist; I cover all types of healthcare professions, and because online CPD design and practice cuts across organizations as well as disciplines.

While this approach may appear superficial to those working within a medical paradigm, I argue that my critical stance on the corpus of research has advanced the study of healthcare and online CPD in ways that would not have been possible had I stuck to the medical model of systematic reviews. By considering a wider evidence-base from online education in addition to healthcare and online CPD, I have learnt more about which programme approaches could effectively support healthcare professionals improve impact and those that are unlikely to. My aim has been to see the area with fresh eyes so as to get beyond dominant assumptions and advance the field conceptually.

I have synthesized these cross-cutting themes from the literature review as the 5 key features for online CPD to improve impact in Table 2.3 below:

Table. 2.5. 5 key design features of online CPD to improve impact

- Supporting healthcare professionals through the implementation of new evidence
- Facilitating social interaction and collaboration in small groups
- Situating professional learning in practice
- Providing safe networked spaces for critical reflection and action research

- Designing social networks as a flexible online support structure to complement self-directed learning
  - *facilitating short-term time-bound synchronous discussions of dispersed learners, mentors and tutors with Web 2.0 social networking technologies, and affecting the agency and capital (resources) of healthcare professionals to make changes*

The 5 key design features point to a much broader and more complicated picture of the relationships between online professional learning, behaviour change, and improvements in practice and patient care. The complexity suggests that existing learning theories used to design healthcare CPD and online CPD will have little impact on the *dynamic multi-level* processes of learning and change in ways that will improve healthcare practices and impact positively on the lives of patients. Instead, the literatures I engaged with and the findings emanating from them suggest the need for grounding the 'networked learning-change to practice' relationship within a radically different, socially critical process theory and conceptual model than those that currently underpin the research and programme design and delivery of online CPD.

In contrast to imposed CPD models, sociologically framed research into the actual working lives of healthcare professionals suggests informal social networks are a key influence on the empowerment and intentions of healthcare professionals to change (West, et al., 1999; Gabbay & May, 2004). It appears that there are subtle processes happening in these social interactions that, rather than the designed interactions theorised within learning theories, are constructing the thoughts and actions of professionals. Learning, in addition to being social and situated, is a dynamic and continuous process that cuts across the individual, social networks, organizational and policy structures of healthcare. As Gabbay and Le May (2004) argued, "Successful implementation of research evidence will require a deeper understanding of the processes of collective "sense making" by which knowledge, both explicit and tacit and from whatever sources, is negotiated, constructed, and internalised in routine practice." (Gabbay & May, 2004, p. 1).

This would suggest that, just like the need to be cautious about treating clinical guidelines as prescriptive, educators and researchers need to be equally cautious about being prescriptive about cookie-cutter models and

best practices for online CPD imposed on healthcare professionals, because of the inherent dynamism and context-sensitivity of learning and behaviour change. It suggests focusing instead on governing interactions and managing processes as online CPD resources and tools are modified, adapted or resisted by reflexive actors to meet the goal of improving impact.

In offering a new vision and hope of what is likely to work when taken to the expanding e-frontier, their recommendation is illuminating: “the potential of networking as part of continuing professional development must be recognised and fostered, and appropriate information must be targeted, through a variety of routes, to the relevant individuals.” (Gabbay & May, 2004, p. 5)

It is this insight about the process of changing practice from a study of healthcare professionals in their informal social networks that may be helpful in pointing to the need for turning towards a practice theoretical approach on which to base online CPD design with Web 2.0-enabled networks that conceptually grasp learning, behaviour, social relationships and empowerment to improve impact.

To conclude, there is now a critical and urgent need to overcome the limitations of the myriad existing online CPD approaches based on learning theories, and to make sense of the complex reality of programme design, strategic self-directed learning, the influence of social networks on the agency of healthcare professionals, as well as address the structural barriers to changing practice in healthcare systems for effective online CPD. The 5 key design features that emerged as shown in this chapter, along with moving towards a dynamic mindset, provide a unique opportunity for evolving from a ‘networked learning’ to a practice perspective in online CPD design to improve impact. This is shown in the next chapter.

If you ask me, the CPD chappies and chappesses are flogging a dead horse, judging by these results.

CHAPTER 3: Reflexive Networking as the strategy for online CPD to improve impact

First It's The Hospital Patients – Now GPs 'At Risk' in Horror Clinics

Dozens of GPs are said to be 'at risk' as a leaked national CPD report from the RCGP reveals the astoundingly low impact of free online CPD on patient care. Staff who are already struggling to keep patients safe with 'the double whammy of spiraling workloads and dwindling resources' in hospitals which are said to be 'full to bursting', are reaching breaking point as they try to defend doctors from 'furious' relatives and members of patients' lobby groups.

'I'm absolutely livid,' raged one indignant mother of five who has just called out her GP to treat her 95-year-old mother for a urinary infection for the fifth time this year. 'No wonder they don't know what they're doing. All they have to do is switch on their laptops and press a few buttons to keep up to date with the latest developments. Is that too much to ask? I wouldn't mind doing a bit of extra work in my spare time for 80 grand a year. The clinics are only open for a couple of hours a day and I bet they have long holidays too. A few hours CPD a week should be a day at the beach for them.'

One Midlands clinic which became known as the 'Shock Corridor Clinic' due to its high death rates has now been witheringly dubbed by demonstrating patients 'Low Impact Corridor Clinic!' 'Patients are going to A and E in droves,' said a mother of seven. We'd all be dead by now if we waited for appointments.'

A GP who asked to be identified only by the nickname 'Dr. No', said, 'I can't sleep at night for the nightmares! Every time I close my eyes I see myself staring at a computer screen with multiple choice CPD tests flashing across it but I can't answer them because I'm wearing a strait-jacket. In another, our waiting room is overflowing with patients banging on the door of my surgery and chanting: "Impact on practice now - Physician heal thyself!" '

This chant has already gone viral on Youtube.

Daily Mail, September 2013

Given the 5 key features of effective online CPD design identified in the last chapter, how should online CPD be theorized to improve impact on practice and patient care? Since assumptions about professional learning, change and practice differ across medical and healthcare research and educational theories, this chapter first discusses two alternative strategies for online CPD. It then elucidates an alternative critical sociological perspective based on practice theory, and proposes Reflexive Networking as the strategy for online CPD to improve impact on practice and patient care.

3.1 Two perspectives on online CPD

First, the literature review in the last chapter has shown that the dominant perspective on online CPD design is based on the assumption that educational programmes can cause change 'to' practice, drawing upon learning and behaviour change theories. In turn, the literature on changing practice proposed that transferring learning, applying skills, or implementing evidence into communities of practice could change professional practice. The assumptions underlying these cognitive psychological and social constructivist perspectives include: a) learning is a discrete input, b) practice is a specific output, c) a static linear relationship exists between learning on an online CPD programme and practice change, d) a healthcare CPD provider's ability to plan and predict the learning of professionals situated in other healthcare organizations, and e) the stability and harmony of the goals of policymakers, managers, educations, health professionals and patients across time and space. These traditional perspectives have been used for

routine delivery of online CPD modules and courses, the building of online communities to share knowledge, and implement evidence-based practice. At the policy level, this perspective also incorporates regular, formal checks (such as patient care and quality audits), mandated targets and indicators, competence checklists, and performance appraisals towards annual accreditation. By focusing on restricting the format and amount of learning inputs and practice outputs, such online CPD designs prioritise stability but lose critical purchase on the value and effects of online social relationships for professional development.

Alternatively, online CPD can be perceived as a dynamic process. This is based on evidence from healthcare showing that in addition to formal courses, professionals' informal social networks, and their interaction with peers and superiors influence their thinking and behaviours (West et al., 1999; Gabbay & LeMay 2004). Luke (2003) showed how junior doctors networking strategically with senior consultants to improve their social positions was professional development for them.

These findings suggest that researchers, educators and end users of evidence-based guidelines, best practice manuals and innovations may perceive changing practice differently because they do not have the same goals but are competing for power. Through informal learning dialogues for exchanging information, opinion, and advice, competing interests are worked through subtly, and practice is modified gradually. The resulting strategic improvisation process builds practical knowledge in culture and context, settling practice at a position that maximizes the goals most relevant to the practitioners involved (Bourdieu, 1977). Thus practice ends up looking quite different in reality from what academic theory says it should 'look like'.

Thus the overarching theoretical problem is that most learning theories used to design pedagogical models are unable to capture the dynamism of practice because they are developed within the framework of scientific rationality that assumes learning is a cause and practice change is a linear effect.

In today's digitally mediated and technology-saturated healthcare organizations, the dynamism of practice is also driven by the impact of learning and other technologies being implemented into the 'learning-practice change' process during online CPD. Research into the use of blogs, wikis, podcasts, and asynchronous discussion forums shows that the different levels of agency afforded by particular Web 2.0 social networking

technologies will affect the usefulness and usability of these technologies for professional learning networks to adopt for interaction and collaborative learning (Boulous et al., 2007; Sandars et. al., 2007).

In contrast to normative e-learning instructional design and collaborative learning perspectives therefore, a dynamic perspective suggests that the strategy of online CPD design to improve impact should be to study, manage and evaluate the change process by which a programme delivers pedagogies with a new technology when it is being implemented by users and decision-makers. Educational managers would then know how to optimize the process so as to reduce low uptake and impact of new technologies, and encourage more of their use for collaborative learning and changing practice.

3.2 A dialectical worldview

The difference between the static and dynamic perspectives on online CPD presented above reflects designers' different assumptions about the mechanisms of change. Traditional perspectives on e-learning and changing practice in healthcare were based on a teleological worldview, whereby educational change could be organized and managed with a strategic operational and training plan that all practitioners duly implement in disciplined and orderly collaboration to bring about change and improve practice.

The alternative dynamic perspective is based on a dialectical worldview, in which power is distributed across the multiple agents involved in the change process, across social, cultural and organizational structures, and shifts in the balance of power lead to changes in the status quo. Professionals are not only learners who need to reflect, contextualise and apply knowledge; they also need to negotiate power to make changes. In essence, acknowledging the diversity of social actors in any process of online CPD for changing practice highlights that the process of implementing technologies and implementing evidence to improve practice brings up issues of conflict and confrontation because of the agency of all practitioners.

This distinction is useful as the latter is closer to the reality of the dynamism and contingency of contemporary healthcare professional practice. As shown in the last chapter, it is characterized less by tightly knit communities than by weak ties, competing objectives and intensional networks. In contrast to psychological and sociocultural perspectives, a dialectical

worldview shows that continuous iterative, overlapping and recursive cycles of thinking and doing occur through the social relationships of CPD programmes that shape the agency of professionals – their choices, opportunities and intentions to make changes. These subtle processes make professional learning *reflexive* in the dynamism of praxis across social technological structures. As opposed to social constructivism, professional learning as an epistemology is thus better termed structural constructivism.

The next section critiques the existing theorizing of online CPD. The chapter concludes with the elucidation of a Reflexive Networking strategy for online CPD, based on practice theory.

3.3 Challenges with prior online CPD theorizing

Three comments are worth making in terms of theorizing online CPD. First, prior online CPD research as shown in the literature review has largely focused on the different components such as pedagogies and technologies available. Since practice change emerges over time as researchers, managers, educators and users compete to decide which goals an online CPD programme should support, an opportunity exists in terms of research on the *process* of implementation and changes in the programme components being tried out.

Unlike causal theories of change, which focus on how antecedent causes give rise to particular effects and ignore context, process research discusses the sequence of events that take place within the context of those effects (Markus & Robey, 1998). The absence of process research gives rise to three gaps in our understanding of online CPD: a) how do the competing interests of managers, educators, learners and patients interact over time to make up a narrative of the impact of online CPD; b) how do changes by users at the level of individual technology impact changes at the level of the programme; and c) is the change process *teleological* (i.e. the programme progresses toward a clearly specified end-state) or *dialectic* (i.e. the programme is a compromise based on the demands of groups in conflict with each other). Fleshing out the process of online CPD is useful because it will answer these three questions to improve strategy.

The second comment on prior online CPD theorizing is that there have been few attempts to organize the various components of online CPD programmes, CPD evidence-based practice, implementation research and related concepts, such as e-learning planning, implementation, delivery, and

evaluation, into a coherent theoretical framework to develop a strategy (cf. Nunes & McPherson 2004). Doing so will provide: a) theoretical benefits: expanding online CPD's nomological network will improve our understanding of the antecedents and consequences of different online CPD practices, and b) practical value: Online CPD's ability to enhance the value and impact of using pedagogies and learning technologies will be clarified.

Third, as shown by the low impact of the use of CPD approaches such as reflective practice and multi-faceted workplace interventions to change practice, the use of formal online CPD and e-learning frameworks has reified professional learning. Although listing and classifying teaching-learning processes into a fixed structure helps educational managers and designers to manage their programme components, the disadvantage is that this approach excludes informal, unplanned, serendipitous and happenstance experiential learning based on personal relationships and social exchanges. Thus, while professional learning encompasses both control and collaboration, in practice, it is often inclined towards the former, not the latter, when applied to online CPD, explaining the difficulty in fostering valuable online collaborative learning across organizational structures.

Formal online CPD such as modules and courses rely more on monitoring and testing and less on empowerment and peer support. This is contrary to the contention from the literature review that social influence and social control processes, based on shared norms, can be more effective for persuading clinicians to adopt and implement innovations in practice than implementation systems that depend on explicit guidelines dissemination alone. These informal channels are based on the quality of personal relationships in hierarchies and cliques in healthcare professionals' social networks. They have been found to be important channels for the diffusion of innovations, as healthcare professionals "experienced pressure to conform to standard practices" (West et. al., 1999: 633). The importance of social networks for online CPD arises when we consider that healthcare professionals today access a wide variety of social networks with networking technologies for strategic learning to solve problems in practice (Casebeer et al., 2002). Instead of relying on regulations to enforce the implementation of evidence into practice, it may be more effective to support healthcare professionals to develop 'virtual private networks' - effective personal and professional networking relationships with peers, mentors and experts to obtain new information, share opinion, seek validation and advice (Gabbay & LeMay, 2004; Sandars, 2007).

Although informal channels in social networks for professional learning are not stable or repeatable patterns, their value in improving the impact of online CPD lies more in the shared understandings created in an online learning environment that disrupts normative practices than in any explicitly defined processes.

This section has listed some challenges with prior online CPD theorizing. The limited theoretical development and ambiguous consequences brought about by e-learning implementation suggest that this domain awaits some rich theorizing. This study focuses on the impact of implementing an online CPD programme to improve practice and patient care, the ongoing tensions between an educator, the learners and their patients, as the educator and learners discussed implementing propositional knowledge and a learning technology, and the impact of this tension on online CPD alignment with improvements in practice and patient care. In such a dynamic context, educators could tackle the challenge of managing the reflexivity of professional networks by creating new informal social structures for social interaction and collaborative learning with technologies. An online CPD strategy should thus be viewed as an emergent process of formal and informal practices undertaken by reflexive actors to achieve a compromise regarding the effectiveness of a particular programme and approach with the goal of improving impact. The next section sketches out the theoretical scaffolding for this definition.

3.4 Online CPD as a Strategic Practice

Prior research in online CPD and pedagogical approaches like e-learning posit that educators should design their programmes and technologies by taking their intended learning outcomes as a starting point. This will allow learning-behaviour change alignment to occur, which should improve impact. However, the low impact of these approaches suggests a failure to account for the ability of individuals and networks to adapt and manipulate practices, denying their agency in real-world social systems. Moving beyond this instrumental, causal theory approach toward a process perspective requires the articulation of a reflexive post-modern logic, where individuals reflect on their behavior and adjust their actions accordingly, making their responses to situations less mechanistic and more emergent.

This study investigates whether agency can be enhanced by online CPD to improve impact. While formal online CPD programmes offer certain

advantages, such as economies of scale, standardization and distribution to professionals across time and organizations, informal learning mechanisms can help overcome some of formal learning's shortcomings, which include difficulty in sharing tacit knowledge, affecting context and culture, and studying the subtle ways in which professionals modify programmes and technologies reflexively. The reliance of formal learning mechanisms has been to the detriment of informal approaches, which could complement or even substitute some of the formal ones, since healthcare professional development encompasses both control and collaboration.

The next section provides some background on the practice perspective in professional learning, and proceeds to propose a practice-based strategy of online CPD to improve impact.

3.5 Online CPD through a Practice Lens

Reacting to the reification of online CPD, this study offers a practice-based strategy for design, implementation and evaluation of programmes to change practice. This reflects the situated, emergent, recurrent and networked aspects of changing practice, and enables change to be understood as a longitudinal process incorporating both formal and informal practices.

Using a practice lens to study and design online CPD to improve impact emphasizes the socially situated and digitally mediated nature of learning when professionals are immersed in practice. Empirical evidence for this has been discussed in the literature review. Managing the key features of online CPD programmes to improve impact requires controlling behavior and communication, so as to create shared understandings and mutual trust, which in turn influences the effectiveness of implementing new evidence into practice. As the literature review showed, West et al., (1999) and Gabbay & LeMay (2004) found that informal structures such as networks played a much more important role in implementing clinical guidelines compared to formal structures while Thomson O'Brien et al (2004) found that collaborative learning in small groups improved CPD. As users and educators engage in these social practices, they are changing practice by reproducing practices at different levels of an organization and across organizations, and recreating learning-practice impact over time. The emphasis shifts from change to changing. Impact is thus not a fixed state but is being achieved continunuously.

In addition, the practice theory perspective highlights the negotiated process of online CPD, instead of the top-down imposition of order to practice that the formal guidelines dissemination and CPD frameworks aim to bring about. This negotiation is driven by the inertia of existing norms and beliefs, the interests of multiple stakeholders, the high costs of switching over to new technologies, and the increasingly flexible nature of online CPD programmes. These factors make it difficult to use static conceptual frameworks to achieve the objectives managers and educators want for their online CPD programmes, including aligning it with organizational strategy and public health goals. Instead, the existence of a variety of competing practices in the real world underlines the multi-level nature of alignment required of a strategy to improve impact: researchers, management, educators, users and even patients. As individuals and networks negotiate at each level, the compromises they make accumulate and can lead to the low impact of an online CPD programme due to the reflexivities that play out.

Integrating such dynamism into a pedagogical model for online CPD with practice theory is worthwhile because of the richer explanations possible. Instead of relying on traditional concepts such as learning objectives, outcomes, and objects alone, practice theory provides useful terminology, such as *praxis and practice* for explaining how practitioners decide on and value the type of learning mechanisms, and *symbolic capital*, the authority to establish or legitimize symbolic categories (Bourdieu 1980, Bourdieu & Wacquant, 1992), to describe the goal of online CPD. Instead of relying on self-reported behaviour change, practice theory also enhances the definition of how agency – the choices, opportunities and intentions – is affected during an online CPD programme: differential access to symbolic capital affects the ability of practitioners (agents) to strengthen or weaken the level of change. This agency, not the learning inputs per se, provides an engine that drives the shifts managers, educators and the healthcare professionals make during the change process.

Practice theory highlights the fact that the reflexive process of learning itself changes the social and cultural structures in which learning takes place. The structures that are the most relevant here are habitus and field. Habitus is akin to culture but is also more than that. It consists of the principles behind distinctive practices and classificatory schemes (Bourdieu, 1998). These principles are used during practice, as well as to generate new practices. While the habitus exists at the meso level [i.e. between the micro level (individuals) and the macro level] of society, fields can be found at the macro

level. They consist of groups of agents engaged in practice, and indicate their differing social positions. This difference identifies power relations between individuals. As agents act, they constantly shape their fields of practice and the boundaries of these fields. Table 3.1 below depicts the mapping of practice concepts to the domain of online CPD.

Table 3.1: Applying Practice Theory Concepts to online CPD

Practice theory concept	**Definition**	**Application to online CPD**
Practice	Emergent, situated, and recurrent actions of members of a community	a) Technology usefulness, usability and resistance to adoption b) Pedagogies c) Network
Practices vs. praxis	Practices: what practitioners draw on during praxis Praxis: actual activity engaged in	a) Practices: formal CPD frameworks e.g. RCGP, NHS b) Praxis: actual activities of online CPD- formal and informal, top-down and emerging from informal networking, routine and improvised
Symbolic capital	Authority to classify certain properties or resources as valuable	Ability to define: a) which components of an online CPD programme, and b) which methods of acquiring them, are legitimate
Habitus	Disposition; Principles behind distinctive practices and classificatory schemes	Underlying logic of practice, e.g., strategic, self-directed, scientific, social, shared or selfish
Field	Groups of agents engaged in practice	Online informal structure in which a network of users, educators and managers interact; their differential ability to promote/control change indicates the power differences between them

The starting point of a practice theory of online CPD is the role of agents as bearers of capital who are not enslaved by structures (Bourdieu 1980). However, since capital, especially symbolic capital, is unequally distributed across agents, agents differ in their ability to achieve their competing goals, leading to the low impact of an online CPD programme on practice and patient care. These goals are formed on the basis of their habitus - the prevailing ethos that guide their jobs or work units. For example, some practitioners may prefer to minimize changes to practice, as they are more focused on maintaining reliability.

Bourdieu proposed that symbolic capital has both subjective and objective properties, and is formed through the shared meanings of value and worth. For example, the dominant narrative of evidence-based practice supports the value of particular types of capital in healthcare CPD, such as clinical guidelines and randomized control trials, but not others such as reflective practice, action research and collaborative learning in small groups. The symbolic capital that is pertinent in this study is the ability to decide which components of an online CPD programme are valuable, as well as the ability to determine how these components should be obtained and managed for improving impact. In the current deterministic and unreflexive perspective on online CPD, programme managers possess this capital, but educators and learners do not, resulting in their disempowerment and inability to produce change.

Over time, situational changes in CPD and in practice can affect the possession of this capital. One only needs to look at the proliferation of do-it-yourself online CPD modules, courses, and technologies provided by UK providers such as GPonline.com. Greater numbers of healthcare professionals learn online on their own with generic modules, and are increasingly exposed to informal learning networks with technologies outside their work environments. This dynamism reduces the amount of symbolic capital educational managers and programme designers have to define an online CPD programme's components and manage the change process to improve impact. Although the improvements in the capabilities of technologies allows educators situated in a CPD provider to connect with users situated across time and distance to achieve learning outcomes, it is difficult to sustain these into practice change outcomes at the level of the professional's workplace. In effect, healthcare professionals who access online CPD offered by commercial providers, universities, and professional societies today can set their own goals and are expected to manage the

components of their CPD portfolio for accreditation, hampering the ability of educators to prevent fragmentation and produce impact.

This situational change has created a gap between the intended impact and the actual impact of online CPD pedagogies with learning technologies on improving practice. The latter differs from the former to the extent that certain components of the former are not appropriated by users because of a lack of fit with their tasks. If these components are mandated – such as the requirement to collaborate using a blog created for their use – users could develop workarounds, so that the technology does not interfere with the completion of their work. The actual impact of online CPD could also include components not present in the intended approach, because users and educators can modify pedagogies and technologies to fit their intentions and preferences.

The use of formal or informal control in the praxis of online CPD designers and tutors is a shifting balance, which depends on their power over users at a particular point in time. Formal learning mechanisms may, for example, not work well with independent-minded healthcare professional networks, who are unconcerned with integrating their operations at the policy level that desires evidence-based practice. In such a case, de-emphasizing formal learning and complementing it with informal practices, such as study groups involving respected mentors and experts, has been found to be a more fruitful approach, and could be leveraged for collaboration with learning technologies. Over time, the social structures suggested by these informal practices may be reproduced by reflexive educators and users, who imbibe and accept the rationale for changing practice after interacting with such respected peers and influential experts. In this light, such methods may be better in the long run for improving the impact of online CPD and the adoption of innovations than the straightforward implementation of formal frameworks for changing practice.

At the same time, since online CPD programmes are not static and disembodied but comprise heterogeneous networks of agents, it is important to consider how the material attributes of the technologies affect the practice of learning. The material properties of the technologies being used influence their usefulness and usability to being adopted, as well as the kind of learning that takes place. Users will have a higher agency to value the learning technology they use if the technology is well-embedded in their daily lives and is highly symbolic for them, such as a real-time web-based

interactive application that represents their professional culture's shift to a more modern way of networking and learning. Thus, the symbolic capital of being able to define an online CPD programme's impact is affected not only by the formal and informal relationships between users and educators, but also by the attributes of the technology that is a component of the programme delivery.

To sum up this section, from a practice perspective, existing pedagogical models for online CPD based on a set of 'objectivist' and 'socially constructed' assumptions about professional e-learning that are neither 'objectivist' nor 'socially constructed' are a problem. They cast professionals who learn reflexively to improve their practice through informal social relationships as a problem to be fixed with inputs of knowledge and skills, and assume a static linear causal relationship between e-learning inputs and practice improvement outputs. While social constructivism promises much in theory, its enactment in online environments to deliver short courses to busy professionals is challenging (Nunes & McPherson, 2007; Sandars et al., 2007). Social constructivist pedagogical models do not change or modify the wider structures that produce unanticipated barriers to professionals' capacity for agency to change practice as a result of learning on an online CPD programme. While acquisition and participation are both important in learning (Sfard, 1999), as are critical reflection and practitioner research (Brookfield 1987; Carr & Kemmis, 1986; Schön, 1983) the impact on improving practice ultimately rests on the ability of pedagogical models to improve the access of professionals to a multiplicity of perspectives and resources in informal networks to work on and try out new practices in safe spaces that empower them. The danger of current binary debates about 'what works' in curriculum development and implementation for online CPD is that positive and productive strategies necessary to improve practice may be overlooked or discounted in efforts to use ICTs to stimulate naïve and unproven ideals of online communities of practice and reflective practice.

A structural constructivist epistemology of professional learning improves upon existing dominant cognitive psychological and social constructivist perspectives. By positioning online CPD and change at the structural level of society, it brings to the fore the two important implications discussed above for the construction of dynamic online teaching-learning contexts that designers need to be mindful of – increasing the capacity for agency and modifying the structures of practice. Moving forward, these features are necessary to design online CPD that can achieve a critical social scientific

grasp on understanding change processes at multiple levels and with the various components of online CPD programmes, in particular the affordance of particular technologies and pedagogies in networks. The next section proceeds to propose a strategy to this intent.

3.6 Reflexive Networking as a Strategy for online CPD to improve impact

Given the 5 key design features of online CPD as a strategic practice together with the reflexivity of professional learning in networks, as well as the agency of all practitioners, and the value of creating informal social structures for collaborative learning with technologies, this study proposes Reflexive Networking as a strategy. Because this is a non-linear dynamic model based on a dialectical worldview, *Reflexive Networking is defined as a process to align pedagogies, technologies and social networks for the goal of improving impact on practice and patient care*, as shown in Figure 3.1 below.

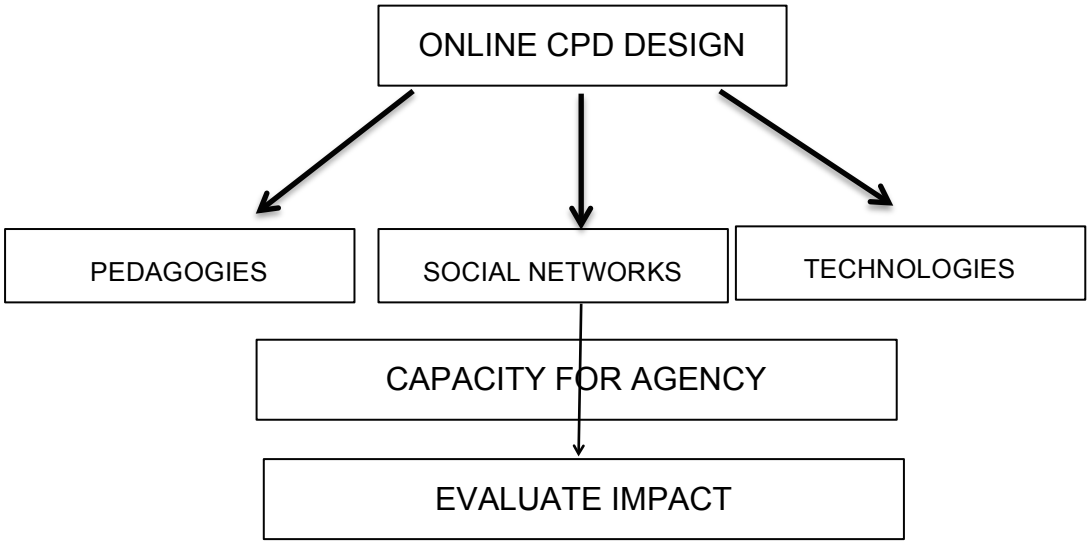


Figure 3.1. The Reflexive Networking Conceptual Framework

This practice-based strategy of online CPD design integrates online CPD programmes and impact on practice and patient care in a single conceptual model of change centred in agency, transcending the learn first/apply later dualism of prior approaches. Instead of seeing pedagogies, technologies, networks and praxis as distinct entities, Reflexive Networking depicts how these components interact during the process and why change occurs, adding social dynamism to the idea of online CPD. This reflects the idea that online CPD-impact alignment occurs both in the short-term – indicated by

the mutual understanding of current programme objectives to affect agency as an interim outcome – and long-term – seen in a congruent vision of practice in medical and healthcare culture. This study's practice-based theory also informs a dynamic model of alignment, by expanding the sources of changes in alignment beyond managerial and training plans, and systems designs, to the social relationships and exchanges of agents collaboratively learning with technologies in networks. Finally, the theory presented here contributes by describing a clear, specific objective for online CPD: a valuable process with components that balance the interests of management, educators, learners and patients. This interaction between online CPD programmes and practice has an impact on the ability of online CPD providers and designers to achieve valuable practice and patient care outcomes.

The dominant e-learning perspective on online CPD uses mechanisms for CPD accreditation and structures such as modules, discussion forums, blogs, wikis, e-mail lists and virtual learning environments to deliver learning inputs, record access and outputs, and monitor and control professional learners. In comparison, Reflexive Networking shows that the impact of a process to improve practice and patient care is the result of the interaction between the: a) programme components and agency, b) relative allocation of power (capital) between position holders in the network, c) the understanding of the practitioners (agents) as to why learning was implemented and delivered in that way, and d) reconfiguration of agency over time (as agents in different roles learn). As this study is one of the first to examine a change process for online CPD, the emphasis is on presenting an initial empirical analysis of the phenomenon that focuses on describing and evaluating it, and critically examining its antecedents and consequences to explain how and why change happened. Future research will then be able to build upon the findings here to open up the "black box" of change further by examining the decision-making processes and interaction with learning technologies and pedagogies that take place at multiple levels of organizations and networks across time and distance.

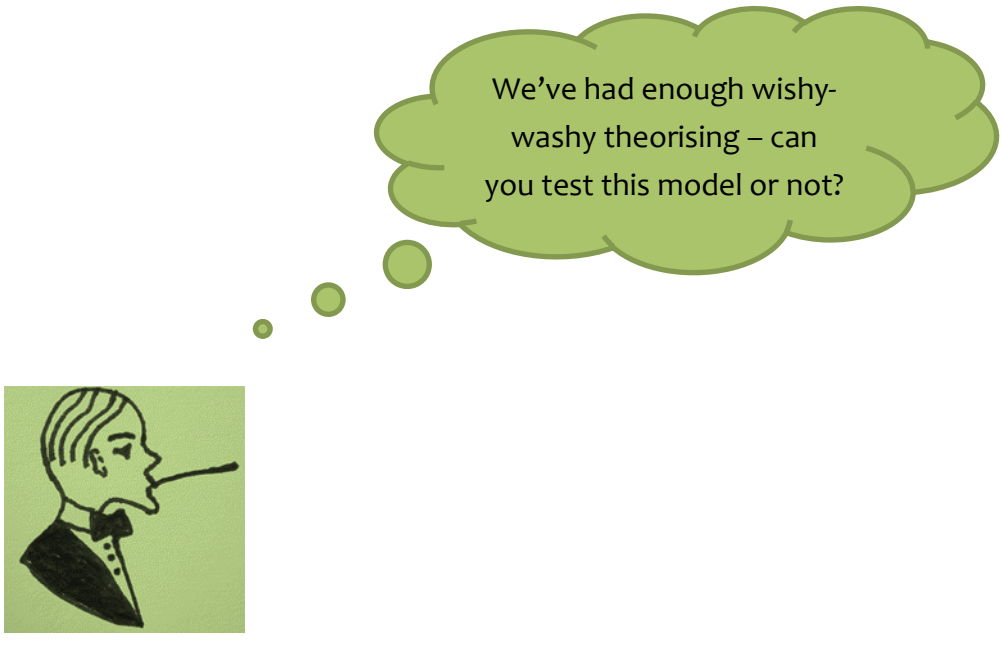
3.7 Summary

This chapter presented the theoretical framework of this thesis. I started by emphasizing the need for a dynamic perspective based on my findings from the literature review in the last chapter, which stressed the need to consider

professional agency, their social networks, and the structural barriers to changing practices. I justified the use of a practice perspective to overcome the limits of learning theories in improving the impact of online CPD approaches on practice. Using Bourdieu's practice perspectives to understand the dynamism of practice, I showed how I understood and interpreted the phenomena of online CPD to improve impact on practice and patient care. I redefined professional learning and behaviour change as reflexive when immersed in praxis across dynamic social fields. I refined the initial conceptual framework to develop Reflexive Networking as a strategic process to align pedagogies, technologies, social networks, and impact evaluation. In the next chapter, I proceed to show how this strategy was implemented and evaluated in a real-world setting to study its impact.

Chapter 4: Research Methodology: Critical Realistic Evaluation of a Case Study

> "We commented on how much Seurat's depiction of the island [in the painting *Un dimanche après midi a l'Ile de la Grande Jette*] looked like a stage set…We realised that we were talking about a theatre piece, possibly a musical.
>
> James (Lapine) said, 'What's missing is the principal character.'
>
> 'Who?' I asked.
>
> 'The painter,' he replied, and we knew we had a show."
>
> Stephen Sondheim on the birth of his and writer/director James Lapine's Pulitzer Prize-winning musical Sunday in the Park with George, excerpt taken from Sondheim, S. 2011, *Look I Made a Hat*, Random House, New York, p. 4



> "Thus if you allow me to plagiarize Kant's favourite dictum: theory without empirical research is dead; empirical research without theory is blind."
>
> (Bourdieu, 1988, p. 774-5)

> "Case studies are 'a step to action'. They begin in a world of action and contribute to it."
>
> (Cohen, Manon & Morrison, 2007, p. 256)

The social sciences, unlike the hard sciences, have a fundamental problem: they deal with people in society, thus bringing the researcher up against what Bourdieu calls 'the opacity of being' (1990, p. 27).

Furthermore, all human endeavour, and particularly that which involves change or innovation, includes an existential element – a leap in the dark. In other words if complete certainty was required before undertaking an action, nothing would ever happen! Alarmingly, the establishment continues to insist that educational interventions in healthcare to improve impact be studied using biomedical experimental research methodologies, principally the randomized control trial, hereafter RCT (Hargreaves, 1996; Evans & Benefield, 2001; Wutoh et al. 2004; Clegg, 2005: Cook et al. 2008). Instead, looking at research and education in healthcare as situated social practices in contested fields struggling for power, I argue that a Bourdieu perspective exposes the *illusio* that 'scientific' RCTs are objective truths to be taken for granted as the 'gold standard' to demonstrate evidence of change and impact (Bourdieu, 1998; 2004). In this light, this study disrupts the dominant artificial positivist/post-positivist paradigm divide to evaluate the impact of online CPD as a dynamic process. In addition, the aim of this study is also to show that it is possible to produce measurable data that Reflexive Networking is a strategy ideally suited to solving the dilemma of the low impact of online CPD in healthcare, and to point the way for similar innovation in other sectors where online CPD is deployed.

Despite the various ways educational researchers have put Bourdieu to use over the last few decades to critique educational research and practice, a close reading between the lines of his oeuvre gives me the sense that his most effective thesis was his own life choice. Coming from a humble lower class social background in a village and being made to take up a scholarship to pursue an academic path in the big city, his fundamental choice as a

scholar who lives out his truth in his research was to move from the elite Elysian fields of philosophy to the Hades of sociology – the ordinariness of everyday human life. In other words, he appears to be telling us that convincing solutions for 21st century problems – including online education – must come from inside-out (sociology) rather than outside-in (technology). Of course he remains a very philosophical sociologist, but his is an *applied* philosophy, a *critical realist* philosophy.

As a philosophy that is applied for doing and studying education, critical realism's key feature is the generative mechanisms that explain change in society, which can be uncovered and operationalized (Pawson, 2006). As compared to the RCT, where applying a treatment to passive subjects who can be controlled is assumed to cause change, critical realism argues that change is generated through mechanisms inside a programme, in specific contexts, *in relation* to the social structures in which subjects act as agents. For example, the mechanisms for affecting practice might not be immediately observable, but that does not mean they are unknowable (Grenfell and James, 1998). From a critical realist philosophy, these 'invisible' mechanisms can be theorized and made 'visible', data about them produced and analysed, to test the theory underlying an online CPD intervention to generate useful evidence of impact.

Consequently, applying Bourdieu's theory *of* practice as the framework for this thesis challenges conventional assumptions that research is something neutral or objective done by a researcher who 'stands outside' rather than 'in the thick of' praxis.

Bourdieu (2004) further argues that the binary between quantitative and qualitative paradigms is itself false, and obscures the need to address the fundamentally contentious relationship of the researcher and the research object to their disciplinary and institutional fields in the quest for objectivity while conditioned by the necessity for scientific reasoning.

This thesis takes a critical realist philosophical perspective to understand the phenomenon of Reflexive Networking for the design, delivery and evaluation of the impact of an online CPD programme on improving practice and patient care. In this light, the research methodology needs to be appropriate for gathering, constructing and analysing data to answer the research question within this study's theoretical framework. Thus, in this chapter, I explain how I approached the research to answer the broad question, "What is the impact

of Reflexive Networking on improving practice and patient care?" Furthermore I show how a refined question emerged as I engaged theoretically and empirically with the object of inquiry in the contingency of emerging educational practices in the messy real world.

Prior to showing how I engage in conceptual and methodological alignment between research, educational interventions, and impact evaluation as social practices, let me first explain to the reader how I situate my study to disrupt the dominant positivist RCT approach in medical and healthcare research to justify my reflexive research approach.

4.1 Disrupting the dominant positivist approach of the randomized control trial

In reading across the existing research approaches in medical and healthcare CPD in the light of theoretical discussions on research methodologies in education and e-learning, I developed three critical insights into the dangers of going down the positivist path of the RCT to evaluating impact, which I have alluded to in the last chapter.

Firstly, producing knowledge claims from RCTs derived from medical models but applied crudely to evaluate the impact of complex educational interventions without sociological contextualisation can lead to a misrecognition of pedagogic and curriculum practice (Krupat, 2010). Thus, the statistical emphasis of RCTs can also result in epistemological and methodological reductionism in educational research on programme effectiveness by reducing complex problems of online teaching and learning to laboratory experiments, thereby hampering the potential for critical understandings of impact to affect policy decision-making (Usher 1996; Pawson and Tilly 1997; Pawson, 2006; St Pierre, 2006; Luke, 2003).

Secondly, market, institutional and policy fields that regulate funding and direct research priorities today mediate the role and value of educational researchers. Critical thinkers in education today argue that dominant neoliberal interests in the 'impact evaluation' agenda "have created an environment where educational research risks becoming a kind of in-house product development and market research activity, with spin off consultancy and textbook endorsement fees." (Luke, 2004, p. 94). Thus, the pressure to perform more RCTs in an evaluation-centric culture without recognizing their powerful unintended ideological functions and psychological reductionism (Luke, 2004) is a significant risk to the autonomy of educational researchers

and practitioners in healthcare who are invested in a critical emancipatory social struggle and political project ((Bourdieu, 1998; Apple, 2000) to improve the evidence-base on what kinds of online CPD can improve impact on which practice and which patient care outcomes.

Thirdly, in designing my research, I am also aware of divergent perceptions on the use and value of 'scientific evidence-based' educational research to improve educational practice in general, and in healthcare CPD specifically (Davies, 1999; Hargreaves, 1997, 1999, 2001; Cook, 2009; Krupat, 2010). I am aware too of the methodological issues of designing autonomous and critical research when working across conflicting disciplinary epistemic cultures and discursive practices about what is research, how to do research, and how to 'use' research (Cohen, et al. 2007; Wacquant, 1989).

Thus, I am acutely conscious of the ethical and practical responsibilities I face in confronting these challenges to produce critical research findings about impact that are rigorous, valid and useful for evidence-informed policy and practice. Equally, I am strategically reflexive of my epistemic assumptions and practical limitations in designing and researching online CPD.

The focus of this research is on the impact of Reflexive Networking within an online context that straddles university-industry fields of practice, and how e-learning innovations are designed, developed and used by a network of healthcare professionals. Hence, I argue that these activities are reflexively related: the cause and effect of human endeavour as well as of digitally mediated social practices to facilitate collaboration. In the context of this research, online interactions represented more than 95% of the interactions I had and the relationships I nurtured and sustained. The development of a reflexive network to implement an innovation represents an extremely complex and multi-layered social practice subject to numerous influences. These include the interplay between objective policy frameworks and strategic priorities, as well as subjective norms, values, attitudes, perceptions, feelings and behaviours, that many positivist proponents would reject as being irrelevant.

Consequently, since this study focused on evaluating the impact of Reflexive Networking, that is if, how and why participation in an online CPD programme supported participants improve practice and patient care, an interpretive methodological approach was needed. Such an approach would allow a strategic reflexive consideration of layered and complex practices,

and the stakeholders that populate and invest in the phenomena under investigation. It would also accept that while I am unable to penetrate the fullness of any experience of others, I could strive to synthesise an experience according to a theoretical framework that did not divorce human thought and action from the social context of their production. Thus it was decided that an essentially interpretative paradigm would be most appropriate.

4.2 Rationale for adopting a Bourdieu interpretive paradigm

As explained in Chapter 3, the assumption underpinning a Bourdieu interpretive paradigm is the ontological position that social reality is created through the relationships of humans positioned in social structures, or through the interaction of the field and habitus with capitals. In the context of this study, these relations are perceived through actions, discourses and events produced through practitioners' valuations of products and interactions in a particular educational site they traversed – the virtual classroom. These perceptions of value are influenced by the social fields of healthcare in which they are already positioned prior to their participation in a new online field of practice that they are enacting. This interpretation does not assume any absolute truth, but desires truthfulness, about 'impact'. Because social life is not static but a continual state of being, pragmatically objectifying the mechanisms of the change process is best done by showing how the configurations of capital – the social relationships – resulted in the activities that shifted the ways of thinking and acting that constitute healthcare professionals' capacity for agency to change practices.

Thus, a compelling justification for adopting a Bourdieu interpretive approach to evaluating the impact of online CPD is to break free of the causal orthodoxies of either quantifying or qualifying the nature of 'learning outcomes' so as to interpret change as a dynamic process. This interpretation overcomes the utilitarian and simplistic before/after causality of 'behaviour change' implied by RCTs into online CPD that hide more than they reveal about a complex phenomenon. This interpretation is relevant to rethinking the design of online pedagogical models for online CPD that straddle multiple sites, so as to understand the strategies necessary for producing change incrementally and ethically when aiming to improve other people's practices.

4.3 Generating knowledge about the change process

As explained by Grenfell & James (1998, p.162), the main benefit of a Bourdieu interpretive research frame is that the dialectical ontology of practice implies a relational understanding of learning and change, based on the epistemological assumptions of the researcher in relation to their social position in the academic field.

Since relations are produced socially in social fields, the researcher is not privileged with ‘’value-free’, neutral, freestanding objectivity (Grenfell & James, 1998, p.176). Rather, to understand an educational phenomenon implies understanding the relations between ‘the researcher and the actions they undertake in conducting research and presenting its “findings” ’ (Grenfell & James, 1998, p.176). This implies not only understanding the micro-contexts of the lived experience from the point of view of the subjects who live in it, but also relating these to the macro-contexts in which individuals are “positioned in fields which structure the representation of their products.” (Grenfell & James, 1998, p.176) Because reality is contested and interpretations of the truth are never objective but emanate out of the necessary conditions for scientific reasoning about the forms of knowledge in social fields (Bourdieu, 1973), addressing this challenge involves a researchers’ epistemological commitment to reflexivity.

Researcher reflexivity

This research is informed by principles of Bourdieusian research (Bourdieu, 1998; 2004; Bourdieu & Wacquant, 1992) that strives to create a ‘reflexive social sciences’ (Grenfell & James, 1998, p.126), insofar as I began in the last three chapters having openly declared and exposed my ‘social relationship to the object of study’ (Grenfell & James, 1998, p.126).

Bourdieusian researchers undertake an ‘act of *reflexion’* (Grenfell & James, 1998, p. 126); emphasise ‘a positioning of oneself in relation to fields…so as to reveal as much as possible of the nature and sources and maintenance of one’s *interest’* (Grenfell & James, 1998, p.126); and engage in positioning work to take ‘strategic actions’ (Grenfell & James, 1998, p. 133); to ‘negotiate access’ (Grenfell & James, 1998, p.130) to a research site and participants, and to ‘maximize the success’ (Grenfell & James, 1998, p.130) of research. Critically reflexive researchers and educators also ‘think about the impact of their own actions in creating reality and knowledge, that is thinking in realities’ (Cunliff, 2004, p.470).

In this study, I consciously construct a research practice that is coherent with the strategic reflexive conceptual framework I developed in the last chapter. Recognizing the limits of full-scale Bourdieusian sociological reflexivity given my social positioning as a junior researcher straddling the education, medical and healthcare fields, I do not abstract my academic practices from the social contexts of their production in aiming for 'reflexive objectivity' (Bourdieu & Wacquant, 1992; Bourdieu, 2000). Instead, I adopt Bourdieu's recommendation of 'pragmatic objectivity' to practically and realistically mediate the contradictions I face as a collaborative interpretive researcher and implementer – between the pressing day-to-day needs of educators from industry seeking to solve the immediate problems of online teaching and learning to improve online CPD delivery, and the broader long-term ethical desire and strategic intention to improve the practices and mindsets of funders, policymakers and practitioners towards equity (Rogers, 2003; Carr, 1987).

It is the potential of strategic reflexivity to develop pragmatic objectivity about Reflexive Networking for delivering online CPD, to understand the relationship between issues of research methodologies, programming strategy, change processes and impact on practice and patient care with the notions of structure/agency through analysing capitals - the social relationships - at play that I highlight in this project.

Hence, for my study being reflexive implied I use Bourdieu's conceptual tools in order to overcome the 'fundamental limitations' (Grenfell & James, 1998, p.133) of dominant positivist and post-positivist research practices, as well as behaviouralist and social constructivist pedagogic practices, namely the challenge of objectifying the complex dynamism of practices within the limitations of academic ways of knowing and representing 'practice', something which is essentially fluid, dynamic, ambiguous, and unconscious. I recognize that I do not enter the field with a blank mind, but am influenced by my habitus and my trajectory as an educational researcher and practitioner. My ethical stance is also contingent on my lived experiences as a patient and community activist/educator living with a chronic illness, who has a stake in improving equitable access to healthcare for all, especially the most marginalised and stigmatised populations (see my other strand of research, Singh & Walsh, 2012). I leverage my agency as a social actor and observer in a high-stakes game and marketplace of online education in healthcare to negotiate access and opportunistically involve stakeholders in

designing a unique research and practice online field to study how to improve impact (Luke, 2004; Grenfell & James, 2004; Bourdieu, 2000).

Overall, my approach to writing reflexively from within my experience of being and becoming reflexive is geared to constructing productive educational research and pedagogic practices. I critically see and analyse the contexts, mechanisms and impact of online CPD interventions with a sociological perspective. I express my research and pedagogical interests clearly for others interested in tackling the common problem of how to improve impact while strategically mediating and integrating the evidence base from the interdisciplinary fields of online education and healthcare CPD in designing my study (Grenfell & James, 2004). Throughout this thesis, I have heeded the call for researcher reflexivity, yet implicated my self as what is conventionally euphemised as an 'agent of change' as a vital 'variable' of the research process, not a passive spectator. Navigating this paradox, I have used this research experience with a reflexive network as a way of critically re-thinking my own practices, values and beliefs about online teaching and learning as a CPD educator. This study thus has two effects produced by methodological reflexivity: on the one hand, I design and interpret the research object in relation to the social fields that produce the work as I participate in and shape a new online field. On the other, I use this analysis to rethink the practices I produce with others as an online CPD educator. In Bourdieu's terms, it is an attempt by the researcher who has a 'feel for the game' to transform the game/field of action from inside it (Bourdieu, 1977, 1988,1992).

4.4 The methodological implications of reflexivity within a Bourdieu interpretive paradigm

The above Bourdieu 'third way' ontological and epistemological assumptions inform the way in which an interpretive researcher can research an intervention while doing an intervention. Thus, based on these assumptions, my study can be methodologically characterised as:

- A reflexive construction of the object of inquiry,
- A reflexive approach to data production, and
- A reflexive approach to data analysis and presentation

This is a research strategy that is hermeneutical and dialectical in nature, in that the conventional hermeneutical techniques, i.e. interpretations, are

constantly present and used in the interaction between the participants, the data, and myself, where these constructions were compared and contrasted through a dialectical interchange with the theory on paper and the lived experience of Reflexive Networking. This meant that the individuals' perceptions could only be elicited and refined through interaction between and among the participants and myself, through exposing to them my perceptions, using methods that could lead to a 'critical realist construction' of their social lives.

Reflexivity also implies that the methodology would have to allow for a different way of acting and thinking when 'doing' research. In order to illuminate the 'true' perceptions of the participants, I needed to break free of the researcher being simply constructed as either a neutral experimenter or a participant observer. Bourdieu argues against the illusion of participant observation in interpretive research that can fail to objectify the researcher in trying to demonstrate what is so unique about a particular site (Grenfell & James, 1998, p.174). Instead, objectifying the findings of research requires understanding social practices as an 'amalgam of practical problems, which have to be addressed by individuals within a scientific community.' (Grenfell & James, 1998, p.177) In this light, the intention to objectify by trying to change something and then see what happened and how people reacted was necessary to construct a rigorous research practice. Thus, the methodology would need to encapsulate an intervention in a real-world context to refine the theory of reflexive networking.

If, as Grenfell & James point out, the individual researcher is important as a practical problem solver, it is ironic that most health care CPD research tends to elide the researcher in the name of objectivity. Bourdieu however argues that this is the orthodox scholastic fallacy 'produced in the academic space' (1998, p.127) researchers must be aware of. I therefore declare a paradox as someone who is both researcher and educator: it is impossible, inappropriate and unethical to extrapolate oneself and one's feelings from one's research into others' practices. I am a participant, an observer, have an intention to change practice, and my agency is both enlarged and constrained by the network I foster. In striving to tell the truth, production of this thesis is linked to the production of change in and through the network.

Hence, the methodology would need to allow for an open-ended approach to put my intentions into informed action, which positions the researcher as

'doing things in order to 'find out' (Grenfell & James, 1998, p.176) as well as to disrupt the limits of the game. Given the dynamic processes across fields I was constantly mediating in this study, I needed to be able to change direction, take a developmental view, and accept the possibility of using a variety of data sources given my time and resource constraints. Thus, in the online field, my perception of the field situation at that specific point in time, shaped by both my habitus and the relations with the participants, resulted in constant readjustment and refinement of the research procedures as I proceeded through my data production.

This dynamism also required a methodology to produce a study that is grounded in practical reasoning (Bourdieu, 1998) as opposed to a theoretical one. As the data production process progressed, categories emerged from the participants that provided rich context-based information leading to understanding of time and site-specific actions and events that helped me objectify the social relationships to understand the phenomena of Reflexive Networking. That is, the reasoning process to understand the impact of an intervention requires creatively blending both inductive reasoning (inside-out) from the specific data to theorizing, as well as deductive reasoning (outside-in) from this study's conceptual framework and overall Bourdieu interpretive framework to the specific empirical data. Given the word limit and time constraints, this blend results in a practical reasoning.

Furthermore, reflexivity implies the need for a methodology that would allow for a study that is mixed-method in focus. In my online fieldwork, I would need the flexibility to use a variety of methods and not be bound by an either/or paradigm choice. The methodology would enable the use of mixed-methods to use the findings of one method to inform other methods so as to enhance and clarify fundamentally dynamic social processes. Thus, only a reflexive approach to mixing the methods would ensure that the conclusions of the research guard against an 'overly constructed interpretation' of the findings, (Grenfell & James, 1998, p.176), but one that is analytically generalisable, and avoids introspective subjectivist accounts of researcher reflexivity such as those found in qualitative interpretations.

Table 4.1 below summarises these methodological considerations implied by reflexivity within a Bourdieu view.

Table 4.1 Link between methodological procedures and concepts implicated

Procedure	Concept Implicated
• Reflexive point of view	• Understand learning and the individuals' perceptions of experience in relation to social structure and agency
• Hermeneutical & dialectical approach	• Methods that would lead to critical realist constructions of change process
• Open-ended	• Flexibility and constant readjustment of research procedures
• Reflexive reasoning	• Objectify rich context based on information inductively & deductively
• Mixed-method approach	• Enhance and clarify, use one to inform the others

My intention is thus to come up with knowledge from research that is truthful to the lived experience of participants, useful to policymakers and practitioners, could be applied elsewhere, and could contribute to advancing the science of online CPD in healthcare and other fields (Cook et al., 2008). For these reasons a 'sociological eye' (Bourdieu, in Bourdieu & Wacquant, 1992, p.251), and a reflexive inquiry approach are suitable for the unique nature and specific interdisciplinary structural location of the research problem, which I reformulated from my strategic reflexive standpoint in social space as:

"What is the impact of the Reflexive Networking educational approach to online healthcare CPD on improving practice and patient care?"

My project is thus limited to one online 'strategic research site' (Bourdieu, citing Merton, in Wacquant, 1989, p.48) and my self as researcher during the 4 years of this study. Having established the Bourdieusian overarching framework and a pragmatic approach to practicing Bourdieu's theory of practice as an interpretive methodology, I next show how I chose the

research approach, prior to outlining the data production and analytic methods to evaluate impact in the next chapter.

4.5 Narrative implication of researcher reflexivity

If the Bourdieusian epistemology of practices, and his call for researcher reflexivity, has implications for the methodological approach of this study, that attempts to act to solve a problem and explain how and why change happens, it is important to address how the narrative of this thesis – the proverbial 'write up' – is presented for the reader.

In addition to Bourdieu, some of history's greatest thinkers such as Plato, and Carl Jung, have used humour to engage, entertain and educate readers and learners, in the original Latin sense of *educare.* That is, education is a relationship that leads out, of ourselves, by making each other aware of our humanity. If then, as Comber and Kamler stress, 'research is writing,' (2010, p.149), I argue that research writing that is empowering enables writers to reveal themselves, and enables readers to be 'O.K' with what they read.

Unfortunately, looking at most research published these days in educational journals, it is apparent that too much of it has become reduced to 'painting by numbers' or merely 'following the formula'. Let's face it: when it comes to poring through the deluge of research articles and abstracts, we are falling asleep.

This is because of the false distinction created between 'good' research and 'right' research. If philosophy is the search for the right way to live, the right research seeks a way to improve the *methods* by which we - and those we serve - live. The right writing of research, then is not the one judged based on *a priori* assumptions of what is expected of a thesis if it is to qualify as 'good research' that deserves consecration by the academy. It is the one that reveals the search, a learned pursuit, for the right way to live methods.

At a time when burning problems of high cost and low impact of online education appear nowhere near to being solved, what is needed for inspiration is to keep each other engaged during reading and writing, just as we keep each other engaged during teaching and learning, research and practice. Otherwise, education and research become separate countries speaking different languages, worlds apart, and not talking together.

Operating at both the critical and realistic levels, I argue that this thesis only makes sense if it is accessible not just to research specialists, but also to

healthcare professionals, educators, managers and even patients. The latter, usually lumped together under the term ‘the ILM’, or the informed layman, are alienated when research is merely written up according to a template sanctioned by the experts.

To reach out and inspire, I enhanced the way I write and tell my story. Rather than simply applying a method blindly because one must do things the way they have always been done, my research attempts to engage a wider audience. The way I have chosen for living my aim is to enhance engagement through writing this thesis with a tone of irony. In terms of style, I show this by beginning each chapter with a call out box comprising anecdotes from a variety of fiction sources, including my own invention. Next, I use a framing device of an ILM, who poses a question at the beginning of each chapter, and provides a pithy commentary at the end of each.

I call this speaking my truth in two voices, my ‘subversive’ voice, and a ‘scientific’ voice. The two will unfold more or less in this thesis.

Writing as if this is an experimental study, an evaluation, a case study, and an applied research design simultaneously, my intention with this ironic style is to take a playful attitude to one of the greatest unconscious barriers to changing practice faced by my generation of scholars from non-Western countries: the consecration we crave from the elders of our disciplines who have the power to induct us into their hallowed ivory towers.

But who is going to tell the story of the activist critical educators, those marginalized and silenced for daring to do things differently, while conforming to ethical standards and university guidelines? Those who use intuition and instinct in equal measure to break from entrenched silos of narrow-minded academic cliques and the existing limits of the game to carve out a different way of solving an old-age problem? Or should it be those who play it by the book, suck up, and hide who they are for the sake of getting ahead?

The story of activist educators, as researchers of their own work to improve the work of others, needs telling in fresh and exciting narratives. We are in need of a new myth, heroes, adventures, and challenges to inspire the digital generation.

Otherwise, educational research runs the risk of being colonized when what it has to do is to decolonize, both in style and substance. And the danger of

colonization is that educators at the margins will lose the passion and joy of the reading and writing of education as a dynamic cultural form that can provoke readers and audiences to change and action.

A slew of films and books about education that have inspired rather than intervened show what is lacking in the thesis genre: *The Prime of Miss Jean Brodie, The Corn is Green, The Browning Version, Dead Poet's Society*, and *The History Boys, to* name but a few. These popular cultural works about educational scenarios show what education is really about, before it became standardized into dehumanized modules that treat us the users as children who need to be corralled rather than engaged. These forms need to be revived and taken forward critically to bring back the philosophical action of educators into the front and centre of praxis, actions which have been crushed in the naïve rush to standardize research by acting out a mere theory of action devoid of a philosophy. Their personality, their style, their creativity, experience and their dispositions are vital to narrating the research as well as living it out. Why ignore these essential aspects of enhancing reflexivity and valuing what one is and is becoming through the animating forces of change when doing a PhD?

Weaving narrative strands with technical writing, shows my reflexivity at the 'fiction' level operating in producing this work at the 'critical' and 'realistic' level, and makes you active readers of the fabric we are weaving together. I speak to you directly because I respect you (just) enough to give you agency in my thesis.

My prior experiences dealing with policymakers and funders, organizational leaders, healthcare professionals and their managers and educators, shows me that everything human is hidden from the light in the dry policy and practice discourses, technical reports, articles, speeches, and tomes, produced from research. I kept asking myself, why hide everything that matters when dealing with human beings - everything that is real, the stuff of what is done and said, the heat and the lust, the anxiety and the nerves of how the social game is played - to make change happen?

So to reveal my struggle through an narrative method which adds a touch of irony is my graceful homage to my fellow travellers on this learning journey, inviting participants to step up and step into the space for contestation I have carved out, as research 'subjects', or readers and examiners, and reveal yourselves. Playing an active role far better conveys the spirit and the experience of researcher reflexivity, ensuring it is more than just a word.

How could you verify how reflexive I am, if I did not confess and reveal it, challenging you to interact through the teasing juxtaposition of the sacred and profane, that is, the popular and the academic?

And yet, I still remain vulnerable and forceful, humble and proud at the same time, fearless and anxious, as I try and keep balanced on the tightrope, to ride the wave between those above me, and those below me, in heavily structured and contested social and disciplinary fields.

Being alienated from both the ivory tower and the frontline of healthcare practice, not belonging to either a specific class or group of professionals, or disciplinary experts, I attempt to keep an ironic Socratic inquiring mind, while grasping the intention of doing something to change the status quo.

I argue that a narrative method which adds a touch of irony improves the impact of my study. I do not simply sit on the sidelines and philosophize, but enact my study and write about it through many drafts over 4 years in order to find my unique voice, and be the practitioner-researcher only I can feel, know and be.

Consequently, my use of a touch of irony aims to inspire healthcare professionals, educators, and other readers of this thesis to reach out and have faith in their inner guiding spirits to ward off the dangers of collapsing into technicism. In a world of closed doors and locked gates that deny access to critical and realistic ways of operating at two levels in ‘reality’, it is time to bring back hope, and the wider possibility of human actions, than the bias of theory and paradigms has allowed for in the last century.

An ironic narrative as a response to researcher reflexivity is a new kind of strategic work, to educate, entertain, and get people to think. The need to keep the ILMs, with their vested interests and axes to grind, interested in what is happening and what is coming up next – ‘hooked’ – is paramount in research and knowledge as symbolic cultural production. I argue that to improve impact, practitioner-researchers have an ethical duty to take a progressive optimistic and courageous position in a social space so as to engage in the struggle to produce and spread knowledge, and to stop perpetuating the doxa of ‘how to write a PhD thesis’ unconsciously when we write and approach research writing.

In fact, the arts are increasingly playing a central role in medicine and healthcare in 2014. The Bill Gates Foundation, for example, has launched a Global Health Film competition. The RCGP now has an Artist in Residence

programme, where an exhibition about *The Birth of Wellbeing* shows artworks developed in consultation with residents of a London town about their perceptions of health in clinics and the community. These encouraging moves suggests that the healthcare sector is recognising the value of incorporating multi-modal digital design into learning and health programmes, and not simply for campaigning to spread behaviour change messages. As a researcher and practitioner who has also engaged in art production – 2 of my plays have been produced on stage, I have published short stories and poems, I have worked in advertising and communications – I am emboldened by these moves.

In summary, an ironic narrative widens understanding and creates more informed laymen - *m*ILM. Irony is in service of the philosophical spirit of research as writing, inquiry as a form of applied philosophy that is aware of its social fields and the social elements and finds original openings for change wider than those in the existing culture. For what is at stake in the quest for a just world, if we are truly honest with ourselves, is not saving the dignity of science but the dignity of human beings.

4.6 Selecting a research approach

My quest for an effective research approach for understanding the phenomena of Reflexive Networking in a real world context of delivering and evaluating an online healthcare CPD programme was urgently driven by my understanding that the research community was looking for evidence of not only if an intervention worked, but how and why it worked (Cook, 2009). Yet the conduct of research practice for the production of 'how and why' explanatory evidence "has a sociopolitical as well as an epistemological dimension" (Clegg, 2005: p.418). Thinking of the problem of researching the impact of an online CPD intervention critically and social scientifically therefore, my concern was that the present dominant experimental methodological approach of RCTs in the 'hierarchy of evidence' (White, 1997) was not valuable to educators looking for evidence of how and why online pedagogical models improved impact on practice and patient care.

While systematic reviews and RCTs into e-learning in healthcare were useful in some ways (Cook et al. 2008), they did not reveal the underlying theory of change at work, the actions and mechanisms by which change was produced, nor the ways in which the social practices of educational research

in healthcare CPD contexts impacted on the construction and outcomes of programmatic interventions to improve practice and patient care.

Similarly, while action research has been touted as a fruitful approach for educational research and implementation of interventions to change practice in healthcare (Meyer, et al., 2006), it was clear from a recent review that most action research in healthcare has failed to live up to its promise of "producing transformative change by the generation of theory that questions underlying assumptions about education." (Sandars et al., 2012, p. 2). Furthermore, successful action research requires researchers to be located inside organizations over a period of time to build trust for critical reflection, and this was not possible during a small-scale university-based online study.

While the recent warm reception given to realistic evaluation in healthcare CPD research, including e-learning in medical education, is welcomed (Wong, et al., 2012; Roberts, 2012), I argue that its' contribution could be greatly enhanced by *not* taking social structure and agency for granted. Although Wong et al. acknowledge the need to think reflexively about findings from realistic evaluation, I was concerned that the need to do research on 'effectiveness' for influencing policy and practice could fail to fully recognise and acknowledge the variety of reflexivities at work in producing changes. A single interpretation bias could be potentially dangerous. It would obscure issues of perception, cognition, judgement, subjectivities, discourses, culture, power, and interests at work in developing normative evidence based medicine, and reproduce rather than change medical educational policy and practice to the detriment of learners and patients (Bourdieu & Passeron, 1997; Tilburt, 2007; Reeve, et al., 2011). Hence it was important methodologically to conduct a critical realistic evaluation that took into account how an intervention strategically integrated the added value of the reflexivity of learners and educators to improve impact.

I was also aware that things were changing in the contested field of educational research in healthcare. Calls had been made in editorials to recognise the limits of systematicity (Eva, 2008), to integrate understanding with proof in the messy reality by which change happens, and for 'Research that is Conceptual and Thoughtful' (Krupat, 2010, p.852).

These calls indicated that some in the medical and healthcare educational research communities were dissatisfied with descriptive evaluation studies, and were encouraging theoretically driven conceptual research designs to

improve impact (Cook et al. 2008; Krupat 2010). Such questions necessarily challenge the assumptions of neutrality, objectivity and 'disinterested interests' behind dominant research approaches such as the RCT (Sanson-Fisher, et al., 2007; Bourdieu, 2004). They implicate educational researchers and our research practices in the critical realistic evaluation of impact with the design and research of practical online CPD interventions. They are the catalyst behind my selection of an appropriate research approach, one that unites method, action, and intention.

Given the concerns I have elaborated above, I was on the horns of a dilemma as a researcher. While RCTs yielded limited insights, they were the preferred and dominant approach. While critical sociological theoretical insights about and from practice were needed to understand and change practice, academic researchers had to work with industry partners looking for practical solutions, take 'user-centric' impact evaluation as a 'necessary evil', and resist epistemological agnosticism about 'learning', 'behaviour' and 'practice' when evaluating technology-based online pedagogic innovations (McPherson & Nunes, 2004; Nunes & McPherson, 2002).

Thus, using Bourdieu's theory of practice, I refined the research problem I introduced in Chapter 1. Specifically, my research strategy became to understand the phenomenon of Reflexive Networking by evaluating an intervention about an online CPD programme in a real-world context. This approach would allow me to gather data from a variety of perspectives to interpret and understand the extent to which a specific network of practitioners perceived that the change process enacted supported them improve impact on practice and patient care. Consequently, after exploring the alternative research designs for educational interventions, I selected an exploratory case study approach as the most appropriate framework for my focused research problem.

4.7 An exploratory case study

A case study is "an empirical inquiry that evaluates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident." (Yin, 2009, p. 13) Grenfell and James argue that:

> "…case studies offer an excellent opportunity to research in a Bourdieuian way. Case studies of individuals indicate particular habitus constituents and life trajectories. Individuals are also always

> positioned in some field or other at any one time and place. There is then the possibility of researching the interaction between the field and the habitus in empirical terms." (1998, p.173)

Qualitative case studies have made significant contributions to understanding a variety of professional and workplace learning in a variety of healthcare settings, including online CPD. These studies have focused on how educational and professional development, such as introducing clinical guidelines and facilitating online collaborative learning, have produced a range of different impacts on improving practice and patient care (Gabbay and LeMay, 2004; Sandars et al., 2007). These case studies have highlighted sociocultural and political concerns, professionals' agency and involvement in changing practices, as well as the social construction of knowing in practice. Case studies in healthcare CPD allow researchers to explore what happens when interventions are introduced in relation to their dynamic and overlapping social contexts as people go about and react to an intervention in practice. This present case study is situated firmly in this prior history of qualitative case studies into healthcare CPD and builds upon them to stretch research design further.

Case studies are useful because they allow for a range of methods of inquiry to be used to respond to the concerns for evaluation, as well as producing critical knowledge in, from and about the dynamic and evolving contexts of online education interventions. Researchers can direct the flow of events according to a theory being explored and refined, and they have access to the wide range of different daily routines and issues that emerge as an intervention is implemented in practice to produce change.

However, qualitative or interpretive case studies can assume rational rather than reflexive actors in practice. Yet from a Bourdieu dialectical understanding of social structure and agency, the ontology – the nature of being – is neither objective nor subjective, but deep and complicit. In addition, as I have explained in Chapter 3, Bourdieu's theory of practice emphasises that practice is not something static, but a "recurrent, materially bounded and situated action engaged in by members of a community" (Orlikowski 2002, p.256). Through practice, reflexive agents engage in producing, reproducing, or transforming structures that, in turn, enable and constrain their actions (Bourdieu 1977; Giddens 1984). In relation to online CPD to improve practice, this perspective emphasizes knowing as "an ongoing social accomplishment, constituted and reconstituted in everyday

practice" (Orlikowski 2002, p.252). The ontological assumption of reflexive actors thus enables an exploratory case study a more critical investigation on the complex relations and interactions that can generate change in open social systems to improve practice and patient care with Reflexive Networking than possible in qualitative case studies that do not go beneath the surface of online teaching and learning and assume online CPD or e-learning take place in a social vacuum devoid of social structure. This implies case studies within a Bourdieuisian interpretation require methods that allow researchers to "explore possibilities intuitively and work on provisional hypotheses" (Grenfell & James, 1998, pp.174-5) with participants.

Unfortunately, it is inevitable that given how the Bourdieu legacy has been applied as well as debunked by theoreticians, philosophers and practitioners working in the Anglo-Saxon tradition since the 1980s, my study and my research design risk being caught in a vice grip: between the Bourdieu skeptics and the Bourdieu fundamentalists. I am not, therefore, aiming at Bourdieusian orthodoxy. He himself would surely laugh and argue there is no such thing. He encourages 'play' with method, to bring a ludic sensibility to the 'scholastic' delusion by which academics set themselves up as 'serious' grafters (Bourdieu, 2000).

He has, in further arguing that "professors are perhaps the main obstacles to the progress of scientific knowledge in the social sciences" (Bourdieu & Wacquant 1992, p.181) provided a warning of the dangers of thinking academically in trying to change the behaviours of people influenced by another logic of practice than that of academic research practices. Yet, professors of medical and healthcare professional education have insisted on thinking, researching and writing academically about the dynamism and complexity of practice. As a result, the problem of changing other people's practice has been rendered theoretical – and dehumanised.

Thus, Bourdieu's work does not seem to have been applied as action in life.As he explained many times, (1989, 1990, 2004), he provides a theory of practice to use and not a model of practice to merely explain. Before the theory and practice comes the critical realist philosophy. Together, these stances provide a tool-chest to 'think in these terms' (Bourdieu,1989, p. 50) and act across boundaries, that I have found helpful in the real-world, for researchers and most importantly, for those struggling with the problem of

online CPD design at the frontline, practitioners. Hence, my decision to seize on Bourdieu's call to 'get our hands dirty' (1989, p.50) and re-boot – not merely apply – the theory of practice to break free of the vice-grip. As he writes:

> "There is no risk of overestimating difficulty and dangers when it comes to thinking the social world. The force of the preconstructed resides in the fact that, being inscribed both in things and in minds, it presents itself under the cloak of the self-evident which goes unnoticed because it is by definition taken for granted. Rupture is in fact demands a *conversion of one's gaze* and one can say of the teaching of sociology that it must first 'give new eyes' as initiatory philosophers sometimes phrased it. The task is to produce, if not a 'new person', then at least a new gaze…and this cannot be done without a genuine conversion, a *metanoia*, a mental revolution, a transformation of one's whole vision of the social world. (Bourdieu & Wacquant, 1992: 251, emphasis in original)

4.8 Constructing principled research practice

Previous research into e-learning and online CPD in healthcare had revealed how useful case studies could be for the design, delivery and evaluation of interventions (Moule, 2006; Sandars, et al. 2007). However, I was concerned that qualitative case studies could end up being rich in description and low in theoretical purchase. In my previous work in developing an e-mentoring approach to online CPD for example (Singh, 2011), I had been concerned that my desire to evaluate and demonstrate impact had meant I could not generalize my findings. I had used both quantitative and qualitative methods, but I was not sure how to extend my analysis to evaluate the extent to which participants perceived they were benefitting from online CPD programmes. I am also aware of how easy it is for case studies by novice researchers to generate weak claims rather than contribute to valid theory building about what the change process 'truly' is. Even researchers who conduct RCTs, impact evaluations and action research rarely present a rigorous analysis of a complex picture that objectifies *if, how and why online CPD improves practice and patient care*. Now that I have conceptualized Reflexive Networking as a theory of change,

I use an exploratory case study as a principled research practice that unifies practical implementation, delivery and evaluation of an online CPD programme with critical understanding of its impact with the intention to:

- develop a theoretically-grounded interpretive understanding of the change process of Reflexive Networking,
- deal with the methodological and ethical challenges which arise from rethinking case studies reflexively as dynamic and complex processes, rather than static, uni-level interventions to change healthcare professionals' behaviour and practices, and
- develop a strategic approach to the choice of methods, and the validity claims behind them, within a tight time frame and word limit.

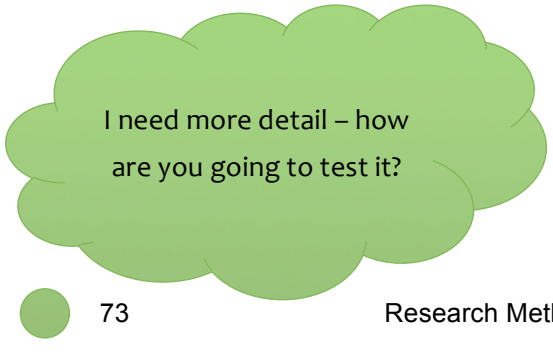
Based on these principles, in this study, I employ case study methods in design, scope and data production. I construct the case study in 3 phases situated dynamically in real-time to strategically manage and leverage the messy emergent 'networked reflexivity' – no pun intended – of an online CPD intervention to the best of my abilities:

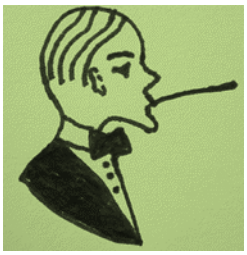
i. A broad open phase to situate Reflexive Networking as a potential approach for online CPD in an online field and select the group of healthcare professionals for the intervention;

ii. An intervention phase of Reflexive Networking for delivering an online CPD programme with a narrower field of focus on a small set of the selected group of healthcare professionals using a Web 2.0 technology, and

iii. A reflection and evaluation phase with a focus on the perceptions and experiences of the participants in Reflexive Networking as an approach for online CPD with the same small set of the selected group of healthcare professionals using the same Web 2.0 technology.

This three-phased approach to constructing the case study permits the production of a comprehensive, contextually rich and detailed corpus of data for addressing the research question from a variety of angles. Through each of these phases, I progressively analysed the data to improve my understanding of Reflexive Networking as it evolved over time. In the next chapter, I present in detail the case study site and methods.





Chapter 5: Research Site and Methods

Marilyn Monroe as the Wise Woman

Little Boy: What do they do with the gold after they find it?

Kay: They make money out of it.

Little Boy: Why do they use gold?

Kay: Because it's hard to get.

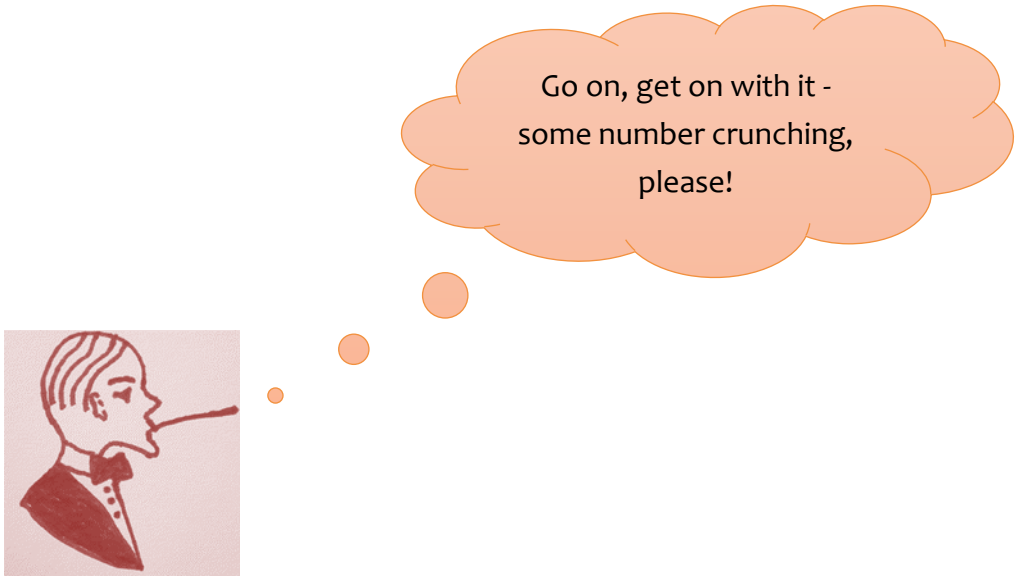
Little Boy: Why don't they use something easy to get?

Kay: Well, if something's easy to get, people don't care about it. They don't value it. If it's hard to get, then you've got something.

Little Boy: Like a mink? A mink is hard to catch.

Kay (laughs): Now you've got it. That's the idea exactly.

-Extract from *River of No Return*, 1954, 20th Century Fox, directed by Otto Preminger; Little Boy played by Tommy Retig, Kay played by Marilyn Monroe.



The 3 phases of the case study were an online survey, online observations, and online interviews (See Figure 5.1 below). Yet, this thesis is not about how perfect the study of a particular case is. With little money and even less time to undertake and investigate a multi-layered change process, I do not mean that novice researchers should take liberties with established methodologies merely for the sake of being avant-garde. In selecting the research site and methods, as well as the analytic procedures, I do, however, pay heed to Bourdieu's warning:

> " 'Methodologists', for their part, will have no difficulty finding plenty to nit-pick about in the operations that have to be carried out in order to grasp the constructed as best one can." (Bourdieu, in Bourdieu & Wacquant, 1992, 235-47)

Because of this study's interest in improving the impact of Reflexive Networking for online CPD, this chapter and the rest of the thesis concentrates on the research site, the case, the implementation, and the critical realistic evaluation of if, how and why it worked. Details of Phase 1 of the case study – the online survey to obtain a sense of potential users' perceptions and experiences of online CPD and Web 2.0 tools – are found in Appendix 2.

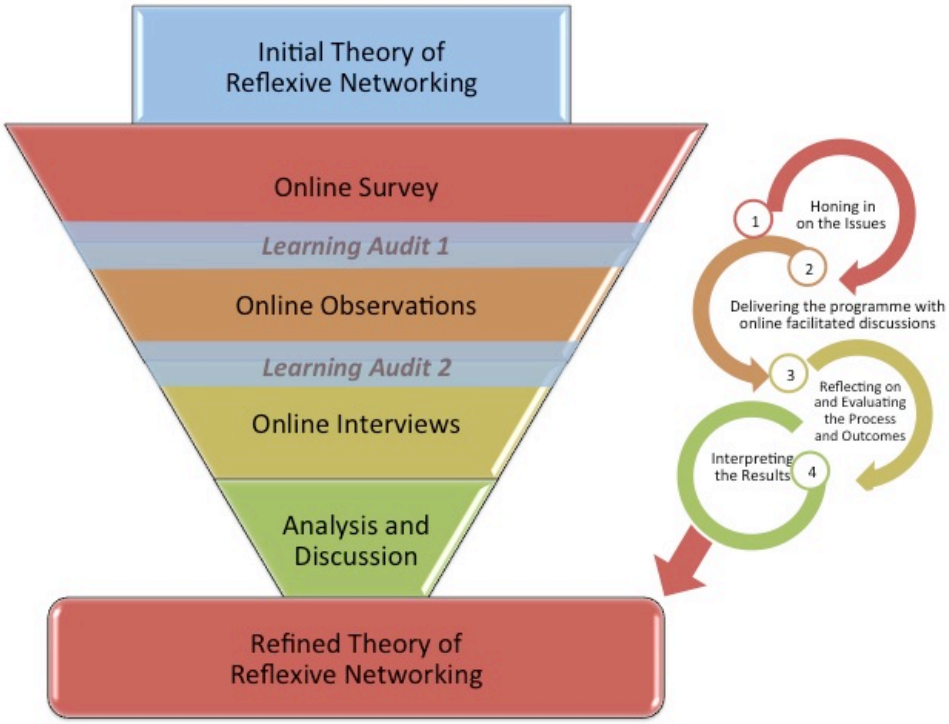


Figure 5.1 A mixed-methods research design in 3 phases for an exploratory case study on Reflexive Networking for online CPD

5.1 Site: 'i-Physician'

I first sought to identify a collaborating partner where the Reflexive Networking approach for online CPD could be implemented and tested. Theoretically, the implementation would have to straddle academic and industry fields to create an online learning field. This would provide sufficient data to evaluate impact and understand the complexities of changing practice.

There were a number of reasons why I chose to work with i-Physician as a collaborating partner.

Firstly, it is the UK's largest network of healthcare professionals independent of the public healthcare system. The network membership approach of i-Physician suited this study's interest in strategically networking stakeholders and healthcare professionals across boundaries to design and deliver effective online CPD. The Educational Director of i-Physician had approached my supervisor at the Leeds Institute of Medical Education, and was keen to try out innovations for social learning to improve the educational products and services they provided their members.

Secondly, i-Physician has an established reputation and presence in the field of online healthcare CPD. i-Physician provides eCME, a common form of online healthcare CPD programmes for British doctors. These courses are offered as a free service for its users. They also provide professionals accreditation points that can be used for their annual revalidation so as to incentivise uptake and participation. i-Physician have been running CME programmes since 2003. These courses are accredited by the RCGP in Scotland and the UKCEA in the rest of the UK. While some of these are sponsored eLearning modules, sponsors have no influence on the content.

Thirdly, i-Physician has a broad coverage of courses to cater for a diverse range of healthcare professionals' needs. Its eCME courses currently cover all medical specialties in terms of students. For formal education it has more than 225 accredited learning modules. i-Physician also provide a wide range of informal education including article pages, through to videos and podcasts. It hosts asynchronous discussion forums that provide users an opportunity to discuss clinical cases in an informal setting.

Fourthly, i-Physician has a wide reach of healthcare professionals, mainly doctors and medical students. It has 180,000 registered doctors of whom 40,000 are online in a given day and up to 54,000 in a given week. i-

Physician has around 35,000 unique doctors who access their education modules annually. These doctors are distributed in a very close match to the population distribution within the UK and are therefore felt to be representative of the whole of the population. [1]

i-Physician was thus an ideal collaborating partner for a case study.

Although i-Physician is a commercial company, its educational content is free of bias or commercial influence carrying the IA (independently authored) logo. It is on this understanding that i-Physician is accredited as a provider of education for healthcare professionals.

A Letter of Support from i-Physician confirming their participation and full support of this research is attached in Appendix 3.

5.2 The case

All case studies analyse a case in relation to their contextual conditions (Yin, 2009, p. 46) and this study is no different. Given the unique design situation I faced, I designed the exploratory case study as a single case study because "it represents the *critical* case in testing a well-formulated theory." (Yin, 2009, p. 47). In this study, the theory of reflexive networking met this condition. This case study could be used to refine the theory and assess whether the hypothesised increase in participants capacity for agency is appropriate and under what contextual conditions.

Prior to and during the years I was engaged in this study, I was following policy debates and reviewing the research literature which made claims about how best to use which kinds of technologies to support the learning of which kinds of healthcare professionals using which particular pedagogies to change behaviour and improve impact on practice and patient care. My previous work (Singh 2010, 2011) had also alerted me to the importance of identifying clearly a target group of beneficiaries who would most likely stand to gain from online CPD interventions, that would equally align with broader policy and strategic objectives in healthcare. Prior research also made me conscious of the importance of a clear understanding of the needs for, and barriers to, accessing online CPD opportunities for widely dispersed and busy healthcare professionals in designing effective approaches (Kell, 2006;

[1] All data is provided by the management of i-Physician

Sandars et al. 2007; McPherson et al. 2008). In particular, I became aware of the potential added value of online CPD approaches for supporting a specific group of underserved healthcare professionals – those who were widely dispersed across time and place.

For example, comprehensive research findings from studies conducted in Canada and Australia had shown the ways in which doctors in rural and remote settings benefited from online educational approaches. The most important need was to reduce the isolation they felt, predominantly because they worked alone (Curran et al. 2010).

In terms of benefits, online CPD for widely dispersed healthcare professionals was also a key policy priority as it supported retention and revalidation (Zollo, et al., 1999; Alexander & Fraser, 2007; Kotzee & Couper, 2006; White, et al., 2007).

Healthcare professionals who learnt through online CPD because they were located at a distance also reduced absence, as well as travelling time and costs, to attend workshops. The most important features that widely dispersed doctors, for example, seemed to want were access to peers, mentors, and experts, coupled with easy-to-use digital tools integrated into existing work patterns to share information, opinion, and advice (Curran, et al. 2010; Curran, et al., 2007; Curran, et al., 2006; Wilkinson, et al., 2003; Delaney, et al., 2002 ; Booth & Lawrance, 2001). These findings corroborated my own prior findings from my previous research in implementing online CPD to support health professionals in developing countries, particularly those working in remote and rural areas in countries across Africa and Europe, as well as places like India and Brazil, where tele-medicine and distance learning was being trialled to improve patient care (Jones, et al., 2012).

Research conducted in Scotland had also highlighted the potential of online ‘tele-education’ approaches to meet the continuing medical educational needs of rural Scottish doctors who were far away from metropolitan centres for face-to-face workshops (Swan & Godden, 2004).

I shared this background research with the i-Physician team. This prior evidence base justified our choice of the case, or the population, who could benefit from the intervention. In our negotiations, we discovered that it would be challenging to identify only rural or remote professionals because of the nature of the user profile and geographical correlations in their membership database. As such, we decided to apply the term ‘widely dispersed’ to

include not only those in rural or remote areas, but also those who practiced part-time, worked alone in an industrial setting, at different hours, or were isolated from face-to-face social networks for sharing experiences and discussing practice problems. This enabled us to cast our net wider in considering the beneficiaries of our work and generalizing our findings for wider applicability in future comparative and multi-context research.

The 7 participants were a group of female retainers who worked part-time in clinical practice, were widely dispersed though not all were isolated, with some in major British cities, and who had strong existing social bonds through face-to-face relationships and online interactions on the i-Physician asynchronous forum that they used. Some of them had also tried learning together online with a chat software (Moro), although they had not found this useful because of a lack of a facilitator, the inability to see who was typing, and the lack of a space for recording notes.

These 7 participants ranged in age from 30 to 42, and had been practising as doctors from 8 to 18 years. All of them were familiar with the main CPD approaches currently available, including postgraduate courses, workshops, study groups, reading journal articles, online modules and discussions, and studying new guidelines from NICE. They also indicated that their learning was guided by their Personal Development Plans, and had to show 50 credits a year.

5.3 Implementation of Reflexive Networking

In discussions with i-Physician staff, we reached a broad consensus that existing online CPD programmes were not having the desired impact. The manager, curriculum developer, and tutor I spoke to were interested in exploring alternative approaches to the existing dominant didactic self-study modules and asynchronous discussion boards used for e-learning in healthcare, both from commercial providers and by the public health sector, the NHS.

In our negotiations, I provided the i-Physician team with evidence from the literature review on the key factors of online CPD that were likely to improve impact on practice. These have been highlighted in Chapter 2.

To implement and evaluate the Reflexive Networking conceptual model, a linear process model was required. Figure 5.2 below shows the 3-step linear process model that was implemented.

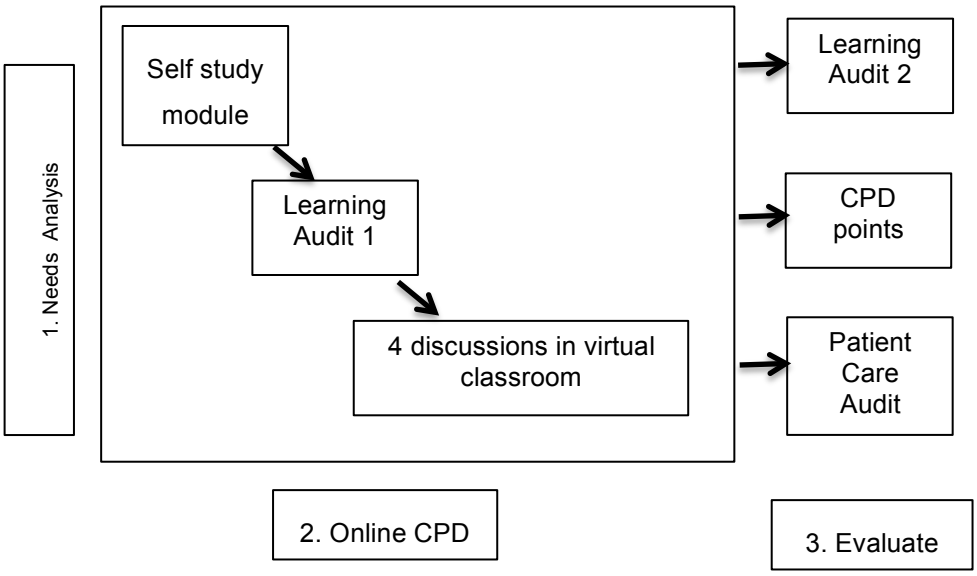


Figure 5.2. Linear Process Model of Online CPD implemented to evaluate the impact of Reflective Networking

5.4 The Web 2.0 technology – Adobe Connect

Given the cost constraints and the lack of funding for a pilot study, I recommended trying out Adobe Connect that my supervisors and I had a free license to use, courtesy of the University.

Adobe Connect supports educators to design synchronous virtual learning environments. Research on the use of Adobe Connect in medical education and healthcare CPD shows significant user acceptability. For example, Adobe Connect is used by AMEE, a leading provider of medical education conferences and e-learning, to support MedEdWorld, a global network for sharing ideas and developing medical education globally (Salam, et al., 2009). It has also been used for live interactive videoconferences for the professional development of epidemiologists in the US (MacDonald, et al., 2008).

I explained clearly the benefits of and conducted demonstrations on Adobe Connect with the i-Physician team. It is a proven, reliable, intuitive, easy to use and effective digital collaboration tool for online medical and healthcare professional education (Erickson, et al., 2010; Çetin, 2012; Palmer &

Dodson, 2011). Learners only need Internet access, saving the hassle of having to download extra software. It offers text, audio, video, and writing functionalities in one platform. With this interactive system, learners could see who else is present during the discussion, such as their peers and tutor. When necessary, participants could decide to invite a subject matter expert to support their problem solving on a particular patient care issue, or any relevant area pertinent to their work and their revalidation requirements.

The Adobe Connect software allows tutors to hold plenary sessions as well as create breakout rooms for multiple dialogues to deepen inquiry. A writing space is provided to take down notes during the discussion. The various functions can be trialed with healthcare professionals to determine which features most effectively enhance online collaborative learning on focused topics. All responses can be recorded and archived. Tutors can save the discussion logs and disseminate them to participants as e-mail files. These log files can be used to support learners prepare their reflective journals for revalidation, and for qualitative analysis by researchers. An example of the Adobe Connect synchronous discussion learning environment is shown in Figure 5.3 below.

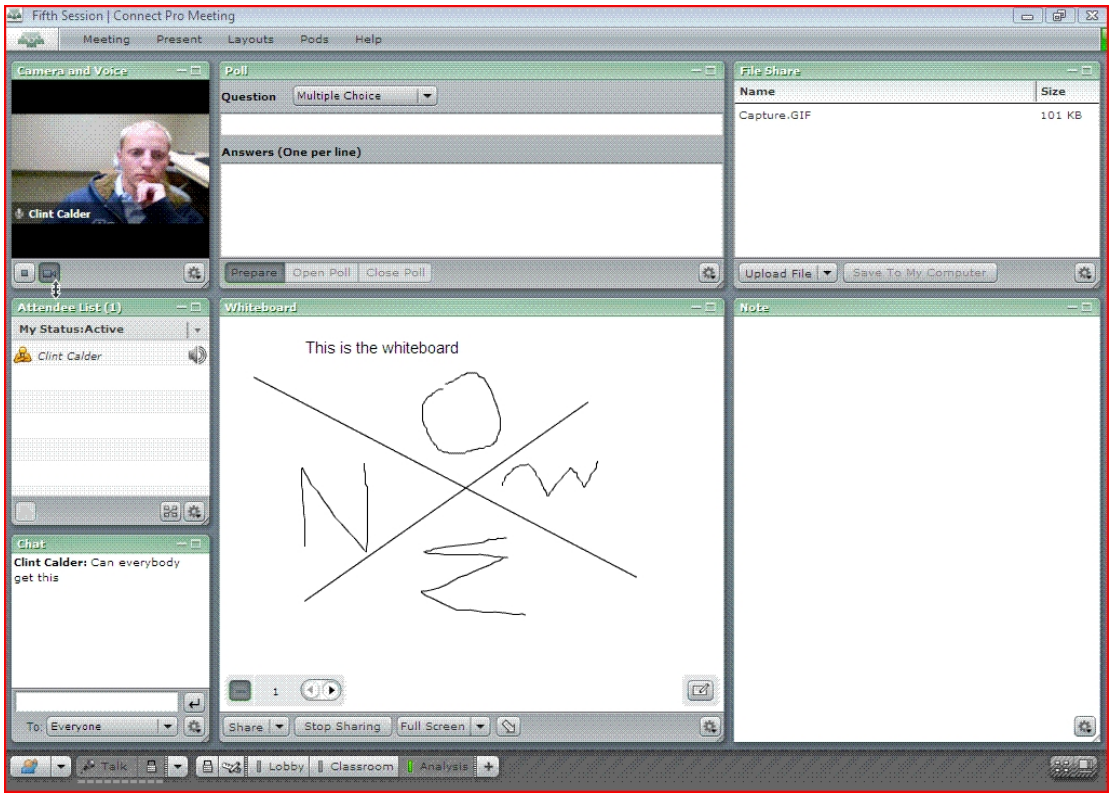


Figure 5.3. Example of the Adobe Connect virtual classroom to facilitate synchronous discussions among tutors and healthcare professionals

(Copyright Adobe Connect, image provided only as a representative example to illuminate, retrieved from TopTen Reviews http://web-conferencing-services.toptenreviews.com/2941-screenshots.htm)

5.5 Data collection

Data collection for the case study took place between March and August 2012. The Educational Director of i-Physician provided entry and access to the participants. He identified the subjects, who I then invited by email to participate in the study. The participants were told that the focus of the study was on exploring the impact of an online CPD programme using a virtual classroom on improving impact on practice. Participants were motivated to contribute because they were eager to share their perceptions and experiences of the online CPD offered, and would contribute to improving approaches to online CPD for their peers. In addition, they would find out how changes to practice can take place by analysing their practices, and those of their colleagues.

These insights could help them identify areas where they could improve their online collaborative learning experiences. All participants were sent an information sheet, filled in a consent form, and read the programme details (Appendix 4.1, 4.2 and 4.3).

5.6 Evaluation Methods

Since normative evaluators' tools and criteria are behaviourist alone, they make no critical analysis and produce no evidence of the sociological features of the process of online CPD or the social relationships involved (Bates, 2004). Nor do they require or support professionals to make sense of complexity and become conscious about knowing what they are getting out of online CPD with effective evaluation tools customized for measuring e-learning process impact.

Hence, to evaluate and determine the impact of the programme, two key methods were used to collect data from the participants in Phase 2 and 3 of the case study:

- a pre/post agency measurement tool, and;
- online interviews conducted with the participants and the tutor.

Additionally, to understand the features of the change process wrought by the technology, the pedagogy and the social network interacting, online observations were conducted during Phase 2.

The following sections flesh out these methods in detail, prior to outlining the analytic procedures.

The Measurement of Agency Tool

Measuring the impact of online CPD discussions is difficult because learning is a complex, non-linear process. Sociologists consider that learning, behaviours and practice are intertwined; learning cannot be separated from professional practice, its social networks, and their overlapping social, political, economic and cultural contexts (Bourdieu, 1977, 1990; Luke, 2003). In addition, while traditional end of course participant satisfaction surveys can show subjectively increased knowledge and skills, these are not discrete inputs that can be translated into changes in practice because of the political and organisational constraints in places of work as well as the informal social relationships that (re) produce social practices. When the goal is to increase the capacity for agency, something that is projected socially, objective tests such as psychometric or multiple choice quizzes hide the invisible social forces at work which can increase or decrease professionals' agency to change, such as the unconscious motivations that guide social practice.

To address this challenge from my understanding of practice change as a dynamic process embedded in the agency of practitioners learning online, this study developed and piloted a Measurement of Agency (MoA) tool as a new approach to evaluate online CPD impact.

A list of items in a questionnaire was combined to produce a 5-point agency scale so professionals can measure the effects of their online discussions. MoA reconstructs the key features of professional development that are likely to lead to improvement in practice as identified from the critical literature review done for the study (see Chapter 2) and from Phase 1. This tool allowed the development of a first-cut social theoretical evaluation of the impact of the process in producing change, that quantified changes in the capacity for agency of participants, based on qualitative categories derived inductively from the pedagogical model's dialectical assumptions about the mechanisms of change in open social systems. All the seven healthcare professional learners completed the MoA tool before the discussions started and at the end two months later (May-July 2012).

Online Interviews

To find out how effective the programme was in supporting the participants improve practice and patient care, data was collected through eight semi-structured online interviews with the seven participants and the tutor in August 2012. Figure 5.1 below provides the interview protocol used in conducting these interviews.

Participants were guided to talk about their perceptions of existing CPD approaches, e-learning approaches, the virtual classroom, the facilitation, the tutor, online collaborative learning and the benefits gained on the programme. The interviews were conducted in the same Adobe Connect virtual classroom. With their permission, notes were recorded in a space next to the chat-window visible to participants. Transcripts were also sent to participants for review and approval. These online interviews provided a source of verbatim quotations that gave rich information about Reflexive Networking from the participants' point of view.

Figure 5.1. Interview Protocol

The following semi-structured protocol was developed and used to guide the interviews:

Research Question: *Do learners believe that the online CPD programme is effective, and why or why not?*

A 10 mins

Introductions

Hi (name), this is an opportunity for you to evaluate the programme. I realise you're busy and appreciate the time you've taken to share your feedback.

Let's start with a bit of background about you.

Name

Age

Gender

Occupation

No. of years in practice

Location in UK.

Thanks (name).

Perceptions of CPD

1. You know I've been reading a lot about how doctors today need to constantly update themselves through CPD. Can you share some ways in which you keep yourself updated?

Probe: What do you update yourself on? E.g. latest treatments/advances.

Probe: How? Do you take courses, read magazines, have study groups in your practice, what else.

Probe: In which context was it? E.g formal/informal, self/group

2. I see, which of these ways of learning do you enjoy?

Probe: Why?

Probe: What do you prefer – time, costs?

Probe: What do you prioritise?

B 10 mins

Perception of self as online learner

1. You know I've also seen that there are a lot of different types of e-learning available for doctors today. Do you have any experience of using these?

Probe: Was it a module? Self-study? Forum? Webinar? Was it assessed? Did you get CPD points/hours? Which websites? Any others?

2. What did you think of online learning?

Probe: What was good/not so good?

C 15 mins

Participants' reflection on the virtual classroom, the facilitation, the tutor, and online collaborative learning on the programme

Thanks (name). Now, about the online learning we did in this virtual classroom with (tutor name).

1. What would you tell a colleague about the benefits of this approach?

Elaborate/clarify.

Probe: how did you find the process we went through over the last 2 months - you know, start with the module, then the pre-course assessment, then the 4 discussions, and then the post-course assessment to conclude.

2. Were there any features of the virtual classroom you liked?

Probe: In what ways were they useful? Did you like the immediacy? As compared to the forum?

3. Were there any features of the virtual classroom you did not like?

Probe: please explain

4. Let's explore at how you interacted.

Probe: Did you take part? A lot? How? Why not?

Probe: Was it easy for you at first? And later on?

Probe: How did you find the discussions? Which bit of it – format, structure, style, etc.

Probe: What did you think of the case studies in breakout groups in the 3rd discussion?

Hint: I remember at the end of that discussion, someone wrote in the chat, "…cases were hard, had to think about practicalities" Do you feel the same way?

Probe: What could be improved about the approach?

Probe: What did you think of the tutor? What did she do that worked for you?

5. What about the topic - was it effective for collaborative learning?

Probe: How? Why not? E.g. relevant, too long, too quick?

Probe: Did you have any say in the discussion?

Prompt: Could you see yourself learning online collaboratively again for other topics? Give examples – in which situation? Only guidelines? Could it be used for anything else? E.g research.

Probe: Can you see yourself learning regularly this way?

Probe: Did you work with any of the ideas you picked up during the chats?

D 15 mins

Perceived impact

1. I see...After participating in this programme, will you now be able to demonstrate evidence of **a change in practice?**

Probe: What can you apply from what you have learnt from discussing the guideline and the topic?

Probe: How will you be recording this?

2. What do you think about using the self-assess checklist?

Probe: What could/cause(s) an improvement in patient care?

Probe: Has anything else changed for you?

Perceptions of knowledge gained

1. Finally, to conclude, could you reflect briefly on what you've learnt on this programme?

Probe: Skills/ Knowledge/ Competence/How to collaborate/…(ask for examples)

2. What was most memorable for you during this experience?

Probe: What stood out?

Probe: What was valuable?

3. Now, do you think the type of knowledge and skills you gained as a result of learning in this environment was in any way different than it would be from participating in a more conventional e-learning you've done before? E.g. self-study module, discussion forum.

Probe: How do you think the knowledge differs?

Probe: As compare to studying the guideline on your own, does this knowledge have any value for you?

Probe: How will you be applying this?

4. Will you be sharing the results of this programme with your colleagues? Manager?

5. What do you think makes this programme effective compared to other e-learning you've done?

Probe: Can you use this network for your professional development? This virtual classroom?

Probe: Have we given you the right tools and process to get on with it in future? Probe: What was important for you?

Probe: Do you see any value in this process to support you improve practice?

Probe: What about overcoming barriers to change?

Probe: Has your attitude to e-learning changed as a result of this experience?

6. Would you be interested in continuing to learn this way? In which cases/topics/situations? What do you want more/less of? Would you like to use it on your own, for regular learning with others?

7. You know we were trying to create a virtual Doctors Learning Lounge for your benefit. Do you think we succeeded?

Probe: Do you have any comments or suggestions for the programme organizers?

Online Observations

In investigating the impact of the Reflexive Networking approach to online CPD, I needed multiple sources of evidence to understand how and why the process improved the participants' capacity for agency. Thus my pilot study also involved opening up the 'black box' of the approach to study the pedagogic activities through conducting online observations in the Adobe Connect virtual classroom.

The aim of the online observations was to collect data on the content of the tutor and learners' interactions in the virtual classroom, so as to establish a richer understanding of the change process as it unfolded in real-time. To generate data that could have explanatory potential according to the theory of change, I did not record my observations with a protocol of pre-specified indicators. Instead, my observations were recorded in the form of field notes that were grouped and regrouped as concepts and themes emerged. I explored how the tutor and the 7 learners talked about new scientific knowledge, clinical practice and patient care and how they constructed their knowledge, focusing on:

- How did the tutor and the participants interact and conduct themselves in the discussion?
- Did the tutor's expertise discourage or enable the participants from playing an active role in the discussion?
- What features of the technology and the facilitation approach appeared to help or hinder the discussions?
- What knowledge was produced?

Over a 2-month period, real-time observations of each of the 4 facilitated synchronous discussions took place during Phase 2. I would send out an email to the group once they had confirmed the date and time, informing them of the website URL to log-on to. I would open the virtual classroom half an hour before they arrived to prepare the room for them and wait and see if anyone needed any technical support. Sometimes, I stayed longer for a private chat with the tutor after the participants had gone. I also wrote short e-mails to the tutor and the group leader to follow up in between the synchronous meetings.

All participants were informed that the online discussions were observed and recorded as part of the research, and I was present in the online discussions with them. I continued to help them out with sorting out any glitches, such as the audio and video functions, as well as arranging the layout of the virtual classroom. Because the chats were typed and recorded, this saved the considerable amount of time that would have been required for transcribing the discussions.

As shown in Table 5.2 below, a total of 4 online observations took place during phase 2:

Table 5.2. The online observation schedule for Phase 2

ONLINE OBSERVATIONS				
No.	**Day**	**Date**	**Time**	**No. of Participants**
1	Monday	28 May 2012	2030hrs	7 + 1 tutor
2	Wednesday	13 June 2012	2030hrs	6 + 1 tutor
3	Thursday	28 June 2012	2030hrs	7 + 1 tutor
4	Monday	9 July 2012	2030hrs	7 + 1 tutor

As can be seen, the timetabling of the online discussions was sporadic. However, before the programme had started, the group had said they would only be able to commit to meeting together at the same place and time once every fortnight, explaining this pattern. Also, the timetable was modified to take into account their children's school holidays, and their availability. In between the first two discussions, for instance, one participant changed to another workplace, and the intended regular Monday evening slot did not materialise. After each discussion, I e-mailed the chat transcript and the notes taken to the tutor and group leader, for further dissemination to the group. I was the only observer of the online discussions and recorded a short summary in my field notes after each session.

At the completion of the data collection phase, all the data sets from phase 2 and 3 studies were organized and inputted on an NVivo database and stored on a secure folder in the University M Drive. Data from Phase 1 had already been inputted into an SPSS database and stored on a secure folder in the University M Drive.

5.7 Data Analysis

The corpus of data I had collected in Phase 2 and 3 comprised a wide range, each collected with different methods: virtual classroom data, the participants' perceptions from the MOA tool and from interview data.

Yet, there is no ideal approach for making sense of these data from a practice interpretation. How to make sense of the capacity for agency of healthcare professionals who lead increasingly complex, busy and

fragmented lives while avoiding reductionist thinking about online technology use, and disrupting the dominant paradigms that block critical work, requires a conversation between theory, experience and methodology to grasp complexity rigorously and achieve pragmatic objectivity.

Furthermore, as Davies (1999) argues when debating what 'evidence' exactly from applied social research is appropriate to inform evidence-based education practice, evidence can take many forms, and needs to be viewed through a variety of lenses via 'methodologically diverse studies' (1999, p.109). In addition, Davies argues that evidence from research should not only be celebratory and instrumental, but also serve to "identify and question assumptions, challenge tacit knowledge, and probe 'taken for granted' aspects of problem framing and problem solutions." (1999, p.110). Hence instead of looking for an elusive indicator of evidence that 'it works', I needed a multi-analytic approach that would deal with my research problem and overall research goal, as well as capture the dynamism and diversity of a rich digital social practice.

While a variety of methods for data analysis for mixing quantitative and qualitative research abound, the pragmatic choices I make for methods to analyse the data I collected are thus based on the overall research question. My overall approach is based on advice on good data analysis, where it has been suggested "analysis is understood as a combination of close engagement with data, interpretation of data, and theorising." (Bathmaker, 2010, p. 202).

On the whole, this suggested to me that there were productive tensions in interpreting the impact of reflexive networking from multiple perspectives, and strategic and valid trade-offs to be made in selecting the approaches for data analysis. These tensions and trade-offs also reflect the location of my study, "at the boundaries of disciplinary practices" (Sparkes, 2000, p. 21). Thus there were trade-offs in what I focused on through the process of analysis, pushing me to produce a rich narrative of the research that can help policymakers, practitioners, and researchers 'make sense' of the approach from their own belief systems and contexts. They also enabled me to balance the need to evaluate a programme based on a theory-driven, strategically reflexive research strategy that collected and used data to drive modelling for improving impact, with the need to critically explain change.

Analytic methods

For these purposes, I coded the data progressively to address the research question from two linked analytic lens as shown in Table 5.3 below:

Table 5.3. Analytic Lens, Data Used and Analytic Methods

ANALYSIS	DATA USED	ANALYTIC METHOD
Impact	Phase 2 (MoA tool) and Phase 3 (interviews)	Descriptive and Inferential Statistics Thematic Analysis
Process	Phase 2 (observations)	Content, Thematic & Theoretical Analysis

Impact Analysis

This comprised two methods:

i. Firstly, I calculated the mean scores for the group on their pre and post MOA tool to determine how much they were benefiting from the online discussions, which I used to measure the change in their capacity for agency and to gauge the benefits according to a 5-point scale. This provided the quantitative outcome for the programme impact evaluation.

ii. Next, data from the online interviews was coded by doing thematic analysis using the categories in the interview protocol to consider qualitatively to what extent participants perceived this approach did/did not support them improve practice and patient care.

Process Analysis

Each of the online discussions was assigned a code (D1, D2, D3, D4), as was each of the participant learners (M, L, AJ, A, MM, etc.). The tutor was assigned the code T. Each of the 4 online discussions represented this embedded case of learners' experience of Reflexive Networking.

The first step in the analysis was to use the observation data to create a series of vignettes or short summaries of the participants' experiences of the pedagogy and the technology and how they made it work as an online

pedagogic practice. This approach served to identify the common categories of the process across the 4 online discussions. Although the data is from 4 discussions, the aim is to produce analytic generalizations (Yin, 2003), where theoretical concepts and patterns are being generalized during model testing and development.

In explaining a change process, practice theory is at its core a discussion of the dialectical tension between agency and structure, mediated in Bourdieu's framework through a generative mechanism – the construction and exchange of capitals – in the interaction of field and habitus.

The next step was thus to combine all comments about the process categories from each of the discussions into a large spreadsheet. This helped to decontextualize the observational data from their original settings and place them in an alternative context, enabling content analysis for cultural meaning. This table was used to compare the 4 discussions in terms of changes in the participants' capacity for agency in the different sessions, the factors associated with these changes, and the diversity of teaching and learning.

After comparing the discussions, I then undertook an open-ended process to generate themes and patterns so as to map out patterns of the process by identifying:

i. Episodes of pedagogic activity (during which the different capitals interacted), and

ii. The resulting learning (where I could identify increased capacity for agency and changes in practice).

Thus, I came up with a table of Pedagogic Events and Learning. I then wrote out vignettes to summarise the most significant episodes and events. For each sequence of episode and events, these vignettes summarized:

i. When did it happen?

ii. Who interacted?

iii. What was it about?

iv. What was the result?

These rich descriptions helped to surface key episodes of pedagogic activity, and the resulting learning, as capitals between the learners and the tutor, the pedagogy and the technology were being continually exchanged and constructed to produce change, and to identify the relationships at play - in

each of the discussions, and across them - as the online learning environment emerged and became enculturated for them in real-time.

In addition, the relationships at play that were significant across the 4 discussions were extracted and summarized in a table to trace how and why change was produced. This helped identify the underlying contingencies and motivations that influenced and were influenced by the various pedagogic events and learning, where capacity for agency has increased and a change in practice is embodied in their words and actions in the virtual classroom.

Taken together, these pedagogic events, the resulting learning, and the attendant relationships, represent the dynamic adaptations that emerged reflexively which, when observed over time, can help predict the patterns of reflexive networking that are more likely to be effective if online CPD programmes are to improve impact on practice and patient care strategically.

Finally, these interpretations were described and diagrammed using the Bourdieu conceptual language provided in Chapter 3 to develop an abstraction of the phenomena being studied. This approach of inductive and deductive analysis provides coherence and consistency with the theoretical interpretation within which the conceptual model was developed, and guards against incorrect interpretations from other interpretive perspectives.

5.8 Generalizability, transferability, validity, reliability, rigour, and quality in interpretive reflexive research

Insofar as all positivist RCT-type 'engineering models' of experimental research grapples with issues of - and threats to - generalizability, validity, and rigour in the social and political production of the evidence-base of 'what works' (Pawson & Tilly, 1997; Elliott, 2001; Rogers, 2003; St. Pierre, 2006), reflexive case study research require an engagement with the philosophy, social practices, and theoretical analysis, of these normative constructs to ethically produce evidence of if, how and why educational interventions work. This engagement is based on my commitment to educational research as a critical emancipatory social struggle and political project (Bourdieu, 1998; Apple 2000). I thus design my research by forefronting and valorizing my educational beliefs and bias towards an ethical partnership with educators and students for the goal of implementing the online CPD of healthcare professionals for the purpose of evaluating how to improve impact on practice and patient care outcomes (Carr 2000; Rogers, 2003).

In this investigation therefore, the social construction of the case study and its reconstruction for the PhD genre through a reflexive analytic sensibility, the refining of a hypothesised theory, the specificity of actions I could take to make a practical difference in a distinctive context, the data generated through the mixed methods, and the construction and presentation of the findings for impact are treated *relationally* for generalizability, transferability, reliability, validity, rigour and quality (Bourdieu & Wacquant 1992, Bourdieu, 2004, Grenfell & James, 1998; Rogers 2003; Grenfell & James, 2004). I now proceed to show how I did this.

Firstly, I disrupted conventional positivist notions of generalizability, transferability, reliability, validity, rigour and control that ignore the dynamism of the social world. I imposed reflexive control over these terms with the use of a Bourdieusian field as a sociologically defined 'soft' boundary (Grenfell & James, 1998, p.157) for modelling the critical understanding, doing and explaining of how to change practice with reflexive networking, and the associated outcomes

The field approach benefits by rethinking generalizability, rigour, and validity beyond the positivist/relativist, theory/practice, evaluate/research, quality/critical, learning/change binaries that plague the fields of e-learning, education and healthcare interventions today (Grenfell & James, 2004). I recognize, following Pawson & Tilly's realistic evaluation (1997), that a programme theory can only be generalized by repeated empirical testing and fine tuning of the generative mechanisms of change in other contexts and measuring the associated outcome patterns. I take this further by drawing on Bourdieu to critically and reflexively recontextualise reified notions of generalizability, transferability, reliability, validity, rigour, and quality in one online CPD intervention, to overcome the positivist illusion of researcher objectivity in dominant RCT approaches (Bourdieu, 1980). I develop a pragmatic objectivity of these notions for the goal of advancing innovation that is useful and usable by other educators on the hot front line, and not only those imprisoned and stuck peeping out from the high walls of the cold ivory tower.

And yet, I was still cautious, while eager to contribute to evidence-informed policy-making, not to make 'claims to truth' about what practice is, and how and why it changes. Those with other precepts about medical practice might misrecognise tentative claims without taking the effort to apprehend the 'real principles of that practice' (Bourdieu, 1990, p. 103) as Bourdieu warns

against. After all, while it is clearly doubtless that evidence matters in informing educational policy and practice, it is equally doubtless that the conditions for the production of knowledge matter just as much in informing educational policy and practice but are often ignored (Hammersley, 2005).

In this socio-political sense, the only sensible answer to generalizability, validity, reliability, rigour and quality of a case study grappling with theorising the complex question 'What is the impact' has to be: well, it depends on who is asking and who is answering, that is, what interests are at stake.

Answering this is a dialectical exchange requiring a reflexive interpretation by the researcher in relation to his theory and his lived experience. In this case study, I have consistently endeavoured to do this, by exposing my bias and making clear how my social position in interdisciplinary fields, and as a recipient of public funds, have affected my research question, assumptions, concepts and methods, to produce practical and critical findings. Having created a unique field for critical online work, I had a small amount of room for transformation to liberate myself from received truths about how to make research count. Instead of validating the instruments of data collection before using them, as recommended by mainstream research in healthcare, I have validated them by turning around my tools and methods reflexively to enable the stakeholders and participants in the study and the process to make sense of the theory I am investigating by objectifying their subjective perceptions in social space at this time.

The methodological problem I next encountered was how to validate my investigation on the 'impact' of a dynamic theory of change in an open social system. I realised that decision makers and funders looking for 'what works' required scientifically valid models that could be transferred and taken to scale. Yet the choice of what research is validated by the policy and academic fields and sanctioned for further development is not a neutral one. These fields have their own interest in keeping avant-garde research on the margins outside the gates of the hallowed high altar of research methodologies.

These existing structures have doubtless guided my own practices as I sought over my career to find a position in the middle of - and at the edge of - different overlapping structures that influenced what goes in inside the online classroom. My goal was a position from which I could try out a stronger reflexivity as method and action, make a useful contribution, design and deliver programmes, and empower my learners and myself. In surveying

the literature on case study as well as intervention design and evaluation methodology, I noticed that a validation test for a case study to test a theory of change from a critical realistic philosophical standpoint was not available. Qualitative case study researchers seemed to prefer to denounce the positivist notions of generalizability and transferability in favour of a discourse disposed towards credibility and trustworthiness. Yet this discourse simply cuts off rather than seriously tackling the need for social science and educational evaluation tools and research conceptualisations that reliably and validly produce objectivity of 'that which guides practice from the inside' (Bourdieu, 1990, p.102).

Consequently, I cannot validate the model, the theory, the research design, and the data collection tools, as if they were outside in the dark and the cold, and aspired to the illusory objectivity claims of dominant paradigms, which assume they are inside enjoying the light and the warmth. Without respecting to the layman's practical sense of what works, dominant paradigms ignore to reveal their political interest, and hence perpetuate symbolic violence and misrecognition.

In Chapter 3, I have justified how I know what I know (epistemology) and what is the nature of the reality of reflexive networking that I want to know (ontology) from Bourdieu's dialectical sociological perspective on practice and on researching practice. Thus, the generalizability and transferability of this study comes from its use of Bourdieu's 'theory of practice (and theory) to impose methodical control of…scientific practice.' (Bourdieu, 1990, p.104). By reflexively observing and knowing how and why reflexive networking works, the findings of this study can be generalized and transferred to other related fields of educational and healthcare research and practice. Thus it can help to solve a common problem of modelling: how to design, deliver and evaluate online CPD programmes to improve impact. By analysing the online CPD programme relationally, as will be shown in Chapter 7, this study also overcomes the false binary between generalizing/particularizing in educational research by showing their interplay. As a single case study, this thesis adds to the goal of developing a fuller and richer account of the complex field of healthcare CPD, which can facilitate the construction of a critical sociology of CPD to improve impact in future.

Turning to the issue of the reliability of the MOA tool, it is worth giving some consideration to whether the MOA tool recorded the observations of the items used to infer and measure agency, an abstract concept, consistently.

Each of these items implies a hypothesis, as emerged from the literature review, which were abstracted as sociologically plausible features of 'agency' of a conceptual model integrated into a middle-range theory of change to test. Although the sample size for validating this tool was small – 7 respondents – sampling error was minimised because the respondents have characteristics of the overall population of the study, widely dispersed healthcare professionals, sharing the same criteria used to identify the population in phase 1.

In addition, during the data analysis stage, I had personal discussions with a statistical expert at my school, Dr. Matt Homer, who calculated the internal consistency of the items using Cronbach's alpha. His finding was that "For what it's worth (not much in view of sample size), Cronbach's alpha is around 0.92 which is quite high." (personal e-mail correspondence) Doubtless all assessments of reliability of measurement instruments and all categories for evaluating change have their disadvantages. For example, the healthcare professionals may have been affected by other events and experiences before, during and after the intervention, that affected their capacity for agency within a limited real-time digital social practice. Hence from a reflexive standpoint, although the MOA tool is not a psychometric measurement, it is a reliable sociometric measurement instrument to evaluate impact because:

i. it showed consistency in measuring the construct 'agency' over time by being handed out and used before and after the intervention and producing very similar answers;

ii. the respondents could understand most of the items of the tool, except for a few

iii. it collected data as accurately as possible, and

iv. it privileged practice and agency not "as seen from the outside, timelessly" but as "it is lived and enacted in experience" (Bourdieu, 1990, p.104)

Such a reflexive tool, that tries to objectify the 'added-value' of a model, thus grounds its reliability on the extent to which the interaction of the online field and the respondents' habitus affected their capacity to get a glimpse of the real possibility of how an educational approach could support them to learn and improve practice in 3 months. Because the findings of this first test of the MOA tool can be used to refine and adapt it for future research, it is

more useful for the validity of the tool as compared to existing psychometric tools for measuring learning outcomes. The latter do not appreciate the interplay of pedagogies and technologies with the dynamic reality of participants. And still, its reliability in measuring agency must be couched in a dynamic social understanding that structures produce agency, which determine practice, which reproduce structures, because agency is always shared between people and the tools and approaches they use to get work done. A Bourdieusian dynamic social model is not a static social model where people are fixed and dead, rather than active in changing their dispositions at the edge of fields of practice. Thus, investigating the social system and social practice of reflexive networking with any reliability has required a tool that could be sent into the system to probe, observe and record the patterns that come back, and use this as a signal to guide how to further improve the reliability of evaluation and effectiveness of the model in real time. Hence, using the MOA tool as an ethical social practice is not meant to merely provide reliable causal connections for learners' reactions to the hypothesised theories underlying educational programmes, it is intended to reliably enhance and humanise the reflexivity of a network - giving the actions, the feelings and the bodies of educators and learners meaning by enabling them to count what they can get out of it and what they can do to get more out of it.

In terms of the question of the validity of the investigation of impact, validity is thus neither the validation of specific quantitative or qualitative tools nor the analytic method to combine these results. It is the validity of studying an online field of practice, its relations and interactions, to explore how (much) change in practice was able to be produced, so as to accurately reflect and assess the specific concept of 'agency' this study was interested in analysing and affecting in a very short time period working entirely online.

For the same reason, the results of the impact and process analysis are presented side by side in Chapter 6 and 7, without any attempt to synthesise them. They are two sides of the same coin, and are best seen as (re)presenting the categories of evaluating impact and understanding a lived experience from three distinct gazes, each equally capable of standing alone as an evaluative perspective. Because the Bourdieusian philosophy of a reflexive social science was operationalized in a real-world setting, the validity of this study rests thus not on academic's scholastic point of view about what is valid/invalid research based on their/our own agendas and interests. The validity rests on an interpretation of reflexive networking as an

abstraction that is “valid only if it is presented for what it is, a theoretical artefact totally alien to practice’ (Bourdieu, 1990, p. 103) without objectifying the subjective. I outline these representations reflexively, drawing on discourses of validity and quality from interpretive educational research, in Appendix 6.

5.9 Research Ethics

In constructing this study as a multi-phase, multi-sector intervention, and using mixed data collection methods in tandem with a reflexive standpoint on implementing a technology-based educational approach to enhance learning and investigating impact, I confronted several unique ethical issues. Mainly, I found myself coping with the ethical issues that arose when balancing Bourdieusian reflexivity with educational project management strategy in delivering a ‘user-centred’ educational technology. As a result, the ethics of this study were inevitably a negotiated consequence of the need for rigorous yet sceptical understanding of ‘if, how, and why’ an online CPD approach works with what was realistically achievable when unifying research with implementation to improve the working lives of busy healthcare professionals.

The main ethical issues that struck me were thus: maintaining informed consent, minimizing risks, ensuring data quality and safety, and preserving confidentiality.

This study received ethics approval set by the University of Leeds. Due to the word limit, I have presented the ethical issues collectively across the three studies within this intervention in Appendix 7.

5.10 Summary

In this chapter, I have presented the research site and methods for this study. I have explained the key manoeuvres and decisions I made for a rigorous and principled research design, and for writing up a critical realistic evaluation of the impact of Reflexive Networking as an online CPD approach to improve practice and patient care.

In reflecting on my research design at this stage, I argue that my methodological approach enhances the added-value of my study to the literature on online healthcare CPD by offering a sociologically theorised understanding of its core object of inquiry: the impact of online healthcare

CPD. Conventional notions that view 'impact' statically as 'does it work' apply a linear causal hypothesis with a socially disembodied research technology, the RCT. Or, impact is viewed as a qualitative description of 'what happens' in context. Both these views take social structures for granted. In contrast, in this study, the relational nature of producing change and investigating impact has been forefronted to explain if, how and why an educational approach works. This approach draws attention to research and intervention as practices socially produced in overlapping and contested fields, and my discursive and pragmatic decisions as a researcher objectifying my point of view while disrupting dominant research and educational practices.

As a result of the sociological framing for the methodology I decided on for my study, I realise that readers may find my text longer than usual. But, I did not take these decisions lightly. They are fundamental moves in my writing and thinking for my scholarly identity and my critical research practice. My approach seeks to speak to policy makers, funders and practitioners as much as to researchers: is it sufficient to either rely on - or critique - RCT-driven 'evidence-based' policy and practice in online healthcare education without productive attempts to improve critical and interdisciplinary research design in order to enhance the validity, credibility and utility of educational research on educational practice? Ironically, I would argue no. To assemble and work towards harmonising online CPD theory, practice and research, and theorise learning, change and impact reflexively, requires a deeper and complicit grasp on the dialectics of practice that Bourdieu provides as a model of change. There is now a need to re-imagine and empirically re-document these reified imprecise notions in their social production. As networks of researchers, managers, educators and professionals work through changes with pedagogies and technologies, there is the prospect of achieving an objectivity we can all buy into.

Hence, I have gone for a critical and realistic interpretation of impact as a change process in motion. In the following chapters, I detail the findings from this study based on the methodological approach presented in this chapter. In so doing, I construct a critical realist and generalizable interpretive evaluation of an exploratory single embedded case study investigating the impact of Reflexive Networking as an online CPD approach to improve practice and patient care.


Right – let's get the show on the road!

Chapter 6: Evaluation results

Bette Davis as the Country Doctor's Wife

Dr. Molina: You not only know what they get but why they get it. Like the other day, when I saw that young Mrs. Reynolds with a rash on her face. I said to myself 'I bet that girl's mother-in-law is in town for a visit. She doesn't dare rebel openly so she gets a rash on her face.

Rosa Molina: Step right up ladies and gents and listen to Dr. Molina, the people's friend, the town's do-gooder. It's all for free!

- Extract from *Beyond the Forest*, 1949, Warner Bros., directed by King Vidor. Dr Molina played by Joseph Cotton, Rosa Molina played by Bette Davis.

6.1 The capacity for agency

A before and after mean score for the MoA Tool was calculated for each participant and averaged for the whole group, showing an increase from 3.5 to 3.97, or 13.4% (see Figure 6.1 next page).

The MoA tool reveals that participants particularly liked to bring problems from their daily work to the discussion where solutions could be directly found by interacting with peers and an expert tutor. They found the discussions of least use in setting realistic goals to overcome barriers to change and auditing to improve patient care.

Figure 6.1 below gives a detailed breakdown of the results of the MoA tool for this group of participants, shown on a scale of 1-5 as well.

Figure 6.1. Agency scale to measure impact of online CPD

Summary of mean scores pre- and post course by 7 participants in the programme,

May-July 2012

An online CPD programme done with regular facilitated online discussions can:

a.	*support me learn online through my daily work*	*4 - 4.43 (0.43)*
b.	*support me with analysing my practice problem*	*3.4 – 3.86 (0.46)*
c.	*support me find and manage relevant information online*	*3.3 – 3.57 (0.27)*
d.	*support me with access to advice from mentors and experts that are hard to reach*	*3 – 4.29 (1.29)*
e.	*support me make new practical knowledge I can use directly*	*3.7 – 4.57 (0.87)*
f.	*support me to reflect on my practice*	*4 – 4.29 (0.29)*
g.	*support me build my personal network*	*3.6 – 4 (0.4)*
h.	*support me learn collaboratively with peer support*	*4 – 4.43 (0.43)*
i.	*support me interact with those I value and I can support*	*3.4 – 4 (0.6)*
j.	*support me become a more flexible learner at home and work*	*3.9 – 4.14 (0.24)*
k.	*support me change my thinking and behaviour to improve my practice*	*3.7—4.29 (0.59)*
l.	*support me set realistic goals to improve*	*3.6 – 3.29 (-0.31)*
m.	*support me gain wider perspectives about my practice issues and concerns*	*3.6 – 4.29 (0.69)*
n.	*support me change the context of my practice*	*3 – 3.71 (0.71)*
o.	*support me use online discussions and online tools effectively*	*3.9 – 4.29 (0.39)*
p.	*support my further learning with my network contacts after the programme*	*3.4 – 4 (0.6)*
q.	*support me achieve control over my actions and choices*	*2.9 – 3.43 (0.53)*
r.	*support me audit to improve my patient care outcomes*	*2.9 –3.29 (0.39)*
s.	*support me link online discussions to my CPD validation*	*3.9 – 3.97 (0.07)*

The number of items that scored highly on the scale (4-5) increased from 3 to 12, indicating that 9 items moved up the scale. Comparing these pie

charts, it can be seen that the approach increased the potential benefits the participants gained, and reduced the potential benefits not gained.

Overall Pre-course Mean: 3.5

Overall Post-course Mean: 3.97

AN INCREASE OF 0.47 (13.4%)

Scale	4-5	3-3.9	2-2.9	1-1.9
Category	To a large-considerable extent	To a considerable-modest extent	To a modest-slight extent	To a slight - no extent
Items Pre-course	a,f,h	b,c.e,g,i,j,k,l,m ,p,q,t	d,n,o,r,s	None
Items Post-course	a, d, e, f, g, h, i, j, k, m, p, q	b, c, l, n, o, r, s, t	None	None

Figure 6.1 (continued) Results shown on a 1-5 scale

To represent the benefits perceived before and after this programme, the results from the MoA tool are represented visually in pie charts as shown in Figure 6.2 and 6.3 below.

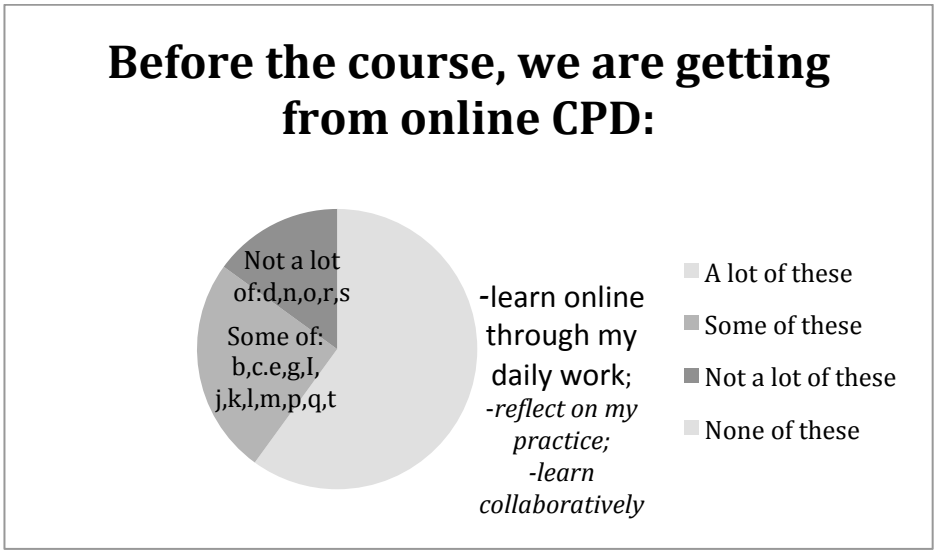


Figure 6.2. Pre-course perceived benefits

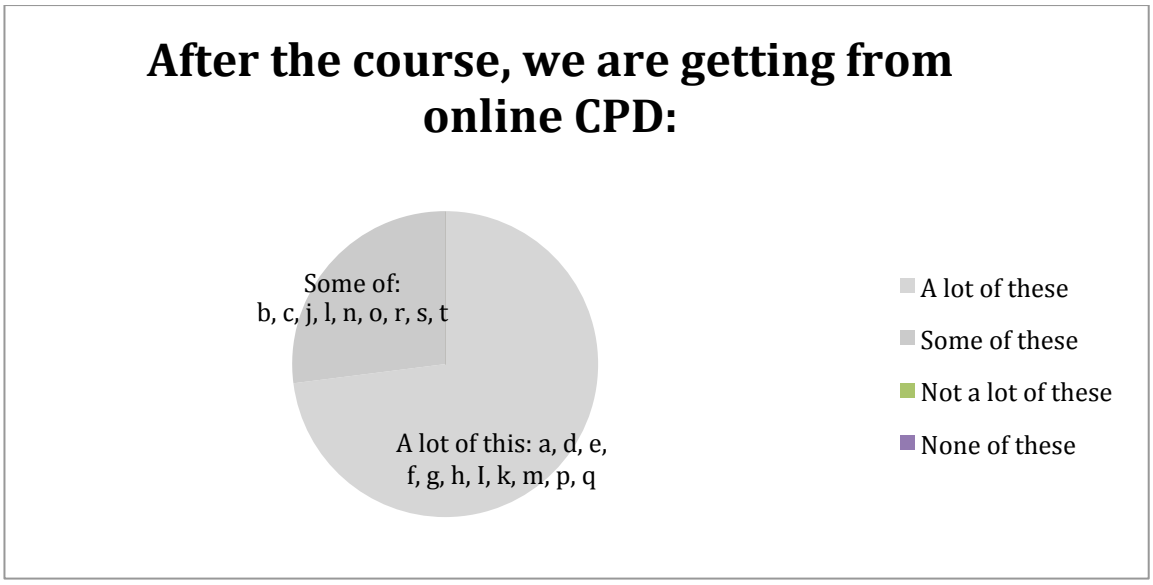


Figure 6.3. Post-course perceived benefits

6.2 Online interviews

These interviews revealed that all the participants felt that the approach of having regular facilitated online discussions with an expert tutor was effective for social collaborative learning to improve practice and patient care. This section highlights the key findings from the interviews based on the questions asked.

What I would tell a colleague

One respondent said that it was a "very effective way of learning when facilitated properly. Good if cannot attend real life meetings and a good way of communicating online through a virtual classroom." Another respondent said that it was "highly interactive, with opportunity for immediate feedback in a relatively anonymous environment, and to clarify concepts immediately." As compared to browsing on a forum or surfing the net, they felt that this approach provided for "focused learning" and a "productive learning process." Interestingly, participants also perceived this approach as a useful complement to an educational approach they were familiar with – small group learning – as it "seemed like a virtual extension of the small study group for GP registrars, as GPs especially in smaller practice is a very lonely place with long working hours."

The process

Most participants were satisfied with the process, finding it allowed them to better consolidate their knowledge than if they had only been trying to improve practice by studying the online module on their own. As compared to attending courses, this process allowed them to better fit their learning around work and childcare commitments.

On the other hand, the gradual pace of the process was not equally valued. One participant felt that the process was effective because the "subject matter was covered very comprehensively and the goals were achieved. I felt comfortable with the pace and the time commitment required." On the other hand, another felt that "the delay in between the meetings meant that the module was not fresh in my mind by the end." There was also a concern that the process was "slightly more complicated as lots of people and their schedules to consider."

The online discussions

Participants found the approach of discussing cases, both those from the tutor as well as those they shared with each other, useful. Discussions were "useful to check knowledge", to "think about own management of patients in future", to "discuss potential errors", and "to learn different points of view." They felt it was "easy to take part" and the small size of the group ensured they "felt a part of the discussions." In addition, the discussions were "relevant and interesting, well paced, with enough time to discuss each aspect of the topic, but not spending excessive time on anything," and were "relevant to my day to day practice." For example, the discussions regarding the efficacy of various emergency contraception (EC) options and when to use each was "very good…and also revisited so could reinforce points and iron out any misunderstandings." As compared to the asynchronous discussion forums they had been using, the participants felt that the synchronous chat feature of the virtual classroom allowed them to "ask questions live, direct the conversation to the topic" and ensure that the 1 hour they had was used to discuss "proper cases."

The virtual classroom

In terms of the usefulness and usability of the virtual classroom, most of them felt that it was effective. Some positive indicators participants mentioned were that they "liked the fact that you could see who was typing so didn't talk all at once." In addition, they "liked the ability to do slides and

to have it controlled by a single person" as well as "the breakout groups." They also found the interface to be "very user friendly, with the names on the left hand side, main text in centre, notes on the right." These features "allowed a feeling of organisation and structure within the sessions."

Although the virtual classroom provided the opportunity for audio and video interaction, the participants in this programme did not use this feature. Initial attempts to try out these features were not successful, due to bandwidth issues, and some participants lacking the necessary webcam and headset. Although this made the interaction smoother, it was felt that "typing is slower than talking." It was also felt that in future, "the idea of webcams would be useful if we didn't all try and talk at once."

The perceived impact

Participants highlighted several different ways they intended to apply what they had learnt. Three were thinking of "writing a protocol for our practice…since…it is mostly our practice nurses who handle emergency contraception requests."

Most participants felt that from now on, they would be able to change their practice as a result of the new information, and sharing opinions and advice – "I… realised the importance of trying to use the opportunity of EC to plan future contraception." One was "thinking of doing an audit cycle of my EC prescribing before and after the course." Others also stressed that they now knew that "there is more than one drug available" and the importance of taking detailed patient histories. On the whole, participants seemed to feel that learning about the different emergency contraception treatment options was most significant, because they "will now know which to use and when with much more confidence."

Two participants were able to demonstrate an evidence of change in practice, as they had prescribed the ella-one emergency contraception "for first time a few weeks ago (after the course ended)." When asked if they would have made this change if they had only studied the online module, one respondent said "I guess, but with less confidence."

Although not all participants were able to demonstrate an evidence of change in practice, this was mainly due to the fact that most of them did not deal with emergency contraception requests from their patients in their current role. As one respondent indicated, "…if and when emergency contraception does come up, I would be able to make more appropriate

decisions – in particular I now know that since levonorgestrel works by inhibiting ovulation, that it is not useful to prescribe it to someone who has most likely ovulated." As changes in practice can take a long time to manifest after an educational intervention, it is important to value the practical knowledge, motivation and confidence gained through the informal discussions to be able to make more skilful judgements about a new treatment and about handling "difficult cases" by considering "what other professionals would do in a similar situation."

The MoA tool

The participants had mixed feelings regarding the use of the pre/post MoA tool. One said that it "did not make a difference to my learning, not useful for me." Another commented that it "was a good idea to find a tangible way of assessing the impact on the individual." These mixed reactions suggest that the MoA tool could be perceived as another burden on busy healthcare professionals who already labour under a lot of different questionnaires and checklists.

In moving forward, using such a tool would need a clearer communication of its intended benefits so that it can become a valued tool for their self-evaluation of the impact of using learning technologies for online discussions and collaborative learning. One suggestion from a participant was to make the tool "specific about a condition, like we have at the end of an educational module."

Reflections on effectiveness

When asked what they felt made this programme more effective as compared to other e-learning they had done, participants emphasised that the social interaction "made it more enjoyable," and thus they were more "enthusiastic." In addition, they also felt that when they were online with others, they were doing "useful work", while the scheduling also "improves motivation." They also felt that they "benefited from other people's expertise" and that the approach was 'different' "because it brings the subject to life rather than looking at a guideline." One respondent even pointed out that the most important aspect of the programme was the virtual classroom technology because "it encouraged me to stick with the programme – if it had been 4 consecutive weekly e-learning modules, I'm not sure I would have stuck it out." Another participant considered that "it was also good to have a copy of the transcript to look back over and reflect on certain bits."

Voice of a participant:

"Loads of things. 1) commitment to meet at certain times online makes me put time aside 2) more resources available (e.g. live sessions with tutor answering questions via the speakers

3) comparing views with those of others 4) discussing real cases where I have been involved"

In terms of the knowledge and skills gained as a result of social collaborative learning in a virtual classroom, participants felt the knowledge was different because "all the time I was paying much more attention to the details because of the fact that I was actively participating with a group and wanted to 'keep up'. If doing e-learning alone, it's easy to switch off and skim-read parts of the material, because nobody is checking up on you!"

"In a group I am completely 'engaged' with the process, unlike solitary learning. So it is more fun, more rewarding, and I recall a lot more of the discussion afterwards."

In addition, participants felt that they now "know there are things which can be different and I know where to look for. I know there is a module. I would save it and highlight points so next time I need to refresh or a patient comes in I know where to look and I know there is a solution."

The tutor

The tutor was asked about her perceptions of CPD, as well as how the approach of facilitating regular online discussions in a virtual classroom could support healthcare professionals improve practice and patient care.

> *"Too often, CPD is done because it 'needs' to be done in an official capacity, i.e., for appraisal. CPD is actually happening all the time and doctors don't note it down. CPD should be relevant to your day to day practice and built into it."*

In her experience, she had found that organising a "small learning group in a safe environment" to be very useful. In contrast, what does not seem to

work is “learning on your own e.g. an online module - you do it then come away thinking - I bet other doctors aren't doing that so I won't either - you have no way of ‘judging’ its worth.”

In contrast to the conventional approach of disseminating information and expecting healthcare professionals to apply them, she argued, “they don’t learn new facts this way.” Instead, “what normally happens is that they take it back to their peers and evaluate it. This is what needs to be recognised as good CPD.”

In terms of how the approach of facilitating online discussions was effective, the tutor remarked that “I think they had support in that ‘testing and trying it out’ stage of learning. So the guideline says this.... but would you actually do this then, and what if... the case was different… or you didn't have time... Those sorts of ideas. The stage of transferring new knowledge to actual practice. I believe without this stage the vast majority of new knowledge is simply dropped.”

She also observed a significant difference made by the online discussions among peers as compared to self-studying an online module or listening to an expert:

> *“what they learnt from is not just what I was saying - although this is important but what the others in the group were saying. So I might say I would do this certain practice. It is easy then for the group to think that I do that because I specialise in that area. When one of the others in the group agrees and says she would also do that - then there is suddenly a shift, that doctor isn't a specialist but would do that - all of a sudden we can have a change in attitude towards a change in behaviour. It is a balance between having someone with specialist knowledge to keep the discussion going, but the input from the learners is far more powerful because of who they are.”*

As compared to other e-learning approaches, she saw significant benefits:

> *“The ability to question the ideas and compare your opinion as a learner with other learners. I do e-learning modules, do them in a quarter of the time they are meant to take and then come off line and think - yes, they say that but no-one actually does it like that, or ‘the problem is that this doesn't fit in with another piece of learning I have’, so the easiest thing is to disregard the new learning. This online small group gets around all those problems.”*

The real-time feature of the online discussions among a small network also reduced the lack of willingness to share for fear of being judged or hurt. As the tutor remarked in relation to supporting doctors' change,

> *"Sometimes they need to be shown that the majority of doctors are doing something in a different way to them – i.e. they are 'out with' the normal so they 'need' to change. This can be shown when you are in a small group. All doctors tend to want to conform! But they might get something more positive out of it. This way takes much less thinking about/is easier/gets better outcomes."*

6.3 Summary

The results of the quantitative analysis of the MoA tool and the online interviews shows that although the learners' agency increased by 13.4%, they enjoyed the approach and only took an active part in it for the sake of fulfilling a need to conform to each other. If improving practice and patient care required mere conformity, I might as well have told them to go sit by the tutor's side and do as the expert does.

What then was the point of doing critical social research to assess an innovation and find out what change meant in a British healthcare professional culture, if only to end up with conformity?

These were sophisticated professionals, who had studied hard to earn medical degrees. They had kept on practicing part-time despite having had kids, with busy family lives. They had stuck to the same group over years, even though they lived and worked far apart, keeping up their collaborative learning online with forums and modules. They were quite smart and wanted to get smarter, waste less time, and extract more value than possible with current workshops and asynchronous forums. They had acquired a taste for online CPD and were interested in improving it. I was sure, surely frustrated that is, that the tutor dropped this hint to confuse me and lead me down some blind alley so I would not find out the social truth as to how and why they conformed. No one conforms for free, unless there is something more in it for them. But what was that elusive 'something more'?

As Chapter 7 will now proceed to show, it was only by digging deeper into the data from the online observations, hacking away at the superficial thicket of conformity they wanted to blind me with, thanks to my trusty Bourdieu axe, that I got to the extraordinary unorthodox human truth as to how and

why these 7 doctors conformed, for the sake of improving practice and patient care with Reflexive Networking.

Chapter 7: Interpreting Reflexive Networking

Virgin Medical Centres and Golf Clubs Merge

Patient & Doctor Care Improves in a Heartbeat

Daily Mail, April 1, 2014

'Super!' says Dame Sally, 'Why didn't I think of that?'

A fleet of red hot air balloons emblazoned with the iconic Virgin trademark made healthcare history yesterday as they landed on the lawn in front of one of Virgin's plush Surrey-based golf clubs.

'We've got balloon-loads of bubbly,' beamed Sir Richard Branson, raising a glass as his balloon touched down. 'I believe that what healthcare in this country needs is a shot in the arm of glamour and pizzazz,' he quipped, as he announced that Virgin Care Medical Centres and Golf Clubs are to merge. 'GPs have had a raw deal – they have become the Cinderella profession. But we are telling our GPs "You shall go to the ball!"

As Sir Richard handed out glasses of champagne to groups of rather bemused-looking GPs who had been bussed in from the company's Medical Centres, he declared with his iconic grin, 'The RCGP have started a Put Patients First Campaign, but we say, Put Doctors First, and that's why we've provided them with top leisure facilities on the spot so they can totter out of their consulting rooms straight in to the Hippocratic bar then onto the golf course to enjoy instant relaxation."

Patients were not so impressed, however. 'We have to come miles further now,' said an angry single mum with three small kids in tow as she staggered up the long steep drive to one of the new Centre-Clubs. 'I asked a receptionist the other day what would happen if one of my little ones was hit on the head by a golf-ball, and she just said they could guarantee a resuscitator and paramedics within seconds.'

'Super, it's an absolutely super idea,' enthused Chief Medical Officer Dr. Dame Sally Davies, as she mingled with the doctors and swigged Virgin bubbly.

'Why didn't I think of this when I set up the NIH!' she added with a giggle. "It's the perfect move to build social capital. All the evidence shows its what GPs most need to improve practice. I've been banging on about social capital since David appointed me. Finally, thanks to Richard here, the message is getting through. I will be looking into the possibility of rolling out medical golf clubs throughout the country. The first RCT has already begun to scale-up this innovation.'

'I think we've got it right, ' laughed Sir Richard; 'we're spending money where it matters: on the doctors. I used to tell my airline staff, "Think outside the Black Box"; now I tell my Medical Centre Managers, "Think outside the First Aid Box". We've always been innovator-entrepreneurs, and there's always those who resist change. My answer to the moaners and whingers is "We're iconic and you're chronic!"

The purpose of this chapter is to answer the research question: why and how did reflexive networking improve impact on practice? Before the data collection started, the literature review established a number of ways current online CPD approaches reduce healthcare professionals agency. Chapter 3 established a theoretical approach to integrate the key features to improve impact that enhanced agency. Yet, as noted in the last chapter, although agency increased by 13.4%, interviewing the tutor T revealed that 'Doctors tend to want to conform to the majority.' Her opinion confirmed the findings in the literature review as shown in Chapter 2, where West et al., (1999) found a similar pressure to conform to standard practice among healthcare professionals.

This finding appeared to contradict Bourdieu's (1988) remarks about how social agents are predisposed to strive for distinction, as they compete to maintain or improve their social and class position, through consuming culture in its various forms – for instance, educational products. The idea that doctors would even begin to contemplate conforming appeared counter-intuitive. How to reconcile this latent tendency to conform and the significant increase in agency is the interpretive task at the heart of this chapter, after which the next chapter will show how to practically deal with this conundrum through the design and delivery of online CPD programmes that improve impact.

7.1 Patterns of Reflexive Networking

In Chapter 3, the impact of reflexive networking during online CPD programmes on changing practice was defined as starting with an interim outcome: an increase in the capacity for agency through discussions, a

locally-driven but centrally-unintended adaptation of generalized scientific knowledge. In addition, change in practice was said to comprise maneuvering around officially mandated guidelines and the valorization of alternative ‘shadow learning’ with peers and mentors.

The longer-term impact on practice and patient care was also defined as the ongoing, macro-level outcome of the micro-level actions of various agents. The practice theory perspective adopted in this study, along with the focus on examining online CPD as the dynamic interaction between pedagogies, networks and technologies, thus focuses the interpretive task on revealing the reflexive relationships of these three elements using the mechanisms of change in Bourdieu’s framework: the appropriation and re-creation of social, cultures and technological structures (habitus/field), the material properties of the technology, and the balance of power between the users (capitals). These elements were used to differentiate the abstract patterns of reflexive networking that surfaced from the inductive examination of the data. Table 7.1 summarizes the key instances of reflexive relationships, their pedagogic events and learning across the 4 online discussions. This analysis revealed that the various instances of reflexive networking had a rhythm and pattern. They could be aggregated into at least three categories that overlapped and morphed into a virtuous spiral, as the participants’ shared capacity for empowering reflexivity. In this way, they overcame the barriers to their agency and were able to change practice. These categories are discussed below, along with examples from the data.

Table 7.1: Reflexive Relationships

Reflexive Relation	Pedagogical Event	Learning

Reflexive Relation	Pedagogical Event	Learning
Across 4 online discussions		
Professional with herself	• Sharing information • Offering advice • Revealing vulnerability	• Learners increased confidence in dealing with complex patient cases • Gained a wider perspective and sensitivity on issues and contextual factors that impinge on practice • Being human and not 'scientific' adds joy and lowers resistance
Professionals with each other	• Putting each other at ease • Supporting each other through challenge and care – "So what would you do?"	• Increased sense of solidarity with network through validation and confirmation
Professionals with technology	• Dissatisfaction with existing asynchronous forums and lack of tutor • Incremental adaptations by testing and trying out various ways of using the tool efficiently	• Adobe Connect tool used efficiently to improve interactivity without overloading • Overcome difficulty of scheduling regular sessions, travel and remote access • Discussion transcripts and PowerPoint files shared with them for self-review
Professionals with collaborative learning	• Requests from users to be efficient online due to time pressures and busy schedules • Brought in own case studies to share and discuss	• Whiteboard, audio-video not used • Increased engagement when collaborating on own cases • Took turns to be scribe, recorded notes shared
Professionals with patients	• Patients are complex and may have more than 1 issue; they are also more savvy and demanding • Shared prior experiences with different sorts of	• Enhanced know-how, choice and steps to deal with patients

Reflexive Relation	Pedagogical Event	Learning
	patients and their expectations • Co-created treatment options	
Professional with her local practice	• Local practice unwilling to give protected time for online CPD discussions during working hours • Met online in evenings • Requirements differed across local practices and departments so difficult to make changes across all of them	• Online CPD programme was maintained through their own initiative, as they lacked confidence that a similar approach would be provided by their local practice, or the central health system • Some would change the practice on their own, while others would speak to nurses or train staff • It's not necessary to standardize, but contextualize EBM
Professionals with tutor	• Tutor was not a sage on stage, but one of them with a bit more information • Took turns to teach each other	• Tutor lead out of learners their weakness and their strengths • Encouraging dynamic of openness and exchange of views without judgement
Professional with the CPD programme	• Prior approach did not respond to their needs for flexibility and usability	• Researcher and CPD provider responded by trialling the process and the technoloy – positive response from them
Professional with prior lived experience of treatment vis-à-vis theory	• Ignored by guidelines • Brought into discussions, valorized, exposed, options explored, assumptions challenged, opinions shared and hunches validated	• Practical knowledge that enmeshes personal and scientific knowledge produced and valued

Reflexive Relation	Pedagogical Event	Learning
Professionals with need to show evidence of change (relation with wider field of policy and practice)	• Unable to do a complex patient care audit due to part-time and remote working lives • Lacked required data on changes made as an effect of the learning process, not as an effect of an audit • Use of MoA tool to provide them a record of process change	• Used MoA tool to show evidence of change • Recorded programme hours in their online CPD log for validation purposes, shared with manager

Openness in a Safe Space

One of the problems with the use of standardized online CPD modules and asynchronous discussion forums by commercial CPD providers has been the attendant closing down and devaluing of safe spaces that are easy to access and use informally. Spaces adaptable to the needs of healthcare professionals for discussion, reflection and critique, collaborative learning exploring, trying and testing ideas with peers, mentors and experts in real-time. One simple example would be the traditional doctors' lounge in a hospital or an office canteen. The standardization and commodification of online CPD coupled with the reduction of tutor support has driven tacit knowledge sharing into the shadows: Learning that is not mandated but emerges - and is enacted - through practitioners' own inner desire to know and improve, or not, expressed externally to those they turn to around them, or not, without coming across as incompetent or a know-it-all, that takes place without planning or a conscious strategy to make someone change for a known goal.

However, what is measured, and professionals are being badgered into proving, is the naïve evidence of changes based on learning outcomes to improve practice, as a result of formal CPD modules. Informal learning with peers at the water-cooler or lounge, or from bumping into a mentor in the corridors of a conference, is not measured. Clearly, the unconscious domination of planned CPD approaches provided by the scientific and policy structures at the centre of the field of practice does not make those at the margins of the field of practice - remote GPs - a happy lot; even the literature review showed evidence of 'faking it' on the rise in online CPD.

In an attempt to reverse this uneven balance of power between the dominant influence on CPD, the scientific knowledge and policy fields, and valorize the middle field of CPD – practitioners' social relationships with one another, their provider and tutor – this study provided an online space for the tutor and participants to meet for collaborative learning. This online space, an Adobe Connect virtual learning environment, represented this study's attempt to carve out a safe space as a learning field of practice, bringing the hidden shadow learning lurking in the darkness on the edges of structures out into the open and making it count. This section analyzes what was achievable by the tutor and learners to open up the safe space for producing knowledge to support improving impact on practice, given the limited time and resources (capital) they had.

Through openness in an online safe space, the participants acquire the choice and opportunity to subtly disrupt and challenge their relationships with the theoretical, disciplinary, organizational, and structural barriers that stood in the way of their agency.

The learners negotiated repeatedly with the tutor to open up the space not only at the beginning of each discussion, but also during. Both sides made a series of moves and counter-moves to steer the discussion, and kept asserting and revealing their humanity. Particularly for doctors, who normally operate with a professional demeanour, these moments of openness expose the absurd cliché of wearing a stiff medical persona as part of their professional habitus. Yet, they cannot let the mask of competence slip in front of their patients, superiors or colleagues, lest they were to look or sound unprofessional or not up to the burden of keeping up appearances in the highly regulated, and conformist social space of healthcare practice. This openness with peers from other local practices – who they are not in direct competition with – offers a genuine possibility of opting out of the blind routines, mindless behavior and uncertain thoughts that can hamper the effectiveness of doctors in this age of cut-throat EBM where looking dumb or being hurt is costly rather than a valuable learning opportunity.

Example 1: Sharing and humour for openness

Discussion 1:

M: End up giving EC anyway…if not sure. Especially if the conversation goes like "I came on…then I missed a pill, then I was with my bf. I think I might have missed two pills, no! hang on, then I came two weeks early" etc etc.

The FRSH guidelines on emergency contraception (EC) used in this CPD programme recommend that GPs diagnose patients to check where they are at in their cycle prior to choosing the right EC method. However, the guidelines also said, as tutor T informs the group, that “GPs often don’t assess LMP and where in the cycle they are - clearly we do!” Having rebutted the assumption of the guidelines by referring to their own experiences, T then went on to inquire, “Has any one of you had any tricky assessments to make? Any cases where you just weren’t sure? What do you do then?”

In probing deeper and challenging the learners, the T lets the discussion flow. As the learners feel at ease, they constitute the spatial openness by exposing their doubts and their vulnerability. AJ starts off by warning that despite the guidelines’ recommendation to ask patients, they “…often don’t have a clue where they are in cycle though!”, to which AL then chips in, ‘I suspect some younger clients just say what they think you want to hear’. Eventually, M pipes up with the humorous example of a typical patient’s feeble and unreliable attempt at birth control mentioned above. Rather than immediately come up with a solution to reduce anxiety, the humour and sharing engage not only their cognition but also their recognition of feelings, based on direct experiences they have had. This action repositions the scientific knowledge in the guidelines to bring it into line with their vivid illustration of what it is really like on the frontline. By activating their humanity, openness enables stronger agency. By bringing in the realization that patients too have agency and may not be telling the truth, the importance of sharing tacit knowledge so as to make valid inferences about what to do in such cases to improve practice and care is underlined.

Example 2:

Discussion 2: Tutor T’s openness

The discussions reveal plenty of instances of how T established and enabled openness with her own social and cultural capital with the network as a recognized peer and mentor. In Discussion 2, T proposes using the audio function so they can hear her, while they respond by typing into the chat window. This gives T feedback and the session is quicker, with T taking the reins to seriously question the scientific knowledge codified in the guidelines.

Not only does she urge the group ‘Just don’t touch the one step’ (a type of EC) she further critiques the online module on the topic of EC they had gone through prior to the discussions that keeps recommending one step for EC.

She passes on to them her logic of calculation of EC, when she explains the reason for not using the one step method: “You got to be very careful coz you prescribe one step it costs about £24, that’s the one I can buy over the counter …exactly the same as the 1500 but different packaging.” She later elaborates, “You need to know that. I think the 1500 costs about £5. One step costs £20, and if they buy over the counter the pharmacy need to charge so it’s about £25 now.” The learners can draw on the knowledge T shared to change their practice. After all, cost-effectiveness is one of the symbolic codes that structures healthcare practice and produces its normative culture in an age of high costs – it may not be mentioned in the module, or stated incorrectly, but it is definitely something worth knowing, in case the GPs are called to explain their decision during audits.

Similarly, later in Discussion 2, when the learners express the problems they have had in arranging appointments to fit an ‘IUD’ (an EC method commonly known as the coil) in their local clinics, T acknowledges their concerns and shares her rule of thumb in dealing with such patients: “Make sure they are informed of oral EC. I usually ask them: How important is it for you not to get pregnant right now?” Although such a golden tip may not be in the guidelines, it is a gem of information that enables the GPs to improvise what to ask when confronting what is a common tricky situation with their patients in future.

In these instances, the T’s input underlines the importance of openness for changing the episteme of the knowledge produced in the space. The dominant abstracted knowledge codified in the guidelines - generic, prescriptive and normative about what to do - is now refreshed with a lot of the tips and tactics they have brought up as they interacted. These subtleties learnt and incorporated into their dispositions are durable because they can be carried over from the online discussions to local practice. Incremental shifts like this gradually become guiding principles to support the GPs practical reasoning to know how to make changes confidently. They show different, livelier ways of reacting to the challenge of satisfying the competing demands of the health culture and patients’ concerns, about difficult issues of EC, than would be possible if they only relied on the inert propositional knowledge in the module.

Leap in the Dark

This type of reflexive networking results from the learners stretching themselves outwards from what they can know from the module and guidelines without asking others, to seek out information ‘about EC that I didn’t know (and didn’t know I didn’t know it)’ by sharing opinion, information and support. Such events are a natural segue from opening up the online space. The learning that emerges here is the result of the learners’ risk-taking in the safe space created by working with the affordances of the technology. As coming out of oneself can be uncomfortable, the aim appears to be ‘walk the walk’ together to see how far they can go to turn uncertainties about what to do into manageable treatment options, thus making practice less stressful and more thoughtful. Learning is also as much present and felt in the body, as it is cognitive and known in the mind, through the energy of the social relationships with their tutor, and the bodily involvement with the hardware and software deployed. Unlike the planned learning of using the module and guideline, this pattern harnesses their social energy to support overcoming the imprecisions that plague medical practice, and the anxieties about using a new technology.

This pattern reflects the difference in their habitus as local practitioners with the habitus required of them by the scientific knowledge of practice if they were to demonstrate they had ‘changed’. This difference appears to create a fear of becoming prisoners of the imposed knowledge that assumes what are felt and tangible uncertainties can simply be rationalized or randomized away. Without resisting the two enemies to their agency to choose – imposition and ignorance – formal learning could enslave them. As shown in the literature review, changing practice and behavior is distressing, involving not only the mind, but also emotions, as well as a professional’s sense of self and their social status. Thus, their agency to reduce the distress and costs of change, and defeat the more powerful scientific and personal knowledge structures, forces them to take responsibility to keep in step with each other and move forward sensitively so that one of the benefits of online CPD discussions becomes acquiring the ability to change at their will.

Learning by taking leaps in the dark reflects how enacting the habitus in a safe space through discussions disrupts the prior certain knowledges flowing in the space, and destabilizes any stable unfolding of the discussion, so as to sense the fear and take a leap into the dark to improve. As shown in the results of the interview in the last chapter, when alone and in doubt in local practice, no one would want to disclose their uncertainties for fear of being judged as incompetent. But when in a safe space with a tutor in a distributed

virtual practice, the fear subsides as the relationships are leveraged and applied. This pattern thus reflects efforts to navigate the tension between short-term anxiety caused by becoming conscious about an unresolved issue by one learner, and the long-term unconscious thoughts and actions in practice when it is resolved and shared by the network over time. That is, deconstructing, and then reconstructing practice.

In addition to being motivated to reduce the costs of passively following scientific knowledge, learners were also motivated to take leaps into the dark depending on the material aspects of the technology they were becoming familiar with. As this was the first time they were experiencing a synchronous approach with a new tutor, learning environment, time and space (in the evenings and at home), it would appear on the surface that their costs of adapting to the learning process would be high, making them take less risks to expose any lacks. In fact, the opposite logic was observed because of the high value of the approach. Learners used the opportunity to show their agency as learners, and narrow the gap between their existing asynchronous forums and module approach and other CPD approaches. For example, doing the learning by sitting with their laptop at home, on the sofa, with a glass of wine in hand – as the learners mentioned during the discussions – and negotiating which aspects of the technology to use, and which to avoid, made the leaps in the dark less frightening. This is a significant benefit, for no one wants to make leaps in the dark alone. Because the technology was flexible and adaptable to their needs, it was less of a barrier to connecting and sharing.

Pedagogically, leaps in the dark affirm the credibility of the tutor T's mantras about online CPD discussions, namely: 'The idea is discussion and not getting it right' and 'This is the joy of online discussions – you can do childcare at the same time!". The stretches accumulate and strengthen their solidarity, dissolving the asocial 'pride comes before a fall' disposition that prevents trying to change things together, to encourage further trying and honest feedback between T and the learners. By Discussion 4, they are confident enough to go beyond the defined learning objectives of the programme – T says, "It doesn't have to be EC – we can broaden." The group brings in their own cases from lived experience. Even though they are worried their cases are 'a bit woolly' with 'not much meat to it', T is overjoyed that they are bringing in their cases: "5 cases! You have surpassed all my expectations! (I don't care about woolly)"

This pattern thus enhances the value of tentative, incremental shifts in dispositions, in small networks of weak ties, to improve practice. Two examples of this type of reflexive networking are presented below.

Example 1: "…what IS going on here?"

Discussion 3, breakout room 3, Learners L and M.

In Discussion 3 T broke the group into pairs to explore cases she had prepared. Here, it seems that all the complexity patients can present to GPs meant they had little choice but to confront and overcome the limitations of clinical guidelines if they were to avoid drowning in a sea of confusion.

The questioning style shows how M and L engage in leaps in the dark to try and sort through the options to providing EC to a patient. She was an 'older lady, mature, aware' and 'using condoms', who just had an 'unprotected sexual intercourse' (UPSI) 7 days ago. Revealing her frustration with such patients, L takes a leap by declaring sarcastically 'yes, older, but not that much more mature regarding attitude to withdrawal and risk of pregnancy!" M, too, is uncertain about what to do. She choses to probe L and get validation of options – e.g. "' what about…?", "As…?", "…is it not?", "So…" "what did she use previously? Did she use withdrawal method then?? They filter through these issues, trying to come up with a realistic option. L declares what she would do while couching her answers – "yes I think still for that one…? But I may be wrong!!!" "…but I'm sure I remember from e-SRH modules..." and finally, "yes, if indeed we confirm it is an option, otherwise…consider other options…and will need to think about ongoing contraception".

My heart went out to them on reading this interaction. What GPs had to take into their hands to beat off the imposition of distant scientific knowledge, and overcome the vagaries of personal judgements and disagreements between them, seemed an immense burden of responsibility. This burden is more than the body of evidence and a bit of reflection with supervisors could tackle. It straddles their personal as well as professional self, their hearts and minds, like the proverbial butterflies in the stomach when feeling uneasy about what to do or say without breaching trust, confessing secrets, or treating someone unfairly. I then understood that leaps in the dark were vital because patients were real – with bodies that groan and smell, who harbour worries and neuroses, in front of the doctor in the hectic clinic – and relationships with patients were at the heart of their struggle to improve care. Patients were complicated, they presented all sorts of confusing symptoms,

and they asserted their agency, eroding the certainty of the professionals' guideline-based decision making. By taking leaps to learn that were 'quite tricky, not very straightforward cases at all', they had shown why it was valuable to gain more possibilities for action to improve care with real-time discussions than they had previously with the module and guideline.

Example 2: "what a nightmare!" "that's terrible..!"

Discussion 4:

As there is no exact time in a women's menstrual cycle when there is no risk of pregnancy after UPSI, EC may be required when the pregnancy is unwanted. The sooner it is given, the more effective it is in decreasing unwanted pregnancy. Some forms of EC can be taken only once in a cycle, while others can be taken repeatedly. I provide this brief summary of the EC guidelines cautiously, as an observer of a specific social practice of professional learning online, and not a biomedical expert. However, as this example shows, it takes a lot more than following clear information to establish a patient's reality before offering EC. For this group, taking leaps in the dark meant bringing in complex cases they had handled and interrogating them together to change practice.

L shares a case of a 13-year old girl who came to see her with her mum. The girl had been given EC not for its primary purpose, but for its side effect - to sort out her severe acne problems, for which topical acne creams had failed. Although the patient claimed she was not sexually active, L wanted the group's opinion on how 'keen would they be for her to be on contraception if starting a topical retinoid', as recommended by the BNF guidelines.

Like a forensic detective, AJ asks for more details on the encounter – '…did she attend with mum'. L affirmed, and clarified, '…mum doing talking'. This information is crucial for AJ to suggest what the right treatment option could– "a lot of 13 year olds are (i.e., sexually active) - she isn't going to admit it with Mum there either." Clearly, GPs also need to take leaps into the dark to improve relations with patients; according to A – "that's why dire warning re: risks are needed!" Eventually, M seems to provide the consensus: given the uncertainty whether the young patient is telling the truth, "I would defo be referring." However AJ parses options further, asking 'how bad was the acne', and suggesting that 'if already had scars then I would refer her, but

would probably try cocp first'. This frank exchange shows why leaps in the dark are valuable for improving practice – cases shared allow for 'using other people's expertise to complement our own'. The tutor T is relegated to the sidelines, almost like a referee to the game they are playing. Meanwhile, the learners are shooting rapid-fire suggestions, drawing on their prior experience, to help a peer. So profoundly moving is this leap that AJ even confesses: "I get twitchy about dianette as had a patient die on it, and other gps seem to leave people on it for years."

It would be hard to imagine a GP confessing like this on an asynchronous forum, blog, or webinar. The healthcare culture with its discourse on quality and standards creates a fear of honest sharing, keeping professionals hiding in the closet of shame. By disclosing what was clearly a difficult situation in practice, AJ releases the hold of the anxious unconscious over their professional practice into the safe space. This act of faith in each other's empathy also underscores the importance of going beyond the strictures of abstract knowledge codified in guidelines.

Aha!

What then is the payoff of taking leaps in the dark? This third pattern of reflexive networking refers to the situation when the learners, having ditched the cookbook medicine of clinical guidelines in favour of airing their concerns and sharing information, gain a pragmatic hold of their practice.

This grasp is not the arrogance of knowing what to do based on RCTs, but the realisation that arises from valuing their interactions. The reasoning for their actions appears not to be based on scientific, intellectual or economic logic alone. Neither is the moral conviction alone sufficient to conform. Instead, as social agents who have a safe space to share and enhance agency, the GPs learn how to improve practice and patient care together because their 'practical reasoning' (Bourdieu, 1998) about what to believe and how to act encompasses a whole host of functions and goals (Bourdieu & Wacquant, 1992).

Of course, a short programme like this represents for this group of practitioners a drop in the ocean of their countless interactions with the dominant scientific and policy structures at the centre of healthcare. They have been 'doing medicine' ever since medical school, with its endless droning litanies exhorting the need for compassion, integrity, professionalism and values in doctors – easier said than done. This pattern in this online field of practice should thus be viewed in relation to their struggle for control over

practice. From the margins, fighting for legitimacy in the field of contested practices, the Aha! type of reflexive networking is a compromise in response to lingering uncertainties. This pattern provides new choices, opportunities and intentions that can be carried over into future interactions with scientific knowledge and patients' experience, as well as policy directives. Thus it is a source of power (capital) to meet their goal of improving practice without sacrificing what little power they have. This compromise is an acceptance of the inevitable letting go of conformity with the scientific logic of their practice, and the beginning of acceptance of conformity with its social logic.

Stopping their ritualistic bowing in front of the evidence based guidelines, they gain symbolic capital and start valuing the subtle differences in practice that they co-create. This tentative release from constraints can then be fine tuned in future interactions with patients to assess whether the action is working.

Two examples of this pattern of reflexive networking are presented below.

Example 1:

Discussion 3:

T: You'll be in little break out groups…

A: so long as it doesn't involve role play!"

The tactical Aha! of reflexive networking also affects the material attributes of the technology. In Discussion 3, the tutor T was interested to try out an attribute of the Adobe Connect classroom – the use of break out groups. Like in a typical workshop setting, the intention was to do a quick discussion of 3 cases T had prepared in small groups for 5-10 mins, in rotation, followed by a plenary in the main room of the virtual classroom for a final sharing and clarification. Her suggestion met with a few groans and grumbles from the group, with L even saying, "fine…as long as it doesn't involve role-play!", to which T promises, "No role play." In the breakout rooms, L and M complained further that the breakout approach was unfair, as they were only a pair due to the odd number in the class (7, divided into 2, 2 and 3). They played along begrudgingly. However, they did not warm to this approach, ('didn't particularly like being left alone in one group to discuss all cases') and went back to plenary-only discussions in the main room for the Discussion 4.

Despite the vast potential of the technology, including use of the whiteboard, and audio-visual features, it was rendered benign, virtually harmless. This

Aha! moment came through negotiations, almost as if they took one step forward, then two steps backward. What this tactic shows is that for these learners, rather than becoming attached to the technology's possibilities or the activities such as breakouts, it was the value for cultivating warm relationships across time and distance to achieve their goals that counts.

Example 2:

Discussion 4:

AJ: "..so would you get her to come in…" until

T: "AJ, are you happy with this?"

In the final discussion, looking at cases they had brought in at T's request, AJ was interested to hear the opinions of the group about what next to offer a complaining 23 year old woman, "on cocp,...getting frequent headaches, nullip," then "been on cerazette for about 6 weeks – bleeding every other day for 1 week…advised to persist…"

The group had a lot of differing opinions about what to do in response. The problem centred on what to do if the patient did not persist with what she was advised to do, as AJ clarified to them. The use of conditionals in their queries and answers (such as …'I would do…" and "Probably…" by M, 'she could…' by AL, 'can we…' by MM, as well as 'Would anyone consider' by the T) suggests a range of possible tactics to deploy that were being worked through for a fine grained response that went beyond the guidelines. They even had to consider offering choices to the poor woman as T prompted: "What is more of a worry to her, the potential issue of headaches returning or the bleeding patterns?"

Although there is no conclusive answer, this pattern, exhibited through a rich dialogue, allowed the group to converge on a few points of agreement, summarized in their session notes as:

- STI screen
- Persist with pop as long as possible
- Discuss headaches vs bleeding and consider cocp

Similar incidences of Aha! were found, particularly in discussion 4, comprising probing, suggesting, clarifying, eliciting, deepening, sorting, judging, doubting, and patting each other on the back. The more they revealed the reality they confronted, the more they received empowering and agency-enhancing answers, rather than being lectured at by an expert.

For the above case that AJ brought in, A even dared to admit, “In real life, I might offer double dose POP for a few months – unlicensed but accepted practice, although no evidence for it!” This pattern of decision making also included jokes, digs and asides at how bothersome patients and nurses can be for assessing risks and managing treatment, such as when AJ remarks, ‘well she has to take some responsibility herself”, and later, “I hope she doesn’t sue the clinic when she is pregnant!” Because the clinical guidelines and module lacked some of the answers they wanted, it was only by asking each other directly and sharing their lived experience that they could overcome their frustration and develop a tentative protocol when cases were ‘wooly’. When T checks with AJ, ‘…you happy with this?” it signifies that it is not by following the deterministic rules of guidelines by which GPs rationalize and improve their practice, but the spontaneous offloading of their burden through sharing experiential knowledge that adds value for improvement. Their taste for conformity to each other’s preferred actions, rather than the recommended actions of the guidelines, suggests the advantage of valuing professionals’ cultural capital in their decisions about practice.

7.2 Summary of Reflexive Networking Patterns

Reflexive networking was earlier defined as a strategy for online CPD programme delivery by CPD providers to improve impact on practice by affecting the capacity for agency of learners as an interim outcome. All the three patterns that emerge show that by flipping the model and observing it from the point of view of the learners and tutors, it is also initiated and maneouvred from the users’ agency.

However, each pattern has a different trajectory, a result of the interaction between different forms of capital, the distinct dispositions of the various agents, and the availability of opportunities for these dispositions to be actualized during the discussions. In this pilot study, the different agents in the field, despite playing the role of learners and tutor, had similar social positions as female GPs. Their homologous positioning in social space positively influenced the resources they had and could draw upon to affect their own and others’ actions in the field, the results of which enable and constrain future actions to improve impact and practice. Hence, the three patterns built upon and consolidated each other. Understanding this interaction critically will help develop an analytic interpretation of the useful categories (patterns) of the change process of reflexive networking as an

online CPD strategy, which is grounded in temporal interconnectedness, embeddedness and a search for realistic instead of linear explanations of the change process.

Table 7.2 depicts the three patterns of reflexive networking observed in terms of the concepts from Bourdieu's theory of practice. All patterns of reflexive networking start with the intention of the users to improve their impact on practice and patient care through online CPD by reducing uncertainties in their knowledge and skills, such as through reading about new clinical guidelines in online modules. Having established their interest in a common topic, they then draw on existing peer-peer relationships to choose to try out an innovative approach to learn collaboratively online – a real-time synchronous technology with facilitated discussions with a tutor. This choice enables the opportunity for pedagogical events in the form of solving problems, discussing cases, and sharing information. Equally, the learners and tutor also want to spend their time online efficiently, given how busy they are, and make it valuable for the goal of improving impact on practice.

Unlike studying the guidelines, going through the module, and asking questions on the asynchronous forum, synchronicity is useful to them. Here, synchronicity is the need for remote learners to be in the same online space at the same time in order to interact meaningfully. It enhances their real-time social and cultural presence with each other as agents with human feelings. This reduces their sense of alienation doing modules alone. Although they had tried to learn collaboratively online via the asynchronous forums on i-Physician, as well as another chat software Moro, both had been disappointing experiences. It was important for them to stay well connected to each other, to maintain their credibility as remote GPs at the margins of policy and practice fields. However, their part-time and remote working schedules made it hard to organize times to meet online during working hours. Their decision to use their free time in the evenings to do the discussions signals that they could use and grow their resources (capital) efficiently - asserting their intentionality to develop collaboratively with each other. Given that they had been provided training, the new tool required no complicated installation, and allowed for improved synchronicity and interactivity, they took a positive choice for openness in a safe space to support the goal of improving impact.

In turn, the category of Leap in the Dark shows the role of the tutor – meeting the needs of her learners for practical and social value from the

experience. Thus, she was keen to be in tune with her learners, and not get too far ahead of them lest they complain or ignored her. Rather than transmit the guidelines, she supported the dismantling of scientific knowledge and allowed for creativity to emerge. Because of her subtle moves, competing information circulated, allowing the learners to modify knowledge and gain the power to change by doing so. It was also important for her to have good relations with them, so that they valued her mediating role, which was good for her reputation. As an EC provider herself, she leveraged her sense of what their reality was like, knowing they would trust her to keep what they said and discussed confidential, what advice and support could help them reduce risk, and grasp the complexities of integrating EC with broader sexual health treatment, prevention, care and support practices. She structured the facilitation flexibly, to allow the learners to experience different activities such as plenary discussions and breakouts in smaller rooms, as well as viewing Powerpoint slides, listening to her lecture as they typed their queries into a chat box, and having a space dedicated to note taking for later circulation.

Since their reality was quite different from the reality assumed in the clinical guidelines, healthcare professionals may choose not to conform, or conform superficially, when guidelines recommend implementing a new clinical procedure. If, however, they share information, opinions and advice with each other, they can become aware that others are also facing similar doubts. That is why taking a leap in the dark in a safe space is vital to find ways to reduce uncertainty, even though it appears on the surface to be risky.

One of the most striking features of all the patterns is the display of human qualities, which are not normally a feature of formal online CPD approaches such as modules and asynchronous forums. These qualities include intuition/hunches, humour/laughter, inference, sharing experience, playfulness, exposing vulnerability, gratitude, validation and empathy.

Table 7.2 Categories of Reflexive Networking

Patterns of Reflexive Networking	Appropriation of Structures (Pedagogies)	Material Properties of Technologies	Shift in Balance of Power (Valuable Resources)	Examples of Learning
Openness	*Habitus*: a) Scientific: increase use of evidence-based guidelines b) As online learners: enable learners to connect in real time- to be present c) As remote learners: reduce uncertainty and inefficiency d) Of Tutor: Shared interest with learners	• Existing systems (modules/ forums) not useful for needs • Flexible usage at their preferred time and with those they know/ want to know • Synchronous and can improve presence • Interactive features enable learners to come alive	• *Social capital* Human factor: a) developing collaboration across time and place; b) intentionality to change	- *Sharing personal info.* - *Humour* - *Tutor's openness* - *On own time (choice)* - *Try out new tool (opportunity)*
Leap in the Dark	*Habitus*: a) Scientific: conform to what the experts say b) Tutor: Support improving control over practice	• Useful for deepening relationships with far-away peers • Flexible and adaptable • Delivery of programme integrates a module and evaluation with	• *Cultural capital*: a) developing shared logic underlying the EC practice (embodied)	- *Sharing doubts and concerns* - *Providing information, opinions and support* - *Discussing problems* - *Introduce creativity*

Patterns of Reflexive Networking	Appropriation of Structures (Pedagogies)	Material Properties of Technologies	Shift in Balance of Power (Valuable Resources)	Examples of Learning
	c) Learners: Shadow learning (tacit knowledge) made valuable – offload anxiety	discussions in virtual safe space- become immersive- a necessary bridge- innovation reduces resistance to using e-learning	b) developing technology (objectified)	- *Exploring treatment options*
Aha! Moment	*Habitus:* a) Scientific: demonstrate change b) Learners: meet needs of patients c) Tutor: Balance; conforming to rules they create, not simply following what central powers expect them to do	• Fits with needs and wants • Easily-tamed • Relatively inexpensive and easy to transition from existing technology and keep using it	• *Symbolic capital:* a) developing practical knowledge collaboratively b) agency - valorization of social relationships at the edge of fields • *Cultural capital*: Declaring the approach, tool and the information shared to be legitimate and valuable • *Social capital*: a) Remote GPs reputation within their local practice enhanced by accessing	- *Validating* - *Hypothesising (If…/then..,)* - *Summarising* - *Order and organize options 'what and how to do'* - *Walking out of shadow learning with increased value, choice, opportunity and intentionality* - *CPD validation* - *Pleasurable conformity*

Patterns of Reflexive Networking	Appropriation of Structures (Pedagogies)	Material Properties of Technologies	Shift in Balance of Power (Valuable Resources)	Examples of Learning
			network of peers and experts b) Internal reputation with each other – remote GPs keeping up with demands of scientists/policy makers and patients c) External reputation - improves for tutor as an expert, by supporting remote GPs	

Table 7.2 Categories of Reflexive Networking (Continued)

A critical feature of reflexive networking that facilitates these human qualities of relationships is the provision of a safe space online in which users could interact with their peers. The fact that they already knew one another, worked in similar fields, and were female, middle-class part-time GP retainers of a similar age and facing similar life/work balance challenges as working mothers, also enhanced the perception that they were freer to express these human qualities than to unknown peers. Additionally, integrating the safe online space into an existing CPD provider's website, and attaching it to an online module and an evaluation, gave the learners an immersive experience that reduced their resistance to trying out new tools, as well as measuring results of making small changes to practice.

The patterns also show that these human qualities are crucial in the pedagogic events and sparking the learning. The users respond to one another in real-time, as if they are in a café or wine bar shooting the breeze without the pretense of 'teaching and learning'. Their ability to be fully themselves is an important motor keeping the process alive, entangling them in dense networks of ties with each other, the tutor, the provider, the theory, their practice, and the technology. As the users compare and work through the conflicting social logic of practice and scientific/policy logic of practice at play, they channeled the human qualities that were vital to them to adapt the technology and the actions they took to conform.

With enhanced solidarity and mutual reciprocity, the emotions stirred in the tactical Aha! pattern observed indicates that the increased agency experienced is pleasurable, loosening the tight knot keeping the scientific aspect of medicine and the human qualities of care apart. Unlike the conventional assumption that gaps can be bridged or closed as if the gap is a space between two river banks, loosening the tight knot is a socially richer interpretation of collaborative learning to improve practice as a social enactment. This pattern also marks moments when the latent tendency to conform aligned with the pleasure of changing practice, hand in hand with their peers as they walk out of the shadow of learning – the process and the technology now have symbolic profit.

Ironically, humans are often seen as the weakest link in the process of improving quality of care, because of their fallibility. Consequently, the human qualities of medicine – the proverbial bedside manner – are being rapidly erased, replaced by elevating 'evidence-based medicine' and its 'scientific' basis to pole position. This study shows that this hegemony can

increase fear among local healthcare professionals of deviating from the imposed norm, although the pressure to conform has not improved patient care either. Neither has the imposition of fixed asynchronous technologies, such as blogs, modules, forums, that cannot be adapted by humans. It is only the human interdependence of reflexive networking, through the interplay of the pedagogy, technology and the network, that can disrupt the vicious pressure to conform to imposed norms and rules, replacing it with the virtuous Pleasure of Conformity, while meeting learners' intentions for improving practice effectively across time and distance.

As the results of the measurement of agency tool in the last chapter showed, the outcome of humanizing reflexivity on the agency of learners in this network is 13.4%. This is a quantitative indicator of impact (value). The flip side of the coin that is equally valid as a qualitative feel for impact is the Pleasure of Conformity. That is, to add colour to the tutor T's insight in the last chapter that this chapter began with: while doctors tend to want to conform, a sociological perspective shows that their agency to improve impact on practice also depends on the Pleasure of Conformity they get out of it, but only so long and as much as they want it.

The outcomes of the patterns observed on achieving the learners' intention of improving impact on practice thus depends on several factors. For example, do the discussions lead the students out of their weakness – their doubts – and leverage their immanent strength – their accumulated knowledge from experience? How confident are they that they will valorize their marginal knowledge as practitioners over the scientific knowledge of guidelines, and synthesize the two to know what and how to do in complex cases? Even if their intentions to change are activated, as indicated by the interviews with the learners, their intentions may be thwarted because of structural barriers, such as what their organizational managers require of them. Although no objective assessment of change in practice after the programme ended was done, the patterns show the usefulness of looking at the development of agency as an interim outcome. Thus, the 13.4% increase in agency is significant for empowering the professionals through the process, as a validated indicator of the 'educational agency strength' of online CPD programmes. This valorization process can gradually change the balance of power between them and the scientific/policy experts who wish to impose their dominant logic of practice onto these local practitioners.

The very narrow boundaries of the online learning field of practice nevertheless may limit the wider impact of the process beyond a short programme. Controlling for the many attributing of the wider fields of practice is impossible, even in RCTs, when seeking to understand the reach of the impact of an educational programme. Bourdieu himself was not concerned about external validity, arguing for the internal validity of a research project to change a field of practice so as to draw generalizable conclusions about the limits to changing a field of practice, as the fields were changing (Grenfell & James, 2004). As per Bourdieu (1989) advice on curriculum delivery, the programme was situated in between the upstream healthcare policy fields, and the downstream local fields of practitioners. It was also situated in between university, industry and local practice fields - in the middle of dynamically active edges of social structures. This boundary-straddling positioning of the model for the process to come alive reduced the competitive - and enhanced the collaborative potentiality - for beneficial resource (capital) exchanges for producing change in agents' dispositions, thus widening the reflexivity of the participants (learners, tutor, managers, researcher), in terms of their social positioning.

In addition, as the group strove to meet its needs and intentions to improve practice, they explored their practice, both their e-learning practice and their medical practice. They developed their logic about the right thing to do in relation to scientific knowledge, the culture and context of healthcare, and the innovative technology with each other, as they sought to make the process work for them.

Clearly, it is more than just mechanically meeting their needs to update knowledge and skills, or going through the motions of modules, as if it is a mindless habit of clicking and ticking online, that these users show in the patterns observed. It is also their desire, borne out of their cultural imperative as GPs for conformity, to know and to read the hidden 'between the lines' clues that everyone wants to know and no one wants to divulge publicly; the stuff that does not count as evidence in guidelines, that brings the pleasure of conforming to how others like them are doing it behind closed doors. It is as if there is an ethereal, invisible hand guiding the process behind the scenes taking it as far as it can in context with specific people in a particular time. Overall, making 'practical sense' (Bourdieu, 1990) in the online space influenced the trajectories of reflexive networking for the intention of improving impact for this group.

Figure 7.1 summarizes these trajectories, and how the habitus of the different agents, the type of capital they possess, and the material features of the technology under consideration lead to the types of reflexive networking taking place. As power is redistributed in the online space, and different capitals interact, new ideas, choices and opportunities to do things differently began to make sense, and change the learners unconsciously. Figure 7.1 can thus be seen as a refined conceptual model of the one this study began with, that was shown in Chapter 3.

To begin with, the 'Openess' trajectory of reflexive networking is the result of a subtle disruption of normative ways of behaving and thinking in public - as doctors with a cool and distant scientific authority – to reveal their human selves in a safe space they had control over.

From a Bourdieusian perspective, this trajectory occurs when the learners already know one another, giving them the social capital to leverage. Added to this was the social capital of engaging with the tutor, who was making herself available to facilitate.

However, openness is only valuable behind closed doors. The online safe space thus has a symbolic power for sharing information. What learners bring to the space, and leave the space with, can be sensitive, coming from within the internal dynamic of the process, their biography and lived experiences. It takes time, and time heals but only by leaving scars. Learners must be assured that they will not be judged or penalized, lest they decide to reverse openness, do a U-turn, and shut down the sharing required to keep loosening the knot to improve practice.

Different concepts influence which trajectory transpires in particular contexts of reflexive networking. In this context, in the second trajectory 'Leaps in the Dark', the non-human (material) attributes of the technology are more influential. Because the human qualities of the network have been established during the openness trajectory, the flexibility of the technology determines the efficiency impact of using it to make valuable leaps in the dark, as compared to the risk of doing so via existing asynchronous technologies. Since the information in the guidelines and modules is found to be inappropriate, what healthcare professionals lack is the cultural capital to use the information appropriately. By participating in a cultural activity such as online CPD discussions, they are producing two kinds of valuable cultural capital: *embodied* in the norms, values and discourse skills of GPs just like them (from the same social class), and *objectified* in their use of the

technology for achieving their goals to improve practice. Hence, cultural capital is the valuable resource that matters most – and grows the most - for leaping in the dark to learn during online discussions.

The third trajectory, “Aha!” highlights the importance of building up resources over time, to take into account the cumulative value of the human and non-human (cultural, social and material) features of reflexive networking when looking at its potential to improve the impact of online CPD programmes. For example, consider its value for improving the use of collaborative learning discussions during online CPD programmes for busy, remote healthcare professionals. Using an asynchronous technology such as a blog, or module for this purpose has been shown in the literature review to have a low effect, because of the structural and cultural barriers professionals face in revealing human qualities, and the inflexibility of imposed technologies such as Blackboard-type corporate learning environments that have to be used and cannot be circumvented. This means that culturally, asynchronous technologies have a low meaning and low value for most professionals, marring the sharing of tacit knowledge, and reducing the agency required for improving practice. Moreover, professionals learning alone through modules without structured social support are already faced with pre-existing unconscious barriers to changing practice because of the uncertainty provoked when trying to change alone. In Bourdieu’s terms reasonable action based on “disinterested behaviours” (1998, p. 85) – which is what simply taking and applying scientific knowledge assumes – is not possible. No one is going to change what they do and how they do just because someone else says so, especially if that someone else has more power than they do. Increasing the capacity for agency to change thus requires supporting professionals to get what they are implicitly searching for, but cannot explicitly say because of social norms of ‘how to behave at the workplace’ – the value (profit) of symbolic capital that the existing system is not giving them that imposes symbolic violence on them.

This trajectory thus synthesizes the conceptual features – pedagogy (sharing, structured, facilitated, collaborative), technology (flexible, useful, synchronous, easy to use) and networks (weak ties, regular meetings, human qualities) – to enhance the level of pleasure in conforming to practical knowledge to improve patient care. This trajectory exhibits the strength of pooling different types of resources (capitals) to increase the symbolic capital (value) of using a new technology, new thoughts, and actions.

As compared to asynchronous approaches, this third trajectory occurs when the collaborative learning discussions are a valuable enhancement of learners' cultural and social capital. Previous exhortations urging healthcare professionals to learn, share and collaborate in online communities of practice using blogs and forums, for instance, have fallen on deaf ears, growing cobwebs through disuse. This study shows that the learners are caught between different fields, struggling with different logics, where different practices are valued. In making sense of the call to collaborate to share knowledge for the sake of improving healthcare, this trajectory shows that what is valuable learning is maintaining their CPD validation, taming the technology, working their relationships, and implementing new guidelines through deriving pleasure from conforming, to the process, its spirit, and its outcomes. They discover a continuum between the online and physical fields of practice, slowing down the speed of change, finessing their practice through parsing the treatment options, and reducing the distance between their perceptions and those assumed by scientific knowledge, to influence this trajectory's value.

In contrast, asynchronous online CPD approaches to pushing collaborative learning through imposed social interaction make a category error, by expecting the outcome of interactions online to change the behaviours of individuals, ignoring professionals' understanding that their role, status, motivation (agency) and value (what's in it for me) in taking responsibility for learning and changing practice is shared with those they affiliate socially with regularly. By now, their dispositions (habitus) are strongly enacted and their relationships embedded in the process, making it easier to make changes gradually without hiding behind doubts. Since the trajectory is adding significant value to their satisfaction with online CPD, as well as their status as professionals who can change, the approach becomes 'fit' for purpose, symbolically that is. Unlike a machine, a human professional learner cannot make learning fit for the purpose of treating patients, who are humans and not machines.

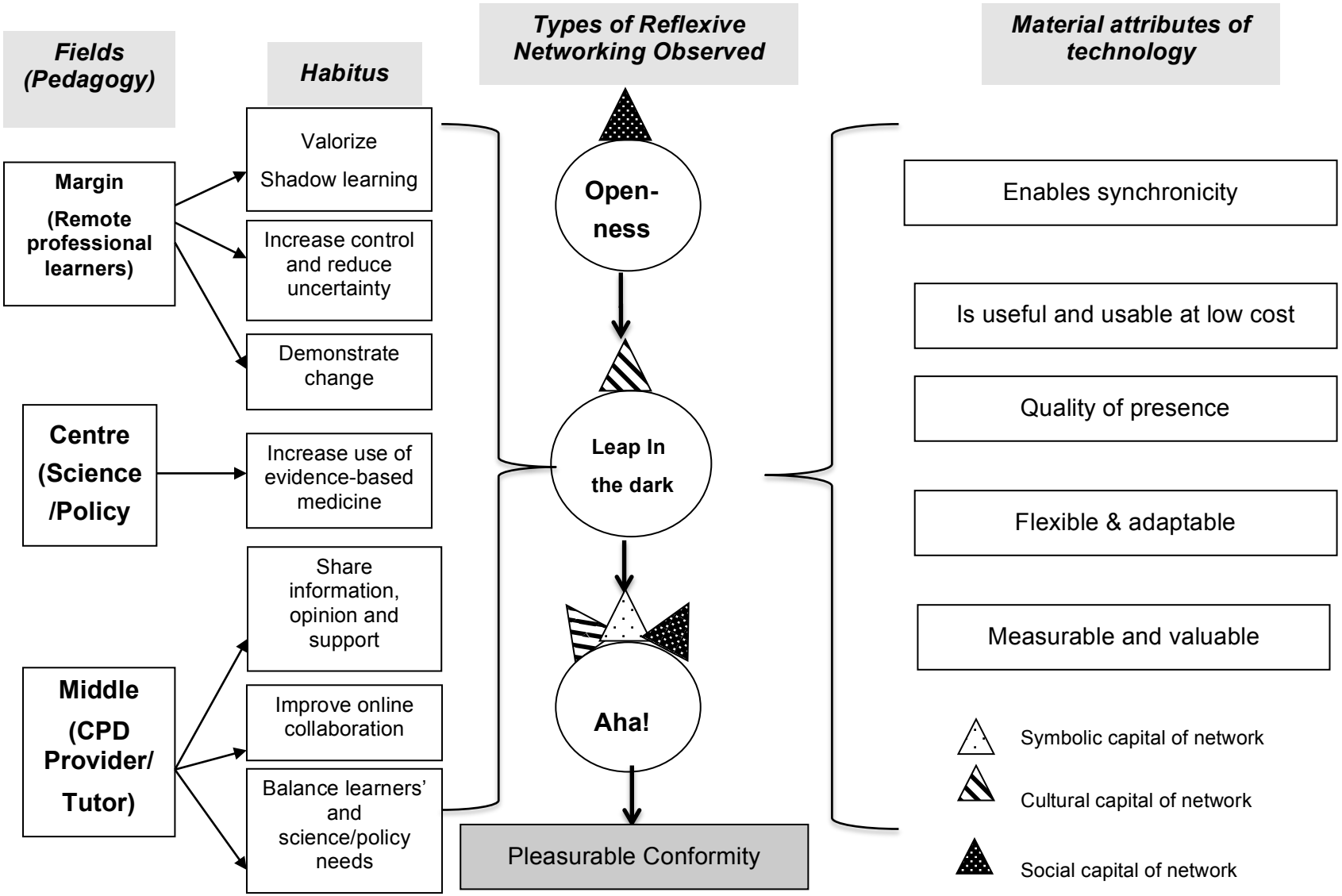


Figure 7.1: Impact of Fields, Habitus, Capitals and Materiality on Types of Reflexive Networking observed in online CPD

7.3 Dynamic Process Model of Reflexive Networking

The preceding section has shown that reflexive networking is not simply a linear causal change process for transmitting knowledge and building skills online to change behavior and improve practice. Learning is structurally constructed, and must be understood realistically for the purpose of designing for impact. Process models are useful for examining such a dynamic phenomena. They are relevant here because reflexive networking is not a sequence of events or states that can be produced by manipulating certain causes; instead, the impact, as a pattern of outcomes, depends on a number of conditions that are necessary but not sufficient to improve practice and patient care (Markus & Robey, 1998). In other words, even if the conditions are present, and the same components are used, the theorized outcome may not occur. The different outcomes are thus viewed as being qualitatively different, not merely different degrees of one particular dimension. Finally, dynamic process models are useful because they retain empirical fidelity, while allowing a pragmatically objective measure of generalizability. This enables the creation of predictive, testable theories, without having to decontextualize social phenomena, for the design, delivery and evaluation of online CPD programmes.

Figure 7.2 illustrates a dynamic process model of reflexive networking for the intention of improving impact on practice with online CPD programmes. It is depicted as a flowchart, moving through the three different types of reflexive networking and a decision not to change practice (i.e. to use the mandated/provided, official codified knowledge such as a clinical guideline combined with the existing technology, such as module and asynchronous forum or blog).

The model starts with the conflict between dominated, remote health care professionals at the margins, and dominant, scientific, policy and organizational structures that are codified into normative claims and rolled out, such as best practice manuals and clinical guidelines, as well as standardized ‘how to’ guides about research and practice, policy and organizational strategic plans.

At the centre of fields of practice are CPD providers, both the educational institutes and the educators who work for them, who are tasked with deploying online CPD to disseminate what the dominant structures want the dominated to do, based on the differences in their dispositions over what is practice, and how practice and care can be improved with online CPD.

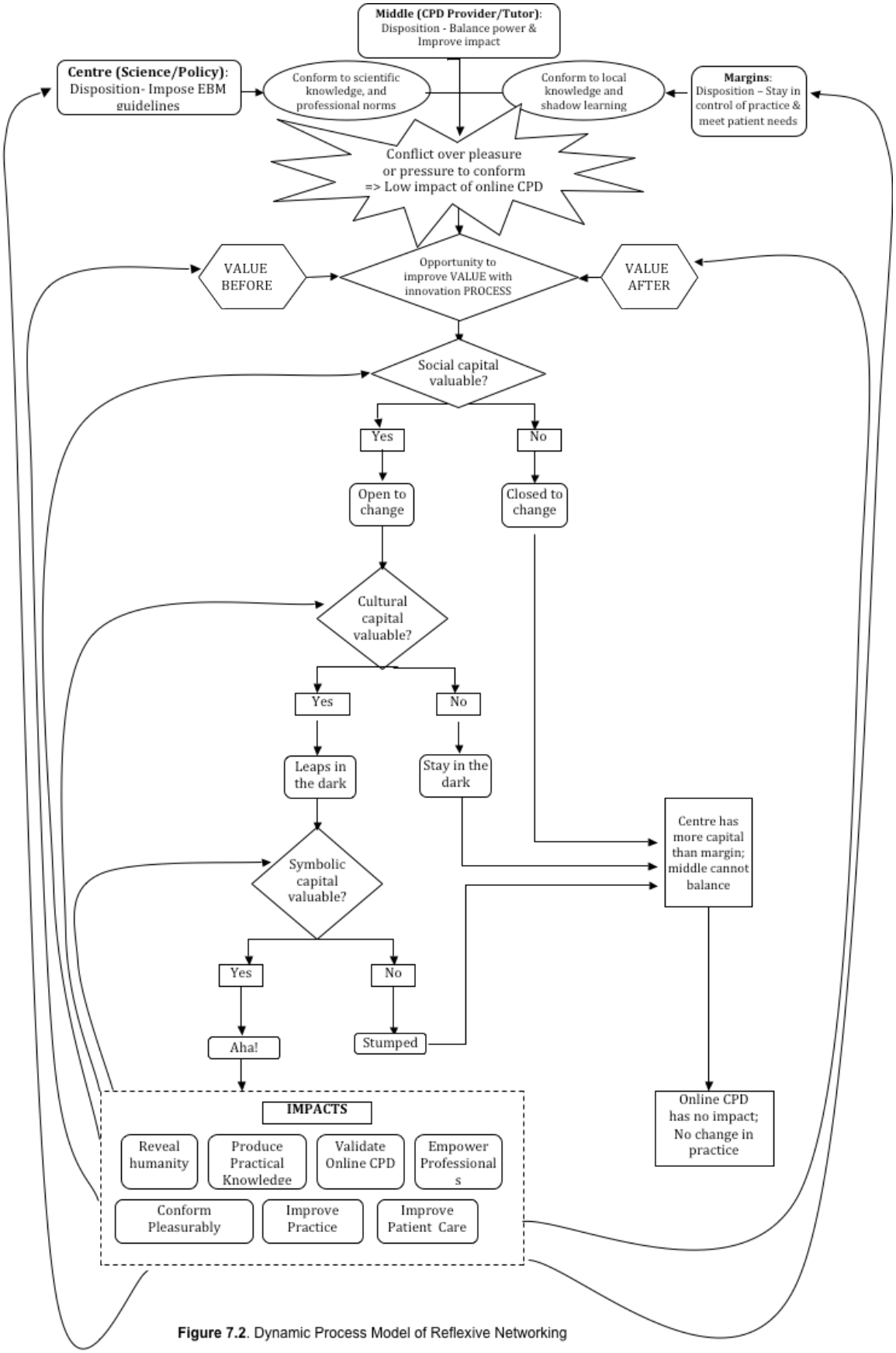


Figure 7.2. Dynamic Process Model of Reflexive Networking

Dominant healthcare structures in the elite field of healthcare (e.g. policy and research authorities) want to preserve their authority as the agent with the ability to define, name and label what right practice is, and how to go about changing it at the local level of clinical practice. There is a danger that the internet can be used as an instrument for these authorities to enforce compliance at the margins without getting their hands dirty.

In the middle, providers of online CPD and educators are expected to focus on meeting the needs of their end-users – in this case healthcare professionals, and their patients respectively. In this study, this was the situation with the commercial provider, i-Physician. Yet, educators and providers risk being unwittingly coerced into a Faustian pact. Providers are tasked with deploying online CPD to disseminate what the dominant structures want the dominated professionals to do. In exchange, online CPD providers are compensated for performing this service by the dominant power structures, so they can provide the service to their remote members via the Internet at no financial cost. The middlemen, then, are service providers and deliverers of CPD. On the surface, it all makes good sense?

As always, doing things on the cheap has its dangers – for all concerned. The shadowy sub-text that drives professional behavior can be provoked into dumb defiance against the faceless, aloof hierarchs dispensing received wisdom. The ones who get it from both sides, alas, are those in the middle who thought they were trying to help make things easier for everyone!

Reflexive networking offers a solution acceptable to both authorities and the professionals in the field while at the same time permitting CPD providers and educators in the middle to look at the situation honestly, indicating the path ahead so they can move forward slowly and bring both sides with them.

Both dominated and dominant expect online CPD to improve impact on patient care by changing practice. Yet the means of achieving this goal can create a conflict between conforming under pressure to the dominant structures' rules and norms or not conforming: the radical alternative is to conform to attitudes and norms that are valuable because they are based on collaborative relationships that keep adapting as life evolves. This conflict of interests provides an opportunity for educators in the middle to design online CPD to balance the power distribution and resolve this conflict socially and critically to achieve the goal of improving impact.

The first condition that affects the resolution of this conflict during the online CPD programme is the available social capital: how valuable is it for the

dominated professionals on the front line of practice to stop using the knowledge and tools provided by the dominant structures (e.g. the scientific knowledge plus the learning tool) and switch to a new one they develop collaboratively (e.g. with a CPD provider and with their network)?

The subsequent flows in the chain of reflexes of reflexive networking depend on the types of resources the agents possess, and the potential for each type of resource to increase through collaborative relationships.

If the potential value achievable from interactive and synchronous online CPD is high, but the dominant structures possess more capital than the remote professionals, the theorized outcome is for them to keep pretending - using the official knowledge and tools they are given – continuing the reproduction of practice due to the pressure to conform, but making no change in practice and thus no improvement in impact.

The first reflex - openness to change - can be blocked if there is no social capital available to be leveraged and applied for collaborative learning. This happens in instances where the CPD provider is unable to identify and locate existing networks of professionals to support, participants do not know one another, are anonymous, and have no tutor to provide structured facilitation. The CPD provider has to open up and express its vulnerability to its students, and invite them to participate in making change happen for their own good.

If social capital is located, CPD providers and tutors should open up a safe space in the middle of existing social spaces – for instance, intervening into an online CPD programme with an easy to use, useful and low cost innovation.

When their social capital is leveraged, CPD providers and tutors can support professionals to develop the competence to collaborate online to solve problems, share information, and appropriate the technology and process effectively. If the cultural capital thus embodied in their relationships, and the cultural capital objectified in a shared technology, are valuable, then the network is disposed to take leaps in the dark and go even further.

If however, healthcare professionals perceive that they have a low status, and are rendered powerless, then the cultural capital of appropriating innovations in online CPD processes are not valuable for them. This form of inverted snobbery inhibits professionals from aspiring to contribute their latent, unconscious power to changing practice. It is as if they buy into the prejudiced perception of the elites such as scientists, researchers and

managers who tacitly accuse them of wanting to remain subjugated and having nothing worthwhile to contribute to the change process. There is a real danger that this perceived lack of agency can foster a spirit of resentment in overworked and underpaid doctors both towards the authorities and patients resulting in an attitude of going through the motions, rather than in a pro-active approach to their work

By doing so, these professionals may unfortunately unconsciously reinforce the cognitive, cultural and social structural barriers that inhibit change, for they unwittingly become their own oppressors: denying themselves the opportunity to discover and build, with others like them, the necessary beneficial symbolic capital they need to decide whether the evidence or the logic of scientific knowledge, or linear causal e-learning processes, are appropriate to support them to improve their impact.

The role of the CPD educator in this process is crucial: someone in the middle, who dives down and goes up, moving in and out, and across practices at the centre and the margins. It is also hard work, communicative, creative, commercial and critical, to give tough love and support professionals to reveal their vulnerability, without being shot down, blamed or shamed, so they can begin to let go of their attachment to ‘nothing will ever change around here’ and ‘the real work gets done down at the pub’ mentalities.

When social and cultural capital are leveraged and produced, then it is valuable for educators to deploy both to overcome the final barrier to supporting professionals change practice in practice – their lack of symbolic capital. Here the Aha! pattern in the results of the research shows professionals drawing on their social network to develop well-informed opinions through discussions and collaborative learning. Armed with these opinions, they may be less afraid, and more willing to share what they really think could be a problem that others in management cannot see, improve their ability to express the new thoughts and actions learnt online in their local practice, simultaneously enhancing their reputation and authority with their patients and peers. Reflexive networking even provides them with a backup of mentors and experts they can name just in case.

The reflexive networking of an online CPD programme turns around the cause and effect relationships between e-learning, practice and change, leading to three key impacts for the healthcare professionals, shown in Table 7.3 below:

Table 7.3. Turn-arounds of Reflexive Networking

RELATIONSHIPS	BEFORE	AFTER
Learning	E-learning dehumanizes practitioners	Practitioners humanize e-learning
Scientific knowledge	Practitioners passively implement guidelines	Practitioners actively inhabit guidelines
Technology	Technology assumed to enhance learning	Learning enhances technology; logic of technology is social

As the interview results in the last chapter revealed, these turnarounds made the learners more satisfied with the process, increased their confidence, reduced their anxiety, giving them a wider range of treatment options and ways to handle patients' complex cases. But, they only achieved these goals because they worked for them together - this practical knowledge does not come as a pill that can be taken to magically transform their practice! For example, at the end of the fourth discussion, the learners are very enthusiastic in their gratitude and comments about the approach:

> *'Have really enjoyed it'*
>
> *'Good thing – learned a lot about EC that I didn't know (and didn't know I didn't know)*
>
> *'Ability to learn in real time, using others' expertise to complement our own'*
>
> *'Very supportive and fun learning environment'*
>
> *'Each meeting was very focused, with a clear plan, so particularly time efficient'*

While the tutor may have liked the approach because her hunch that 'doctors like to conform' was good enough for her to carry on with her style of small groups online, the above analysis of reflexive networking from an illustration of Bourdieusian practice theory shows what she missed in explaining how and why this online CPD approach enhanced conformity (with one another) and improved impact. While conformity to scientific

knowledge and e-learning systems may seem common sense to the experts, leaders and managers who govern healthcare practice, it can diminish agency and turn out to be additional burden on practitioners. If there is no fit with the complex reality they handle daily, then formal online CPD approaches can result in faking it, and going through the motions of 'e-learning', thereby going against the ideals of CPD for improving practice and patient care. This ingenuous faith in scientific knowledge transmission via the Internet is both expensive for organizations, and a waste of time for those thereby disempowered. Of course, discussions and small groups are useful, prior research shows that, and social research shows that people tend to want to conform to those around them. But, the question is, how are they harnessed and to what effect?

Reflexive networking makes visible an invisible, inconvenient truth about the informal practices of sharing information, opinion, and support: professionals count discussions as valuable learning to improve impact only if the approach respects and enhances their agency. What comes across in this study is that the approach provides a way of combining a formal CPD programme with informal sharing in a network, with the simple addition of a real-time synchronous safe space for discussion and collaborative learning in the middle of a programme. The enjoyment and pleasure the learners expressed and experienced gives the lie to the concepts that i) learning should be hard, an effort and ii) a top-down cascade of evidence-based medicine packaged and consumed individually in modules is effective. The analysis of the pedagogic practices and learning shows that humor, intuition and empathy play an important part in improving awareness, judgement and the ability to be more conscious in practice. What was once shadow learning hidden in the murky corners of offline chats can now be brought into the light, dissolving the taboo and stress of what and how to change in response to external pressure from scientists, policymakers, management and patients. Such integration can be fine-tuned over repeated cycles, bringing in more of what is left out of codified knowledge in the form of simplified guidelines, making it easier to adapt, and produce a new style of thinking and acting that enhances status and reputation, reduces fear and inhibitions, in a style that can pragmatically handle multiple demands and broader political dimensions of changing practice.

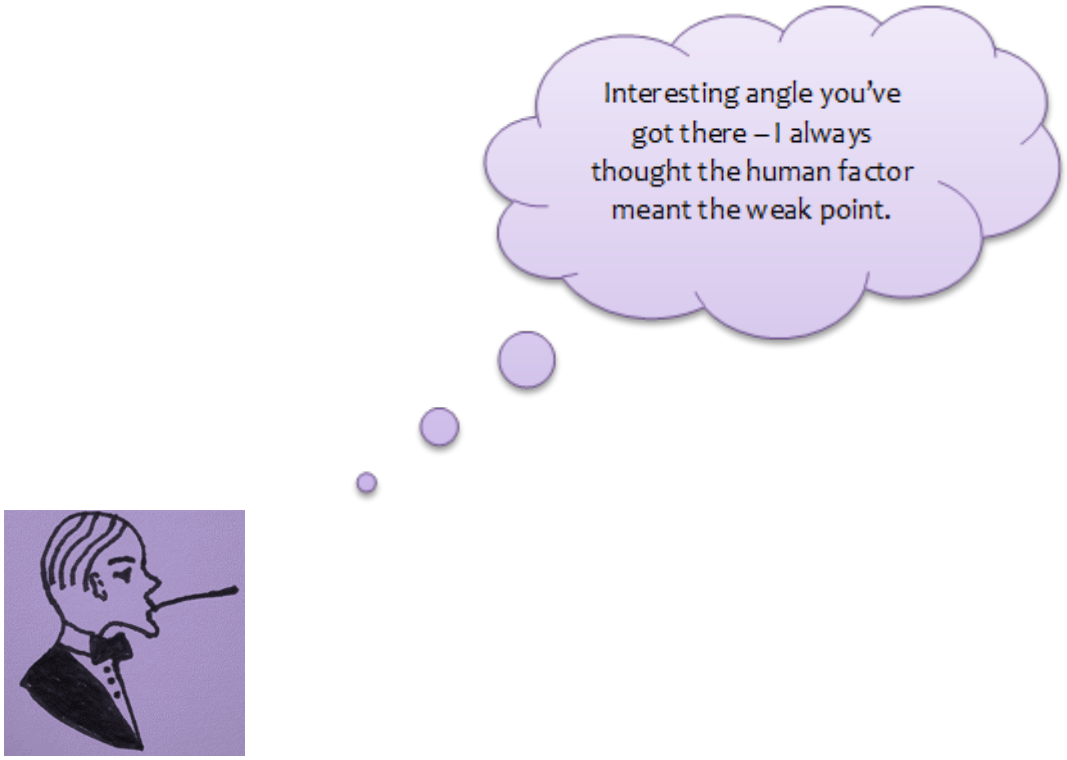
Apart from these immediate consequences of pleasurable conformity, the type of reflexive networking that occurs – or does not occur – in online CPD can reinforce or weaken the volume of resources possessed by the learners.

It also affects their agency towards changing practice: do they have more choices, opportunities and intentionality in local practice to support changes to it or to keep it as it is?

The production of practical knowledge by negotiating and compromising with their network has an impact on the balance of power in practitioners' relationship vis-a-vis theory and patient care, situated as they are in the middle of this channel. If by leveraging their hitherto under utilised and cheaper social and cultural capital to generate symbolic capital together, the practical knowledge produced can be easily applied to improve their agency and the care they provide, then they will continue to use the new approach and find it easier (less costly) to change practice. On the other hand, if they are asked to bear the burden of the more expensive imposed intellectual knowledge and existing static online CPD modules and forums out of obligation, or lack of choice, then they will continue to suffer unfairly as the stooges of theory while endeavouring to improve patient care. In other words, they would not own the relationship with the dominant structures, and they would not be able to sell their existing capitals (social and cultural) to buy better capital (symbolic) to support improving value. In turn, these changes in resources and agency will influence future occurrences of reflexive networking, emphasizing the need for repeated cycles of testing and trying, rather than 'one-size-fits-all' programmes delivered top-down, to empower professionals to confidently balance out the relationships they straddle.

To summarize, the mechanisms that explain the different patterns observed in the data are the material features of the technology, the different forms of capital that are drawn upon during the pedagogic events, and the dispositions of the various agents in the network. The structures that influence the relationships between the different agents in the field are constantly created and re-created. As reflexive networking takes place, the material and human qualities of the relationships and knowledge that are created influence future trajectories. Moreover, the success or failure of each pattern of reflexive networking in progressively meeting the needs of learners for online CPD discussions to improve their impact on practice and patient care affects the resources the tutor, and CPD provider, can deploy in the future, as they compete with the scientific and policy hegemony to determine which practices are legitimate. Since "practice is inseparable from temporality" (Bourdieu, 1990), it is important to keep in mind the trajectories through which reflexive networking takes place as it nudges reality forward in

real-time to improve impact on practice. Although the participants in this pilot study, as social agents, operated in a micro structure (the online safe space), at the edges of overlapping macro structures, reflexive networking as an online CPD strategy is a patterned, emergent phenomenon, existing in the midst of many sources of barriers: cognitive, organizational, social, cultural, political and economic to changing practice – explaining the 13.4% increased impact on agency.

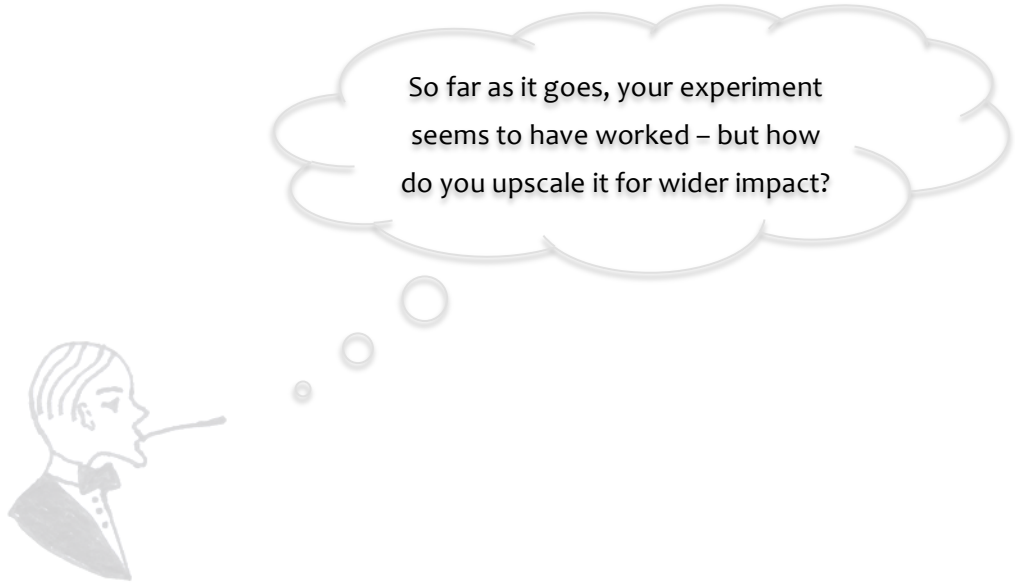


CHAPTER 8: Conclusion

Do the Right Thing

"We are pilots. We got to change things around here. We know more about what we need to fly this thing than anybody else. So what we have to do is alter the experiment. And what that comes down to is who is going to control this thing from now on."

- Ed Harris in *The Right Stuff*, 1983, Directed by Philip Kaufman, The Ladd Company/Warner Bros.



"In revolutionary situations however, the background framework which alone can define 'correctness' is in question."

(Bourdieu, 2004, p. 80)

This chapter begins with a discussion of the practical and policy implications of the study, where I draw on the refined conceptual framework and the results of the case study to make recommendations on the design, delivery and evaluation of online CPD to improve impact on practice and patient care. Next I continue with the theoretical contributions of conceptualising

online CPD as Reflexive Networking. The chapter then lists some of the study's limitations, further research opportunities in this area, and some concluding points on strategy and philosophy.

8.1 Practical Implications

Is Reflexive Networking Effective or Not?

This study's main research question was: what is the impact of online CPD on improving practice and patient care with Reflexive Networking? The data showed that Reflexive Networking resulted in a 13.4% improvement in the agency of the healthcare professionals. The approach and the process supported the learners' need to improve their practice by increasing confidence, reducing uncertainty, and enabling flexible access to valuable social interaction with a simple learning technology providing a space for collaboration and discussion.

Since online CPD suffers from a problem of chronic low impact, these results imply that Reflexive Networking offers an integrated, practical, theory-driven and customisable solution to designing, delivering and evaluating online CPD programmes for a variety of contexts. After all, one of the key consequences of the increased usage of online CPD to date has been a decrease in professionals' agency to change practice. When new technology structures are introduced, the structural barriers to change increase. While it may appear that the boundary between the traditional face-to-face conference and workshops has been breached, it has in reality become thicker, except it is now hidden from the surface - thanks to the Internet. Therefore, ensuring that agency does not decrease further, but increases, is vital to overcoming barriers, and reduce the risk of further drift of local practice from the 'best' practice of EBM.

The second implication of Reflexive Networking the study highlights is the urgent need for reflex buffer structures in the middle of the change process. Imagine online CPD as the fulcrum between the centre of power, that is, the scientific and policy structures, and the margins of power, the professionals and their patients. If the balance tilts such that the centre is at the top, and the margin at the bottom – the see-saw - then educators and CPD providers are failing an ethical duty to address an imbalance of power. This imbalance can lead to faking it, overt accommodation and covert resistance, a resort to shadow learning, and the imposition of conformity, reducing the quality of patient care. To address this imbalance, this study shows the added value of

deploying safe online spaces as a reflex buffer in the middle of existing programmes and structures, providing a viable and measurable method to work on reducing the fragmentation between the divergent perceptions of practice among professionals, tutors, as well as management, researchers, and even patients.

On the face of it, a safe online space looks just like any other virtual learning environment that exists, allowing for enhanced interactivity, synchronicity, sociability and presence across time and distance. Yet, it would be a mistake to simply imply and recommend online safe spaces as cheap rooms for dialogue. They are more than that because of the social logic of practice that this study brings to bear on the vexed problem of improving impact. A safe online space is only valuable if it has a productive function. Ironically, it is akin to a social machine for knowledge production, not construction. Into it, and through it, a large volume and variety of resources (capitals) held by diverse social agents - hitherto randomly bouncing around with no direction or discipline – can be channelled, stored, and operationalized when the machine is fired up and used pedagogically for the goal of producing value and improving practice. As it learns from the users, and the users learn from and with it, the machine's relevance and usefulness increases, embedding itself into the online lives of learners and their networks of practice.

The third implication of Reflexive Networking is that for effectiveness, a safe online space improves impact when used to develop a patterned treatments to increase agency progressively, such as Openness, Leap in the Dark, and Aha! This treatment can be given as a critical injection during an existing curriculum, because it sparks the latent agency of all learners with the fuel of discussions and collaboration to make sense of the complexity of practice. By structuring the facilitation into patterns for exchanging information, sharing opinions, providing support, and trying out new actions together, the approach simultaneously builds practical knowledge and improves value for all. When refined over cycles, the patterned treatments allow for changes to thoughts and actions to be buffered in related practices, such as e-learning practice and local practice. Therefore, patterned treatments can act as a cushion against the shock of imposed change or uncertain change, stabilising the rate of change in practice. On top of this, it implies that educators now have a way to efficiently produce and harness new social energy, and better resources (capitals), embodied in the learners, who come alive as networked agents, and are not merely reduced to atomised CPD participants disembodied in a vacuum. This interchange of energy boosts

transfer, and the capitals gained can be easily applied to local practice without bullying or penalties.

The reflexive networking approach to designing online CPD, including the safe online space, patterned treatments, and the MoA evaluation tool can help overcome the perennial implementation gap between the galloping development of evidence-based practice and the plodding changes in practice at the frontline. Rather than perceiving pedagogy and technology as separate from its social practices and contexts, the approach is useful as signposts for healthcare organizations, funders, CPD providers and programme managers to indicate the pros and cons of existing systems, and how to steer future implementation. Often, when trying to implement evidence-based medicine, or asynchronous blogs, discussion boards, and forums to discuss and collaborate, users may not be able to express their desires for learning or resource needs before they actually have a chance to try out an e-learning process and its tools. Reflexive Networking overcomes this problem because it perceives the implementation of research and of new learning technologies as a continuous process, involving users as active designer-producers and not passive user-consumers. Instead of installing a centrally mandated, expensive and clunky off-the-shelf learning technology across an entire organization, running the risk of people not using it as intended, it is possible to try out easy-to-adapt, low cost tools in smaller networks to gauge usability and value. In this sense, implementing Reflexive Networking could be viewed as a controlled experiment, one that is far more socially embedded than RCTs. Thus the discussions and its results are a valuable source of information for educational managers - and not just idle chatter – that will not become out date or style as compared to static modules and manuals.

Reflexive Networking has a fourth practical implication: measuring the change in agency before and after a programme suggests the value of paying attention to process outcomes, and provides insight into the relational aspects of online CPD that may not be visible unless evaluators first tune participants to them.

Leading experts in medical education, in pondering over the challenges of what is worth measuring, have recently argued that the simplistic yet popular Kirkpatrick evaluation model is not effective because it ignores the importance of documenting how “contexts and processes impact on educational outcomes.” (Yardley & Dornan, 2012, p. 99). This study meets this call with a simple participatory evaluation tool relevant for all

stakeholders interested in maximising value and reducing waste, the MoA. Indeed, thanks to the critical realistic philosophy adopted, the irony that most professional learning is incidental, rather than planned, informal, rather than formal, is no longer a liability. Instead, this essential aspect of learning is leveraged and applied for the evaluation of effectiveness of the process and its features.

MoA presents results of the process by capturing and exposing its facets for practitioners to become reflexively armed with knowledge about what benefits they are getting out of investing their time in online discussions. Thus, MoA could be said to make professional networks conscious about learning with technologies to improve practice. The evaluation methodology and the MoA tool also imply that the significant effect on the professionals' agency to change is a valuable indicator of impact, as it emerged from their participation in the process, and not simply as an after-effect. The MoA tool gives a pragmatic and objective feel for the usefulness of online CPD programmes, validated by users. However, it identifies those areas where further development is needed. It also makes online discussion a valued activity for busy professionals. As a result, it can be a useful tool for measuring impact and developing recommendations for continuing improvement of programmes.

There are a number of further practical implications that may be drawn from this study. Due to the word limit, readers are advised to refer to the most recent publication that arose from this study, Singh & McPherson (2014), where these have been summarized.

8.2 Policy Implications

How should online CPD be governed?

The study shows that in order to improve on the current low impact of online CPD, it is critical to share power. Power, in a Bourdieusian sense, centres on the notion of capital, or the social relationships between people and institutions. The communicative, interactive, transactive dimensions of capital, how it flows and what obstacles impede its effective flow to produce change, impinge on the financing and cost-effectiveness of online CPD, which funders and policymakers are obsessed about in an era of high costs. Hence, in order to get more out of investing in online CPD, rather than just treating it as a cheaper way to train professionals at a distance, one policy implication is that the balance sheet of costs and benefits can be improved

by critically considering how to enhance the social value of online CPD for practitioners.

However, this study is also not claiming to deliver a ‘silver bullet’ to improve impact with a targeted CPD injection. Indeed, Oxman, et al. (1995) have already stressed that there is no such thing in the healthcare sector. But what Oxman and healthcare researchers from a biomedical paradigm have omitted from their observations is the hidden structural and cognitive domination of healthcare practice that needs to be subtly dismantled. This can only happen by educators getting inside a social network and working it from within and from without. In the online world, professionals are being made to discuss on blogs and forums, but are reluctant to expose their uncertainty because of the stigma attached. They must be offered protection before the reveal their humanity and share tacit knowledge. This implies that policymakers need to be more creative and proactive in enabling educators to govern online CPD programmes, rather than straitjacketing them as mere content delivers. Educators are not postmen!

To get more out of online CPD, a policy that improves educational practice, research practice, and healthcare practice would aim to increase educational entrepreneurship, develop social intelligence, and test the educational strength of online CPD processes. This can happen using Bourdieu’s (1989) proposal for pedagogic reform that effective educational models sit midway between theory and practice across social contexts. Educators should constantly adapt the curriculum and pedagogy with well-placed programmes delivered through diverse teaching methods. These include interdisciplinary knowledge sharing and collaborative learning activities. These activities integrate experimental thinking and practical inquiry with reflective reasoning and respect for difference, all the time holding all participants accountable. This continuous process allows for flexible objectives and targeted outcomes.

8.3 Theoretical Contributions

Improving impact as a continuous process

This study’s second research question was: why and how did Reflexive Networking for online CPD improve impact on practice and patient care? The interpretation of the data showed that practice improved by increasing

the capacity for agency when the discussions progressively blended pleasure and conformity. This is the second contribution.

Inevitably, when a new technology or knowledge object is implemented into an existing practice, a clash happens. Therefore, the study's overall contribution is a validated, critical, theory-driven model for overcoming the limitations of existing one-off static approaches to online CPD, which ignore the dynamism and complexity of change. This model's sociologically plausible hypothesis can be tested and its features refined through further testing in a variety of contexts and healthcare professional groups.

What is the way forward for integrated and ethical research, practice and innovation?

I started this study by reflecting on my prior experiences in developing an online CPD programme to provide online mentoring for developing country health care professionals. I end it by contributing a theory and a model which transcends the myriad different wobbly ways of doing CPD that currently plague a wide variety of cultural contexts and disciplinary boundaries.

The study shows that changing practice and improving impact follows a logic akin to dialogics rather than teleology. Thus, the standard assumption of CPD planners that e-learning will change practice is problematic. Similarly, assumptions of online CPD using action research, communities of practice, or reflective practice are found wanting – without working on agency, they can be subverted to suit neoliberal ideological political goals for reducing people's power, and to make healthcare systems adhere to centralised techno-power. When I contacted Professor Bonnie Nardi at UC Irvine, who wrote the seminal work on how professionals today are intensional networks (cited in the literature review for this study), her reply gave me the confidence I needed to go further with testing reflexive networks:

> *"I think you point to the reasons that community of practice has been so popular. It just makes everyone feel good. I think Freud would say it's a reaction formation since the last thing capitalism wants is real communities (by and large) which threaten its interests. People who can respond to the demands of the market without hindrance from others are more valued. Corporations virtually never foster communities outside short terms teams and it's only done for the most instrumental purposes."*
>
> - Personal e-mail correspondence, 18 Dec. 2010

It is clear that mere tinkering with traditional models, or joining the dots one by one to move forward step by step by doing small scale case studies, one on one online supervision or counselling, or meta-analysis, is not enough anymore if we wish to smartly address the serious global challenges to low impact. For instance, when it comes to organizational learning using knowledge management (KM) theories to do CPD interventions using online repositories, databases, communities, blogs and so on, as discussed in Chapter 2, what is left out are critical questions such as:

i. Who decides what goes into organizational learning/knowledge management systems or is considered to be “knowledge” or a “learning object”?

ii. How do people from different fields interact to decide on this?

iii. How are KM systems used?

iv. What sort of capital do they represent? For whom? What sort of capital can they replace?

v. When people are told to use these systems for CPD, how does their understanding of their role change? How are impacts measured?

On top of this, public health and education are also confronted by the inexorable force of global capitalism, and the rhetorical promises of the network or digital society that we read about. These changes are real dangers, in the sense that they complicate matters for scientists, bureaucrats and managers whose task is to control change and reform sclerotic organizations. They also confuse learners, employees and patients, who are sold lies about ‘freedom of movement’ and ‘just-in-time access’ with tools and apps that appear to get around top-down control and command systems. Traps are everywhere.

Even theories and practices are suspect these days. They litter the cyber world, clawing their way around trying to persuade people to come in and take a look, with clever marketing slogans to convince the lazy looking for quick fixes to pay up and use some glitzy gadget. These Trojan Horses have entered the university as well, with cloying slogans to charm researchers into selling their ideas to the highest bidder.

For example, many wonder what Bourdieu’s concepts like habitus, capitals and fields look like, and how they can be manipulated to serve their goals. They demand clarity from me, as if they are testing me to see if I really get him, or am a mere pretender. It is as if their biomedical certainty protects

them from the scepticism that is essential for doing by learning, struggling in the valley of darkness to think it through, drown, cry, pray, feel, and slowly claw our way out of the sadness of knowing there is no perfect solution. Perhaps he is trying to confuse us, like wise men tend to, rather than tell us what to do with his gushing font of Euro-babble and how to do his theory of practice!

The advice of the fox, which hunts chickens and in turn is hunted by men, to the Little Prince is worth considering:

“It is only with the heart that one can see rightly; what is essential is invisible to the eye."

Perceiving the issues of balancing polarities - between efficiency and flexibility, top and bottom, centre and margin, boss and worker, teacher and student - simply as a linear see saw is not going to work anymore. The problem of change is multi-levelled and multi-dimensional. More than ever, theory cannot be translated into practice, nor can evidence be implemented into practice, or value improved, as if the job of educators is to plug leaks. If we are not postmen, neither are we plumbers!

Instead, rethinking educational work as a philosophical action method – not a learning theory – called “staying in the tunnel” is the third contribution of this study. In doing so, Reflexive Networking marks a progressive paradigm change to solve the conundrum of the endless search for balance between theory, method, thought and action, learning and change, virtual and real, before and after, past, present and future. It is a critical and realistic ‘middle range’ (Merton, 1968) theory to study, design, deliver and evaluate processes of interaction situated at the meso (middle) level of educational research, between two integrated categories of perception at the micro and macro level: descriptively for educators, between pedagogies, technologies, social networks and impact; and analytically for researchers, between practices, resources, and materiality. To help educators, managers and organizational leaders contrast the differences between the old and the new, Table 8.1 shows how the elements of Reflexive Networking could compare with an existing dominant model, online Communities of Practice.

Table 8.1 Comparing Online Communities of Practice and Reflexive Networks

KEY ELEMENTS	Online Communities of Practice	Reflexive Networks
TECHNOLOGY EMBEDDING	DEEP, NARROW & HORIZONTAL TOP-DOWN	SUPERFICIAL, WIDE & LATERAL
TIME REQUIRED	LONG-TERM	DEPENDING ON THE SIZE OF THE PROBLEM
PEDAGOGY	APPRENTICESHIP & INDUCTION	STRATEGIC PROBLEM SOLVING
FACILITATION STRATEGY	PARTICIPATION & TRUST	INTENSIONALITY & PLEASURABLE CONFORMITY
MOTIVATION	PASSION (for artists who love what they do and pay for it)	INTEREST (pros do it to get CPD validation and institution pays for them)
SOCIAL TIES AMONG PEOPLE	NEED TO BE STRONG TO WORK	WEAK & LOOSE CONNECTIONS
COST	HIGH. Need to keep it going.	LOW. Social valuation reduces overall costs.
APPROACH	SOCIALISATION TO CHANGE BEHAVIOURS TO 'BELONG' TO AN IDEAL SET BY SOME EXPERT, NOT THEM	INCREASE CHOICE & OPPORTUNITY TO ENGAGE FOR PERSONAL & PROFESSIONAL GAIN – 'WHAT'S IN IT FOR ME' INCENTIVES
METRICS	LEARNING OUTCOMES No consensus – both static & dynamic	INNOVATIVENESS, AGENCY, STRUCTURE
IMPACT	REIFICATION AROUND 1 OLD MASTER	PRODUCTION & INNOVATION FOR NETWORKED INTELLIGENCE
MOVEMENT	STABILITY & RIGIDITY	DISRUPTION & FLOW
GOAL & PHILOSOPHY	COMMUNITY IS GOOD FOR YOU	GET SMART & GET AHEAD

The Bourdieusian framework also allows for integrating critical research and practical innovation, description and abstraction, under one umbrella. Unlike 20th century educational researchers who have used Bourdieu as an after-thought to criticize and lambast governments for disempowering marginalized learners, rebooting Bourdieu and using his framework from the beginning to think and act consciously as a method is actually a very pragmatic approach to doing critical work. As the study shows, one need not be churlish or smug about either/or dualistic thinking about which is good or bad research, whether quantitative or qualitative. Research can be controlled and exploratory, intuitive and reasoned. It is possible to predict, and identify the specific relationships, rather than discrete variables, within a specific context, allowing for a socio-analytic protocol to be developed, showing practitioners a series of actions to take in real-life scenarios. Of course, the first step is to eat humble pie and admit how I misrecognised the scholastic point of view as the gold standard. Only then did I come down from my arrogant pedestal and turn around my labour, and pour my energy into serving and supporting the managers, the tutor, the professionals, and – hopefully – the policymakers and leaders who may stumble upon my work. I am also throwing down the gauntlet: can academic theoreticians, critics, pundits and talking heads challenge themselves to cross boundaries and turn their scholastic gaze around to a practical one for improving practice and patient care?

I would like to think this is an empirical question. But I fear it is a moral one.

Reinterpreting outcomes of online CPD

Despite various formal frameworks for evaluating outcomes of online CPD, educators continue to be told to rely on simplistic notions such as knowledge and skills. These notions focus on the individual learner, as if the learner is context-less and culture-less, passion-less and joy-less.

However, the thing about learning is that it learns.

The use of behaviouralist or subjective evaluation measures and frameworks to suit funders interests can prevent educators from evaluating the usefulness and presence (or absence) of the social relationships through which learners manage their learning. The focus on filling lacks and satisfying needs also obscures what is present already, and can be located and enhanced, or reworked – the naïve deficit thinking that is unreflexive and colonising. Just because doctors and nurses tell us what they need in a

pre-course needs assessment does not mean we should go and provide for their needs without first making sure why they may be saying what a need is, rather than what they really want to improve practice.

This study has shown that professionals manage online collaborative learning with various mechanisms, both formal and informal. If the informal mechanisms are not made visible, then there may be challenges if the formal mechanisms do not lead to the expected outcomes. Educators and managers would be well advised to attempt to uncover how their tutors and learners are organizing themselves intentionally with learning technologies, what sort of relationships exist, and what each agents' interests and goals are. In addition, it is important to find out the history of these relationships and to keep track of them in the future. Such informal groupings can be powerful channels for educators to influence the evolution of practice, because they can reveal the invisible power structure within and across networks of practitioners. Such structures may end up being more effective for educators to gather information on users' requirements or interests. Managers should also not assume that top-down frameworks such as best practice manuals and clinical guidelines are being complied with after a course ends just because everyone gave the course a high satisfaction rating.

Finally, before instituting any new CPD modules, guidelines or implementation toolkits, educators should search internally for any pre-existing processes and networks that they can leverage. Naturally occurring mechanisms may be a better fit for an organization than externally imposed ones, since they draw on existing power structures. If educational managers are interested in upsetting these mechanisms because they have been deemed to be "inefficient", then putting in place externally imposed mechanisms would require a different set of symbolic resources to be deployed to overcome existing arrangements. In the end, teaching and learning, changing practice and improving impact are fights over symbols. Fights with fire in which innocent people can get burnt.

The methodology presented in this study – quantitative measurement complemented by interviews – is one way to reinterpret the outcomes of online CPD. In this case, I interpreted the process outcomes as Pleasurable Conformity. However, it is possible to envisage in other cultures and contexts, and with other groups, that other outcomes may emerge. Because Reflexive Networking is an open-ended system for dialogue and negotiation, this is to be encouraged. Revealing different process outcomes

quantitatively and qualitatively will expose the domination that needs to be dismantled, and spur educators to continue the good work of empowerment they are perpetually on the cusp of.

In order to achieve this, an independent educational research institution to mediate the processes of changes, between the micro (the safe online space for discussions) and macro (the organizational and policy structures) levels, at the meso (the Internet) level is required. This entity must aspire to navigate a 'super reflexive network' to generate a delicate balance between competing fields of practice, that shows and adds up how each player is contributing to achieve the vision of universal public health and spending their funds smartly. It must ensure that financial and scholastic power is not abused to override or silence the social and cultural power of ordinary people like doctors, nurses and patients. The financing of this entity must require a rethinking of existing accounting models that ignore social costs and losses. It will not be easy to set up without mobilising many groups and building a strong well-financed army to fight the established interests who keep us apart together. Otherwise, we might as well forget about wider scale-up.

8.4 Limitations

The study's unit of analysis was one online CPD programme. However, given the dynamism of relationships at play across many levels, is the traditional notion of a programme – comprising objective and outcomes, tasks and activities, needs analysis, methods and tools – still relevant? This study's strength is that while developing a "programme" with easily separable components, its' interpretive analysis did not ignore the relationships of pedagogy, technology and networks in deeply-embedded learning patterns that comprise the social material practice of Reflexive Networking.

Conversely, a limitation of this study has been the failure to identify how and to what extent the changes in the online practice in a short time period changed the practice at the local level of the professionals' daily work. They were asked at the beginning if they would like to combine the MoA tool with a quality of care audit cycle, but declined. Patient care audits are difficult and time-consuming, requiring external auditors at times. The original assumption that an online CPD programme is only an online object can mistake programme implementation as a static, rather than a generative, phenomenon. Because learning technologies and relationships with peers,

mentors and experts are social resources, not only tools, their value cannot be measured financially alone, or as an end product. Since impact is not predetermined, but is evolving as components are tried out and refined as users try out and play around with what they are given and make it work for them, it can be difficult to appease policymakers and funders; who assume programme impacts and implementation protocols are fairly easy to identify, finesse, recommend and cascade down to other healthcare systems.

Yet implementation research, a field analogous to CPD, desires research on whether patient care improves with a health intervention. Such research requires building professionals' capacity on how to improve health outcomes. After research capacity building, it is important to know if people do actually conduct such research, whether it is of good quality to produce results that can be used to improve care guidelines, and finally, is the research used to improve guidelines, and if so, does this result in better care. Although this pilot study did not get this far, the model can be used to structure online CPD or distance learning cyclically and flexibly between the many steps, from building capacity and actual improved quality of care.

This study argues against recommending an exact formulaic protocol for others to copy, as seen in best practice toolkits devoid of context and stripped of agency. Table 8.2 presents an outline of a practical research design for an educational experiment on Reflexive Networking in healthcare to improve impact on practice using Bourdieu's theory as a provocation. The intention is to provide a sketch, of a relational understanding of whether an intervention works, how, and why. Further studies will expand and refine this socioanalytic protocol for implementation research development in context.

Table 8.2 Outline of a Practical Research Design for an educational experiment on Reflexive Networking

STAGES	BOURDIEU PROVOCATION	PRACTICAL METHOD
BEFORE PROGRAMME	Map the fields at play Construct an online field Locate and leverage capitals and habitus	Identify key stakeholders and problem areas, build partnerships, conduct value analysis, goal setting
DURING THE PROGRAMME	Immersion in Praxis	Train online facilitator & students Develop an online interactive Safe space with Web 2.0 tools situated in practice
	Cycles of thinking and doing	Collaborative learning to implement evidence-based research to improve impact on practice and care
	Mechanisms to generate change by shifting habitus and constructing capitals	Facilitator with variety of pedagogies – move learners out to examine their values and behaviours while focus on solving problems
	Increase capacity for agency	Increase access to valuable resources such as information, opinion and support, with relevant, easy to use Web 2.0 learning tool
AFTER	Gauge the value of the relationship between theory and practice for continuous improvement	Conduct a patient care audit, evaluate usability and satisfaction, and accreditation scores

I appreciate that medical researchers and their paymasters may still be chasing after the Holy Grail of absolute certainty and exactitude, and be uncomfortable with a ‘mere’ sketchy understanding. The reluctance to tolerate ambiguity is their loss, as well as an injustice to patients.

This study further shows that pedagogical models in complex educational systems now being taken online, situated within contested fields and various contexts of chances and possibilities, are faced with an objective structure of expectations, which shape their connections and subjective interactions with students (Bourdieu, 1991, p. 76). With a Bourdieusian-informed analysis of technologies, pedagogies and impact evaluation in the interdisciplinary fields of education, medicine and healthcare, researchers can use pedagogical models strategically to consider how to reshape practices in different ways towards the goal of improving impact. Such efforts will produce understandings of what works for whom and why, and how to change the processes by which practices are (re) produced. Deploying field-sensitive pedagogical models for online CPD can disrupt dominant policy and funding fields through ongoing cycles of programming and theory refining. Cumulatively, an overview of the Reflexive Networking pedagogical model is presented in Figure 8.1 .

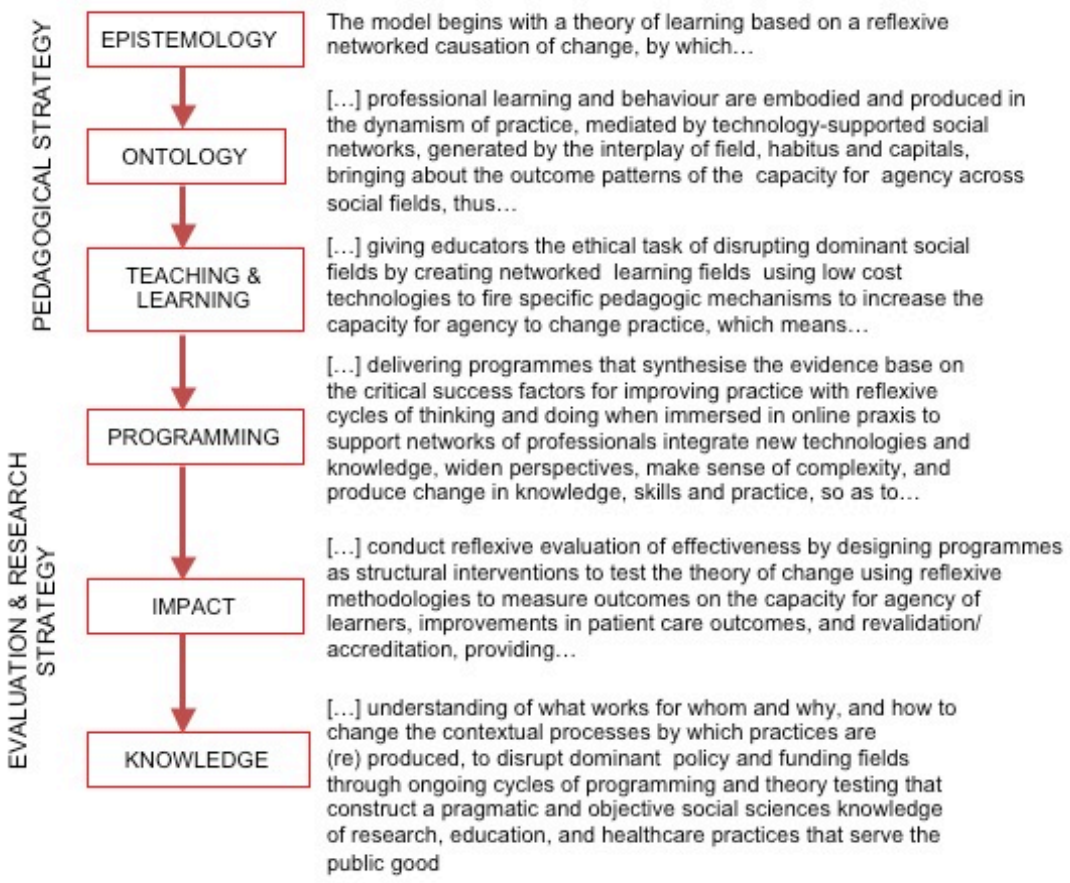


Figure 8.1. Overview of a Reflexive Networking Pedagogical Model for Online CPD

Since practice change is occurring constantly, another challenge is that any assessment of the level of change is dependent on the time at which the assessment was made. Taking a snapshot of a programme to evaluate impact, or a retrospective overview, may not be indicative of the actual extent of change, since different agents and local practices change at different speeds. This implies that the three categories of Reflexive Networking described in this study are not all encompassing. Other forms of change are present and should be able to be perceived over different time-spans. Longitudinal studies can improve the before/after understanding of relations between the features of the model, though of course, these cost more.

The extent of change that was detected could also be affected by the interviewees. All of the participants in the study were aged from 35-45, middle-class, part-time, female, retainer GPs and had similar experiences of work and CPD in one country. They were also remote learners, and comfortable with decentralized learning structures, setting their own time and pace. This made them a fairly unique cohort, and is a limitation of this study. Most health care professionals work in fairly top-down organizations with heavy bureaucracy and control, and mandated CPD, often even called 'compliance training'. Future research should thus consider examining the extent of change when Reflexive Networking is deployed in healthcare organizations that are differentiated both in terms of their CPD management and overall structure. Thus, it would be interesting to compare the existence of changes in practice with Reflexive Networking between more and less centralized organizations, different genders, different professional groups, different cultures, and different areas of patient care.

8.5 Further Research

Can a boundary around an online CPD intervention be created?

The limitations above point out a concern with using the practice lens: at what level do we bound the influences of other agents and structures? This study examined how the habitus and capital endowments of the central and local organisations and agents interacted to impact practitioners' agency to change when done with a university research and CPD provider in an online temporary structure in the middle. Should future research also investigate how the habitus and capital endowments of central and local management and CPD functions? Perhaps the level of practice change is also affected by the culture or country an organization and professional operates in - should

their habitus and capital endowments also be accounted for? These issues are worth exploring, as it is probable that some differences between the impact of online CPD could be attributed to their existence in broader fields. Thus, future research could explore how the intersecting fields that organizations and agents exist in influence the level of change observed. These fields could also include the hotly contested disciplinary fields such as patient safety, audits, and expert patients.

This study, seizing on the argument of McPherson & Nunes (2007), has *not* been agnostic about e-learning and change. This was done to specify as many aspects of the relationship between the design features of online CPD from the literature review, the conceptual features from the theoretical framework, and to learn more about the nature of the intended and unintended changes of Reflexive Networking. Beyond the power of online CPD, it is possible that there are differences between gradual changes and radical changes, such as severe environmental disruptions, drastic reorganizations, or technological shifts, in terms of their impact on practice and patient care. The conceptual lens used in this study proposes that agents engage in learning to change practice based on their perceptions of the dispositions of the agents involved in a networked context, the resources available to these agents, and the material attributes of the technology of concern. Hence, agents will modify their practices to the extent that the severity of a change modifies these features or their salience. The time frame selected for this study is, as discussed above, a snapshot. At the point at which the research is conducted, changes that were gradual in an earlier time period may have cascaded across local practices, or their organization, so that they appear severe now. Conversely, radical changes occurring some time ago may be less apparent now, even though they have left their imprint on the discipline, the network of relationships, and the resources and dispositions of the agents.

Because of these multi-layered structural forces, that make it difficult to create a boundary between where online CPD starts and ends, where change begins and ends, it can be difficult to evaluate if learners' opportunity to change practice and implement research is increased – they still face constraints on their intentionality to change in their clinical practice over which they have no control over. In emphasizing the tension between structure and agency that is at the core of Bourdieu's theory of practice, future research requires a much more intensive and richer ethnographic

approach integrated with the experimental aspects, so as to cover structure and agency more thoroughly.

It would also be crucial to expand on the MoA tool developed. After all, agency is only one part of the picture, structure is another. Future research will have to consider how to measure the extent to which the structures are enabling or constraining, and how this changes with Reflexive Networking. While the MoA tool is valuable for focusing on change at the user-level initiated by them, future research could map the difference between their intention and the actual outcomes on patient care as evidence of structural enablement or constraint.

Finally, it would be worthwhile in future online CPD research to integrate the domains of Reflexive Networking and aspects of agency with research on shadow learning and structural enablement/constraints to create a more holistic 'structurally constructivist' scale of practice change and implementation research impacts. This scale could then be used periodically before, during and after the design, delivery and evaluation of a new online CPD intervention and a learning technology to evaluate how users react to the old as well as the new systems. This data could be part of a larger, long-term project that also assessed changes in relationships, status, and culture as the project is carried out and is completed. Such a study would weave diverse research on evidence-based medicine, clinical decision-making, innovation projects, technology and guidelines adoption, usability testing, patient care audits, and practice governance. It could be a source of 'big data' for surfacing patterns of Reflexive Networking cross-culturally, across inter-professional healthcare groups, and for fleshing out the dynamic process model presented earlier in the last chapter.

8.6 Conclusion

This dissertation contributes to the literature on healthcare online CPD by offering a critical sociological process understanding for its design, delivery and evaluation to improve impact on practice and patient care: Reflexive Networking.

Instead of seeing online CPD as a static collection of add-ons grafted on to old models from a 20th century reality, such as adding an ICT to make a Community of Practice become an online community, or a blog to do networked Action Research, Reflexive Networking places the dynamic

nature of multiple layered practices at its heart, and offers a pragmatic approach to handling the learning-practice change relationship.

This draws attention to online CPD as being situated in an online learning field of practice, and its role in structuring, as well as being structured by, agents' actions in overlapping social, cultural and cognitive structures. By adopting a practice-based perspective, this study challenges conventional biomedical, linear-causal notions of the inert roles of the various agents in evaluating the effectiveness of an online CPD programme, stressing their relationships through its components.

It offers an explanation for the constant differences found in the impact of online CPD, and, given this dynamism, suggests strategies for improving impact and usability.

To reflexively validate my claims to knowledge through this study, I have also chosen to write in the same reflexive manner as in this thesis, when I have taken the opportunity to share my work publicly at conferences and in journals and books, as shown in Appendix 8.

In speaking to researchers, educators, managers, funders and policymakers, this research questions online CPD policies and frameworks that emphasize the need for implementing detailed mechanisms in the form of guidelines and manuals, stages and procedures for 'best' practice without consciously working the invisible social relationships and their histories, and the affordances of pedagogies, technologies and social networks.

8.7 Reflections

Doing this research alerted me to the dangers of our civilization collapsing under techno-imperialism caused by the current lure and hype of 'technology-enhanced' learning. I myself fell under its spell in 2008 when I did my first distance learning project and won an award, which stirred my mind into thinking I could do more, much more to help people faraway. This study changed my philosophy. I argue now for the need to break free from wishful dreams of putting everything and everyone online. It is a trap, not a cure.

Everything that was done in this study was done because it was necessary, because nothing was available that was 'good enough.' As an advocate of critical education, I now call for educators to wake up and realise that there is a menace lurking beneath the standardisation and commodification of our

work in the guise of online personalisation and collaboration – the menace of dehumanising learning.

In this study, my learning journey's continuation has been contingent on understanding the importance of humanising technology, so that 'e'-learning is experienced as an increase in agency. While I was reflecting on the connections between human, technology, science and education as I finished this thesis, I was invited to review a submission by the esteemed *Medical Education* journal. Ironically, at around the time I was a year into my PhD, the very same journal had rejected a 'cross-cutting' piece of mine that presented the Bourdieu perspective for designing online CPD to improve practice. The topic of the submission for my review was 'human-centred systems engineering'. It argued for the utility of systems design to eliminate the problems humans had with machines – in other words, making humans fit technology. It used the 'human factor' euphemistically – to solve immediate practical problems. Nowhere was humour, intuition or empathy mentioned. I was disturbed and woke up: what I had discovered in this study about the human factor had to be shouted louder than ever, if the relentless onslaught of technology into medicine and education was to be slowed down.

Do educators dare face it, unmask it, and claim our right to lead praxis, rather than be the stooges of those who manipulate us and our work? While practitioners have been rendered powerless by the inexorable rush to adopt technology, they speak and act agentically through pleasurable conformity. The tragedy of educators is to forget this as they move from being guides on the side to meddlers in the middle.

This study taught me how my human pedagogic 'art' has been suppressed and dominated by my unconscious colonisation by rational pedagogic 'science'. It was a hard struggle, but I strove on, refusing to give up, because I knew my humanity needed to fight back to regain an equal footing with my scientific neuroses. Otherwise, I was not being fair, neither to my stakeholders nor myself; and not being compassionate to either.

Some may ask: is this study a milestone, or a drop in the ocean?

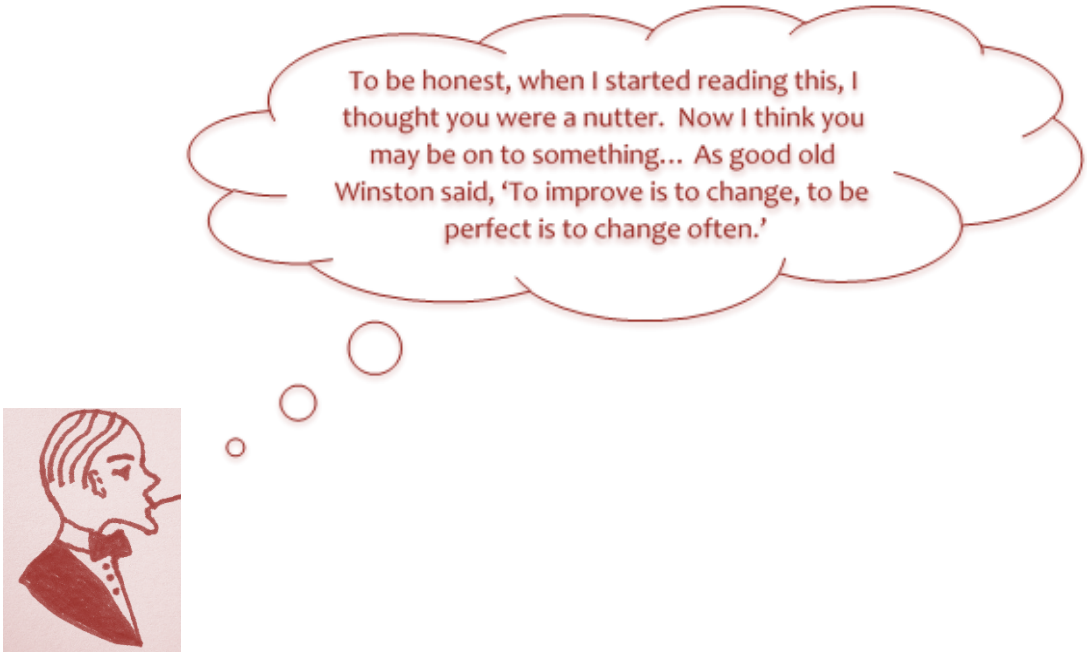
Research is a relay race, as well as a marathon. It is our duty as a new generation of cosmopolitan educators and researchers who cross cultures and borders to pick up the baton from those who have dropped it, to take over from those too exhausted and beaten down by the system to carry on the hard work of social transformation through theory and practice.

Sometimes, it is those who are bereft of new ideas who cling on to their dying breath, playing the role of gatekeepers preventing those who are different from entering the inner sanctum.

I end up my heart warmed by how much professionals do really share and care, how human they can be and how unfairly they are treated by those who claim to want to support them. I searched for and discovered the truth: that online learning that is pleasurable makes no distinction, and has no barriers in culture and context. It is a lesson in love that needs skilful nurturing to reduce the injustice of fear and blame.

Living the human truth in a techno dream becomes the job of the blade runner, a guerrilla living among the people, moving around stealthily in the slums of virtual reality sponsored by Google, Blackboard and their cronies. As Joseph Conrad writes in the Heart of Darkness:

"It is when we try to grapple with another man's intimate need that we perceive how incomprehensible, wavering, and misty are the beings that share with us the sight of the stars and the warmth of the sun."



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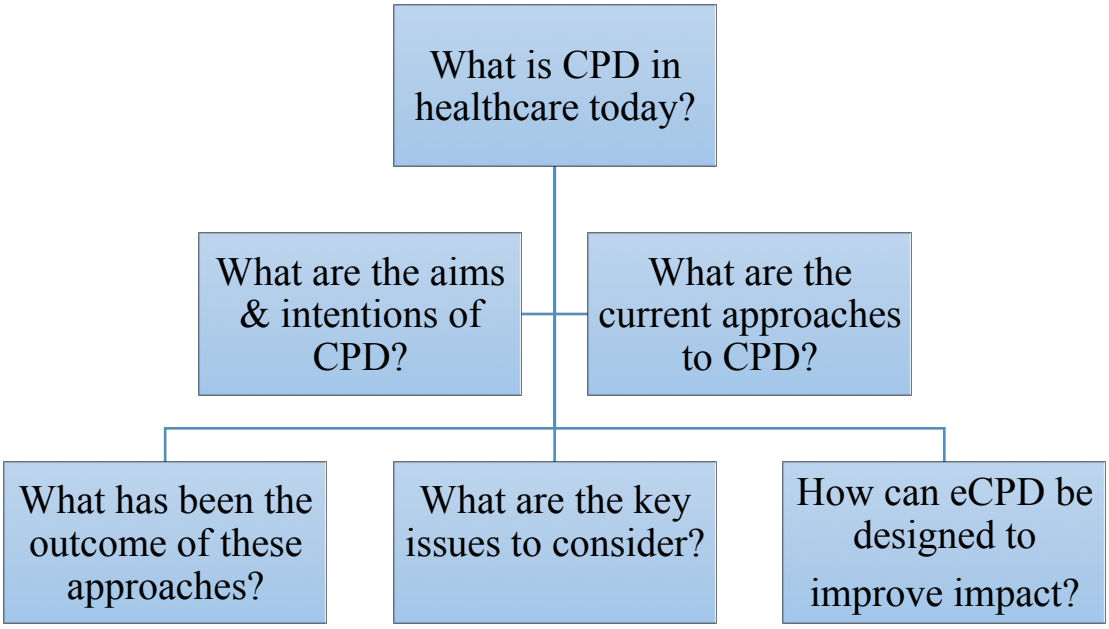
Appendix 1: Themes Conceptualised on Online CPD based on 250 Sources Identified from Interdisciplinary Literature Search



Detailed findings of themes

The sections below incorporate these themes, along with my interpretive and critical commentary, to answer the following broad questions about developments in the complex and contested fields of healthcare CPD and online CPD:

- What is CPD in the healthcare context today,
- What are the aims and intentions of CPD in the healthcare context,
- What are the current approaches to CPD in the healthcare context,
- What are the drivers of online approaches to CPD in the healthcare context,
- What are the current online approaches to CPD in the healthcare context,
- To what extent have these approaches realized the desired effects of improving practice, such as the impact on learning, behaviour, performance and care outcomes,
- What are the key issues that have emerged as to why some approaches have proved to be effective and others have not, and
- How can online CPD be designed to support healthcare professionals improve practice

CPD in the healthcare context today

Billions of dollars are poured annually into healthcare CPD around the world to improve practice. In this section, I outline some of the definitions of CPD in the healthcare context today from the literatures.

A current broad definition of CPD in healthcare contexts today is ‘a process by which healthcare professionals keep constantly updated so that they can effectively respond to the demands that they face in their professional work’ (Sandars, 2010: 1).

CPD in healthcare has also been viewed as “gaining knowledge by keeping up to date clinically, managerially and professionally, and improving patient care” (Schostak et al., 2010: 586).

The Department of Health identifies CPD as a way of maintaining standards of care, improving the health of the nation, and recruiting, motivating, and retaining high quality staff (DoH, 1998). In this light, CPD is an 'important strategic instrument for improving health' (Brown, Belfield, & Field, 2002: 652).

Another definition of CPD is presented by Maggs (1996: 98) as a term "… used to encompass those teaching and learning activities, including open and experimental learning, which follow registration and are directed towards improving the quality of care provided to the public".

What is common in these definitions of CPD in the healthcare context today is the goal of improving practice and patient care. This is also the challenge faced by CPD in the healthcare context today – how to improve practice and patient care with CPD.

CPD is a more relevant construct for this thesis' interest in *all* healthcare professionals development. Continuing medical education (CME) is an aspect of CPD directed specifically at doctors. CPD includes a wider range of topics that integrate soft-skills and managerial skills that traditional CME per se do not cover. Because improving practice often requires examination of beliefs, values, assumptions, and contexts across professional sectors, traditional banking models of CME do not provide the opportunity for critical reflection (Brookfield, 1998) as a precursor to contemplating possibilities for change.

There have been calls for CME to be redefined to evaluate the impact on quality improvement and skills improvements (Harris, 2009). Earlier, CME has also been suggested as a framework for implementing clinical guidelines to improve practice (Dodek & Ottoson, 1996).

CPD approaches drawing on critical theoretical perspectives (Mezirow, 1990) argue for its potential for transformative learning and empowerment in healthcare to improve practice (King, 2009). These approaches hold the view that CPD should aim to redress the inequities in healthcare provision, or at least, make professionals be aware of the moral and political issues involved.

Another definition is Continuing Professional Education (CPE) which argues for supporting healthcare professionals acquire higher-order 'critical thinking and problem solving in addition to the gathering of facts and concepts." (McPherson, Nunes, Sandars, & Kell, 2008: 301). This definition situates professional learning in social context, overcoming the limitations of earlier behaviouralist definitions of CPD.

Online approaches to healthcare CPD have been defined as covering any computer based approaches to CPD (Sandars, 2010), including CME and CPE. Self-directed CPD is another definition to support health care professionals information seeking behaviour online with reflection (Casebeer, Bennett, Kristofco, Carillo, & Centor, 2002; Walsh, Homer, & Sandars, 2010). Online collaborative learning is another approach designed to support healthcare professionals learn and share (Sandars, Langlois, & Waterman, 2007). Online CPD using networking technologies has been defined as supporting learning situated in healthcare professionals' social context by enabling "interactions and negotiations of meaning for prolonged periods of time." (McPherson et al., 2008: 302). These interactions and negotiations support professionals learn when engaged in authentic learning activities, as opposed to didactic attempts to disseminate information online, and then trying to make it fit into professionals' practice.

All these competing definitions appear to be vying for normative legitimacy against the backdrop of the worrying rise of the individual competence based

curriculum movement in medical and healthcare education (Malone & Supri, 2010; Bradbury, Frost, Kilminster, & Zukas, 2010) and the increasing use of 'tick-box' or checklist CPD accreditation schemes for professional revalidation in healthcare policy (General Medical Council, 2003). These institutional and policy moves, while posing a challenge to the autonomy of healthcare professionals to govern their own practices (Schostak et al., 2010), need be taken into account in designing approaches to CPD that will appeal to policy makers and funders searching for effective solutions to invest in.

In finding a productive way forward through these various definitions, this study defines *online healthcare CPD as a strategic educational approach to improve impact on practice and patient care*. The definitions above could be inferred to suggest that online CPD can achieve this goal by integrating support for self-directed healthcare professionals to implement new evidence, to interact, to learn, share, collaborate and critically reflect, when engaged in authentic learning with networking technologies, to change practice, improve patient care, and to gain revalidation. By integrating the key elements identified from the existing contextual definitions presented above and applying it for online CPD catering for all types of healthcare professionals, this definition advances the theorization of online CPD to improve impact on practice and patient care.

The aims and intentions of CPD in the healthcare context today

There appear to be five main aims of CPD in the healthcare context today.

Firstly, from the policy perspective, the aim of CPD in healthcare today is to increase knowledge, skills, and competencies, to work on attitudes and beliefs, and to change behaviour, so as to improve performance (Garside, 1998; Pringle, 2000; DoH, 2000; 2002; Starke, 2008).

Secondly, from the personal development perspective, CPD is aimed at supporting healthcare professionals realise their 'personal and developmental' (Calman, 1998: 5) 'lifelong learning' (DoH, 2001) 'to expand and fulfil their potential' (DoH, 1998: 42).

Thirdly from the knowledge management perspective, CPD is aimed at providing opportunities for knowledge sharing, discussion and exchange of information and ideas across the professions (Sandars, 2006; Dopson & Fitzgerald, 2005). The intention is that sharing will increase the likelihood that healthcare professionals will change their behaviours (Peck, McCall, McLaren, & Rotem, 2000), which can mediate improvements to practice.

Fourthly, from the medical scientific perspective, CPD facilitates the timely diffusion of new research to implement evidence-based medicine to improve practice and patient care (Khan & Coomarasamy, 2006; Grol & Grimshaw, 2003).

Fifthly from the continuous improvement perspective, CPD is aimed at supporting professionals' need to learn continuously so as to improve performance, and to maintain their competence throughout their career (Bennett, Casebeer, Kristofco, & Strasser, 2004; Wearne, 2008; DoH, 1999).

While there is no general consensus on the aims of CPD in healthcare, the overall intention appears to be to design and deliver educational activities to equip and enable healthcare professionals with the knowledge, skills and attitudes that result in improving practice, optimising patient care and improving society (Grimshaw, Eccles, Walker, & Thomas, 2002; Starke, 2008; Grol, Wensing, & Eccles, 2005; Sandars, 2010; Kalet, Gillespie, Schwartz, & Holmboe, 2010).

The current approaches to CPD in the healthcare context

In order to realise the aims and intentions above, I now outline the 5 dominant types of CPD in the healthcare context that have been used to teach new knowledge and skills, change behaviour, and improve practice and care outcomes.

While not all these 5 types have been categorized as 'CPD' per se, I have classified them based on my extensive analysis of the literatures, to map the journey by which attempts to improve healthcare practice have been made. Whilst one could imagine these 5 types in a somewhat historical progression since the 1970s as understandings of learning evolved, elements of each have co-existed in responses to improve healthcare in a more complex way than my simple classification. My classification also builds on the findings and recommendations made by Bennett et al. (2000) for a new vision of CME for physicians, which drew upon six types of literatures and encouraged an interdisciplinary and collaborative approach among educators and healthcare practitioners so as to more effectively respond to the "changing educational, social, and political forces on medical practice" (p. 1167). In addition, writing at the beginning of the 21st century, they had also recommended that effective educational strategies would need to incorporate "new technical capabilities for synchronous and asynchronous learning." (p. 1172) As such, moving from CME to CPD, and into the Web 2.0 world, I argue that my thematic analysis provides for an expansive view of CPD in the healthcare context since the 1970s from a wide range of different perspectives. This richness allows a greater appreciation and discussion of the factors that can have the desired intention of improving practice, prior to proposing a new conceptual model for online CPD in the next chapter.

1st approach to CPD: Improving practice by disseminating clinical guidelines

Informed by research showing the gap between evidence and practice hampers improved healthcare outcomes (Bero et al., 1998; Grol & Grimshaw, 2003), the first type of CPD approaches aimed to fill this gap. It took the form of didactic lectures, workshops, courses, and conferences to disseminate guidelines, provide updates, teach new skills, and share the latest research findings (Burrows, 2003). The guidelines movement first emerged in the 1970s in America in response to attempts to redress variability in care, and strengthened with the rise of the evidence-based movement in the 1990s (Prieto, Guitián, & Mota, 2010). These didactic versions assumed that professionals engaged in bad practice due to ignorance, and would make rational choices to change their behaviour once they had accurate, factual information of what works delivered through lectures and tutorials (Davis, Thomson, Oxman, & Haynes, 1995; Kell, 2006).

2nd approach to CPD: Improving practice with multi-faceted interventions to address barriers to change

A second type of CPD/CME interventions highlighted the strong influence of social context on health care practices, arguing that multi-faceted interventions were needed to ensure practice improves (Davis et al., 1995). These gave a more complex and elaborated account of how guidelines could be implemented and learning transferred by addressing the barriers to changing practice in the wider context of healthcare (Grimshaw et al., 2002; Grol & Grimshaw, 2003; Grol et al., 2005).

These approaches included the use of opinion leaders, outreach visits, reminders, audits, feedbacks, and interactive small group meetings to change the behaviour of health professionals (Davis et al., 1995; Oxman, Thomson, Davis, & Haynes, 1995).

Over time, such CPD approaches have broadened to include working on individual, organizational, and patient barriers, such as lack of time, ineffective relationships with other teams, lack of support from the policy environment, and lack of resources or experience. The highlight of such approaches has been the creation of a detailed 'CME Learning Transfer Framework' by Price, Miller, Rahm, Brace, and Larson (2010) that can be applied across various contexts. Health systems also have come up with strategies to address barriers to change, as evidenced by the UK NICE 'How to Change Practice' Guide (2007) and the Australian NICS 'Identifying Barriers to Evidence Uptake' Guide (2006). As change becomes more complex to manage, this approach to CPD has thus seen a tendency towards planning, managing, and rationalising the complexity of change in the form of ever more refined technical frameworks and schemas to overcome known and unknown barriers to improving practice.

Many researchers then began arguing that the problem in getting evidence into practice to improve healthcare had to address the criticisms of the variety of educational approaches that were emerging. Didactic approaches such as conferences and lectures had been reduced to collecting points as part of accreditation, multi-faceted interventions were too costly, while CPD that focused on subjective individual growth could only contribute marginally to improving healthcare (Grimshaw et al., 2001; Davis et al., 2003; Sandars, 2006). These criticisms seem to have led to a growing emphasis on a 3rd type of approaches to CPD.

3rd approach to CPD: Improving practice by creating communities of practice

The third type of approach to improve healthcare practice identifies the locus of CPD efforts more specifically than the wider social context – communities of practice (Lave & Wenger, 1991; Brown & Duguid, 1991; 2001; Brown, Collins, & Duguid, 1989; Wenger, 1998). On the NHS website devoted to evidence based practice, communities of practice are exemplified as the 'killer knowledge management application' (Robertson, 2002).

Lave and Wenger (1991) described learning anthropologically to show that workplaces comprised communities of practice. In communities of practice, people in workplaces learn not only through explicit knowledge, but also by drawing on their insights from lived experience (Orr, 1990; Lesser & Storck, 2001; Wenger, McDermott, & Snyder, 2002). That is, knowledge is socially constructed (Brown and Duguid, 1991; Lave and Wenger, 1991; Lave, 1988). As a result, this CPD approach was used in healthcare to try and improve practice by:

- Managing, generating, storing, distributing and applying knowledge in communities (Gates, 1999; Mertins et al., 2001; Sandars, 2006)
- Providing enabling contexts for collaborative learning to improve evidence-based practice (DoH, 1998; 2000), and
- Supporting healthcare professionals develop dynamic responses to address the cross-departmental problems they faced (Wenger, 2000; Johnson, 2001; Collison & Parcell, 2001).

In this approach, collaborative learning features prominently as the pedagogic strategy to improve practice (Sandars et al., 2007). Collaboration is claimed to be necessary to support the development of a shared purpose, trust and identity to promote change and spread best practices across healthcare professionals (Bate & Robert, 2002; Endsley, Kirkegaard, & Linares, 2005). Sharing is deemed important so as to harness the tacit knowledge of professionals necessary to solve problems that explicit knowledge alone cannot (Polanyi, 1966).

An almost identical CPD approach that does not use the term ‘communities of practice’ is knowledge translation (Davis et al., 2003; WHO 2005). This approach is said to be effective because it is situated in practice and focuses on health outcomes and changing behaviour, rather than passive knowledge dissemination and skills building (Davis et al., 2003; Wilson et al., 2010).

Equally, knowledge transfer is suggested as yet another 3rd approach, that recognises the 'complex, dynamic, iterative' (Ward, Smith, Foy, House, & Hamer, 2010: 4) process by which research enters practice.

All these approaches seek to improve practice through facilitating sharing, collaboration, and change with the use of communities of practice. This approach has also widened to include features such as knowledge brokers, mentors, and leadership development (DoH, 2000).

4th approach to CPD: Improving practice with reflective practice

The 4th approach to CPD in healthcare contexts today is the use of the concept reflective practice (Schön, 1983; 1987). Broadly, this CPD approach draws on theories of experiential learning (Kolb, 1984), critical reflection (Brookfield, 1987; Maynard, 1996; Clouder, 2002), practitioner action research (Carr & Kemmis, 1986), transformative learning (Mezirow, 1990; Shor, 1993), and empowerment (Freire, 1972). Applied to healthcare, they appear to be operationalised as all but variations on a theme – learning that emerges from things that go wrong, that cause dissonance in experience, which prompt the need for new knowledge and skills (Ghaye & Lillyman, 2000; Bolton et al., 2001; Sandars, 2006).

In this approach to CPD, educators are encouraged to support healthcare professionals to improve practice by provoking change through learning 'cycles'. These cycles include processes such as awareness-raising, looking back at prior experiences, reframing practices in the light of new evidence, followed by efforts to integrate new knowledge and to reflect (Boud, Keogh, & Walker, 1985; Boud, Cohen, & Walker, 1993).

In a British healthcare context, reflective practice is required of healthcare professionals participating in CPD. Evidence of reflective practice is

recorded in the form of learning portfolios and used as a form of accountability for performance and revalidation (Parboosingh, 1998; du Boulay 2000; Starke, 2008).

This reflective approach to CPD in healthcare also includes efforts such as practitioner research and action research. While no consensus on definitions or methods appears to exist on either approach, the aim of such CPD is usually for practitioners to conduct research on their own practice, in a systematic way, to improve personally, as well as improve practice (Fuller & Petch, 1995; McCormack 2003; Meyer, Ashburner, & Holman, 2006). Action research traditions and approaches vary considerably, and can range from instrumental versions to solve problems at one end, collaborative versions across teams, to empowering versions to raise consciousness and challenge the status quo at the extreme (Carr & Kemmis, 1986; Hart & Bond, 1995; Elliot, 1991; Whitelaw, Beattie, Balogh, & Watson, 2003).

The drivers of online approaches to CPD in the healthcare context

The need for 21st century educators to respond to the increasing use of the Internet in society has been highlighted in the broader literature. Several analysts have shown that the increasing use of Google, Skype, YouTube, Facebook, Twitter, blogs, Dropbox, iTunes, and other social network platforms in a 'Web 2.0' world has created new social cultures where people's agency as 'prosumers', participation, and interactivity are of the essence (Tapscott, 1998; Wellman & Hogan, 2004; O'Reilly, 2005; Batelle, 2005; Tapscott & Williams, 2006). Surveys by the Oxford Internet Institute (2009) also reveal that the Internet is becoming the key source for information for a growing number of people.

Sociological theorists have begun to postulate changing conceptions of society brought on by social expressions caused by globalization and its consequent economic and social transformations, primarily from stability to

rapid change, innovation, and uncertainty. These expressions include the 'new networked economy' (Castells, 2000), and 'liquid modernity' (Bauman, 2000). These theories reveal a historical break from traditional notions of coherent, local, stable, well-defined, emotionally-grounded community social structures to ephemeral, information-based, rapidly moving global networked sociality (Wittel, 2001). These networks are characterised by weak ties and a heavy reliance on technologies for connectivity and interactivity (Wittel, 2001; Wellman, 2001).

The evidence that these changed social conceptions have affected the behaviour of professionals comes from the literature on computer-supported collaborative work, information systems, and healthcare. Where professionals once used to be associated with stable careers in large bureaucratic organizations, they now appear to network intensionally (Nardi, 2002). They move across projects, adapt technologies, deploy strategies and tactics, manage and commodify their relationships, and rely on their social capital in these social networks (Lin, 1999; Addicott & , 2007; Ackerman, Halverson, Erickson, Kellogg, & Orlikowski, 2000) as a crucial tool for career success. Professional learning, it is suggested, is now technology-mediated information seeking in networks as professionals become more savvy and strategic at connecting, sharing and networking with others across time and distance (Borgatti & Cross, 2003).

These social technological changes to the working lives of healthcare professionals caused by the Internet illustrate the problems of healthcare CPD today. It appears that professionals 'reside' in shifting social networks, learn strategically, and can sidestep, ignore and transcend what they are offered by the traditional organization, site-based or stand-alone CPD approaches mentioned above (Casebeer et al., 2002; Sandars & Schroter, 2007; Boulous & Wheeler, 2007; Gretsky et al., 2007).

Thus, despite the growth of online healthcare CPD (Cobb, 2004; Hovenga, 2004), designing online CPD to improve practice in ways that responds to the changed behaviours of healthcare professionals in a new era of networked sociality poses challenges for educators.

One approach that has been advocated is using Web 2.0 social networking technologies. Researchers argue that these 'social software' (Anderson, 2008) such as blogs, social tagging, podcasts, and wikis can now be used for online CPD to support collaborative learning (Sandars & Schroter, 2007; Boulos & Wheeler, 2007; Boulos, Maramba, & Wheeler, 2006). Boulos & Wheeler (2007), in their overview of Web 2.0 in healthcare education, argue that because it is more social, Web 2.0 "encourages a more human approach to interactivity, better supports group interaction, and fosters a greater sense of community in a potentially 'cold' social environment. (p.3). The flexibility of these software, and the emphasis on content creation over content consumption, even prompt them to claim that Web 2.0 is an 'enabler' for 'greater levels of participation agency, and democracy' (p.3).

This research in healthcare education reflected trends in the broader literature on networked learning, which appears to suggest changed conceptions of how to respond to the new social practices brought about by a Web 2.0 social culture. Networked educational approaches are now driven by endeavours to create virtual ecologies to socially support professionals learn by connecting with social networking technologies (Siemens, 2005; Sandars & Haythornthwaite, 2007; Anderson, 2008; Anderson, 2009) and to more effectively navigate complex information in fragmented, networked 21st century societies (Wellman, 2001).

In addition, while the potential of Web 2.0 tools for increasing connections, sharing resources, knowledge and experiences to create virtual communities is undeniable, Sandars & Schroter's (2007) survey of medical students and educators found that many users lacked the knowledge and skills to use

such tools effectively to support their learning. Additionally, organizational and policy issues would still need to be considered when considering how to implement Web 2.0 based educational programmes (Nunes & McPherson, 2007). Further, how to create an effective network supported by which Web 2.0 tools requires careful thought and planning to ensure these approaches do not become yet another burden imposed on healthcare professionals, but results in the 'empowerment' that Boulos and Wheeler (2007: 4) claim they offer. Thus, while networked learning approaches have been tried out in healthcare (Thorley, Turner, Hussey, & Agius, 2009; Buggy et al., 2004), effective evidence-based approaches to design programmes that improve practice and patient care are lacking in the emerging literature on online healthcare CPD using Web 2.0 tools.

Nevertheless, recognizing the changes caused by the Internet, the research shows a structuring discourse in favour of online healthcare CPD from both users and providers for several reasons.

Firstly, with the increasing use of computer-based technology in healthcare (DoH, 1988; 2000), the working practices of professionals have changed (Sim & Radloff, 2008; Moffat, Moffat, & Cano, 2001; Roscoe 2003; Wilson 2003). More and more healthcare professionals are using the Internet, at home and at work, to access information to fill gaps in their knowledge (Cobb, 2003; Dickerson & Feitshans, 2003; Bennett et al., 2004). Online CPD thus appears to be driven by the need to overcome barriers such as lack of time to attend face-to-face events, or being physically present for interaction (Gagnon et al., 2007; Klein & Ware, 2003; Wutoh, Boren, & Balas, 2004; Sargeant, Curran, Allen, Jarvis-Selinger, & Ho, 2006; Zimitat, 2001).

Secondly, for educational purposes, it is claimed that online CPD approaches in healthcare are driven by learners need for 'self-directed' learning', 'flexibility', 'studying in the comfort of their own office or home' and

getting ‘just-in-time’ learning (Kripalani, Cooper, Weinberg, & Laufman, 1997; Mamary & Charles, 2000; Fink, Thodeson, & Wilson, 1990; Hogg, 1991; Sambataro, 2000; Nissen, Abdulla, Khandheria, Kienzle, & Zaher, 2004). Researchers also claim that online CPD approaches can more effectively meet healthcare professionals’ preferences for interactivity at lower cost and greater convenience (Richardson & Norris, 1997) across distances (Peterson, 1999). Given that many healthcare professionals are widely dispersed and work different hours, studies suggest that online CPD can reduce the need and time for travel (Roberts & Fox, 1998; Ackerman, Pipek, & Wulf, 2003). Thus online CPD appears to be useful in healthcare, where limited time and isolation are major barriers to face-to-face learning.

Online CPD also appears to be driven by policy directives to support networks of healthcare professionals to learn together as a way to improve practice (DoH, 2001; Sandars et al., 2007). This has resulted in the setting up of online communities for all kinds of discussions, from the WHO *Knowledge Gateway on Implementing Best Practices*, with its 300 communities and 10,000 members, to the NHS *saferhealthcare* community, and other topic-related discussion boards by commercial providers such as *BMJ Learning* and *Doctors.Net.uk*.

In addition, online CPD approaches offering specific courses for validation - such as the *NHS Primary Care Training package* or the *USAID Global Health e-learning* modules – reflect the need to provide customized content and pacing efficiently, while allowing CPD providers to scale, track, and record performance improvements (Masters & Ellaway, 2008).

Online CPD approaches are also driven by strategic imperatives, in light of the growing need for a well-trained healthcare workforce around the world (WHO, 2006; 2011). This need appears to be growing in light of the reality of a financially challenging environment for CPD with ongoing financial instability, and the growing call for cost-effective CPD (Sandars, 2010).

Given the complex structural challenges to improving the quality of healthcare, new approaches to CPD are thus being sought which use the Internet to save time and money, overcome distance barriers, and improve impact on practice and healthcare (Knebel, 2001; Taylor, Abbott, & Hudson, 2008; Singh, 2010; 2011b).

Data on the extent of online CPD for healthcare professionals also appears to report an increasing growth trend, although credible figures are only available for online CME for physicians. For example, in a recent article, it was reported that in America, “online CME provided by ACCME-accredited providers accounted for 30% of all CME activities and 41% of all physician CME participants in 2008.” (Harris, Sklar, Amend, & Novalis-Marine, 2010: 3) This study also surveyed more than 270 online CME websites to show that if current trends continue, online CME “is likely to be more than 50% of all CME within 7-10 years (Harris et al., 2010: 3).

In summarizing this section, the literature on the social changes caused by the Internet shows increasing drivers for online education, and a growing use of the Internet for CPD in healthcare worldwide (Sklar, 2004). A paradox however is visible. On the one hand, there appears to be an increase in self-directed online CPD due to healthcare professionals’ increasing use of the Internet on their own will. On the other hand, there are the growing attempts by policy makers and commercial providers to offer modular courses for credit and validation, as well as online group interaction for knowledge sharing and learning, and by funders to implement cost-effective approaches to develop healthcare professionals in a financially constrained world. This paradox raises interesting questions that research on online healthcare CPD has not yet begun to address – how healthcare professionals’ networked learning as a social practice with Web 2.0 tools to improve impact can be designed for, providing added impetus for this study.

Online approaches to CPD in healthcare

The literature reveals that online approaches are being used for CPD for all kinds of healthcare professionals – nurses, radiographers, occupational therapists, physical therapists and of course, doctors (Fortune, 2007; Sim & Radloff, 2008; Barden, Clarke, Young, Mckee, & Regehr, 2000; Chan, Leclair, & Kaczorowski, 1999; Marshall, Stewart, & Ostbye, 2001; Liaw, Pearce, & Keppell, 2002; Sandars and Langlois, 2005).

As the Internet has increased the possibilities for more sophisticated interaction and collaboration, online approaches to CPD appear to have developed considerably. They seem to cover three broad types as outlined below.

Didactic online approaches included the early use of CD-ROMs and multimedia packages (Stocking & Mo, 1995). They also include websites disseminating resources to healthcare professionals (Curran, Hoekman, Gulliver, Landells, & Hatcher, 2000).

Individual constructivist online approaches include the common use of e-learning modules to disseminate clinical guidelines (Stewart et al., 2005), interactive components such as videos (Morgan, Cleave-Hogg, McIlroy, & Devitt, 2002) and e-portfolios to enhance reflective practice (Sim & Radlof, 2008).

Increasingly, social constructivist (Vygotsky, 1962) online approaches have appeared. These include:

- e-mail discussions (Marshall et al., 2001),
- discussion boards (Komolpis & Johnson, 2002),
- virtual schools to collaborate and solve problems (Beer, Green, Nefti, Sixsmith, & Whatley, 2000),

- simulations for problem based learning (Gunther, Soto, & Colman, 2002),
- online communities of practice (Moule, 2005, 2006),
- learning networks (Liaw et al., 2002), and
- synchronous web-chats to create live virtual classroom sessions (Boulos, Taylor, & Breton, 2005)

Futuristic CPD approaches are also emerging as the Internet has transitioned into Web 2.0, with the profusion of immersive virtual 3-D worlds, social networking tools such as wikis, blogs and podcasts, online personal networks, and even m-learning applications (Hansen, 2008; Sandars, 2006; Wiecha, Heyden, Sternthal, & Merialdi, 2010; Boulos et al., 2006; Sandars, 2007; Walton, Childs, & Blenkinsopp, 2005).

In summary, online approaches to CPD in healthcare appear to have evolved as understandings of the nature of professional learning and online education have matured, and as the Internet has begun to provide more effective and versatile communications and interaction tools to support self-directed as well as social and collaborative learning (Garrison & Anderson, 2003; Anderson, 2008; Sandars & Haythornwaite, 2007).

To what extent have these CPD approaches improved impact on practice and patient care?

To analyse the impact of the variety of aims and approaches to healthcare and online CPD presented above, researchers have used a variety of research and evaluation approaches. These approaches have used both quantitative and qualitative methods to focus on a variety of outcomes, including learning, behaviour change, and change to patient care. In this section, I critically evaluate to what extent each of the 5 dominant types of healthcare and online CPD approaches outlined above have had the desired effects of improving practice. In doing so, I flag up the difficulty of arriving at any cohesive picture of ‘what works’ in improving practice because of the diversity of educational approaches, the context-specificity of the

interventions, the situatedness of learning in practices, policies and organizations, and the variety of methods used to gather data and evaluate impact. As such, I respect the diversity and uniqueness of the 5 types of CPD approaches and do not aim for comparison or cross-generalization. Instead, I analyse each of the 5 types individually in relation to the assumptions of the underlying theories of learning and change.

The impact of the 1st approach to CPD on improving practice: Disseminating guidelines

From the literatures, systematic reviews have shown that practice has not improved as a result of the simple dissemination of evidence-based guidelines to healthcare professionals (Haines & Donald, 1998; Davis et al., 1995). In analyzing why this CPD approach appears to have had a low impact, these researchers make the argument that clinical guidelines are rejected when they are decontextualised and imposed. Oxman et al. (1995) and Grol (1997) concur that these factors can hamper the uptake and impact of disseminating clinical guidelines. In addition, Davis, O'Brien, Freemantle, Wolf, Mazmanian, and Taylor-Vaisey (1999) and Mazmanian and Davis (2002) concluded that although didactic CPD approaches such as lectures and disseminating guidelines could develop knowledge and skills, there was no evidence of change in performance.

The low impact of the dissemination of evidence-based clinical guidelines, procedures, techniques, protocols, and toolkits has in turn led other researchers to conclude that guidelines have become an overdose for healthcare professionals and reduced their motivation to learn (Oxman, 1993; Watkins et al., 1999). Recent studies have thus begun to claim that it is not disseminating more guidelines that healthcare professionals need to improve practice, but enhanced support for clinical decision-making and for navigating complex clinical databases (Tomlin, Humphrey, & Rogers, 1999; McColl, Smith, White, & Field, 1998; Guyatt, Meade, Jaeschke, Cook, & Haynes, 2000; Grol, Wensing, & Eccles, 2009).

What then is the barrier to changing behaviour and improving impact on practice with didactic CPD approaches such as lectures and disseminating guidelines? As McPherson et al. (2008) suggest in their conceptual review of approaches to healthcare CPE, didactic and behaviouralist approaches (Jones & Mercer, 1993) assume that professionals learn through objective processes of 'pouring' disembodied knowledge and skills into passive 'empty vessels', often imparted by a 'sage on stage', which somehow causes change in behaviour and patient care. This theory becomes problematic because, as the research shows, professional learning, behaviours and thoughts are not static 'things' that can be changed by external educators, but situated in the wider social realities of healthcare practices, to which I now turn to.

The impact of the 2nd approach to CPD on improving practice: multi-faceted interventions to address barriers to change

The importance of affecting the social context of healthcare to improve impact on professional practices was highlighted by systematic reviews on multi-faced participatory social CPD interventions. Bero et al. (1998) and Grol and Grimshaw (2003) concluded that while such approaches can be successful, they seem to be effective only when they use interactive and intensive organizational-based educational approaches.

In addition, the impact of such CPD approaches on improving practice appears to rest on three key factors. Firstly, Kitson, Harvey, & McCormack, (1998), Plsek & Greenhalgh (2001) and Cervero (2003) suggest that multi-faceted social CPD programmes would need to tackle the context, which is an important barrier to influencing and sustaining the adoption of innovations to improve practice Secondly, Plsek (2000) and Grimshaw et al. *(*2001) also contend that such CPD programmes would need to perceive change as a systems wide, cultural, and dynamic adaptation, rather than an individual process. Thirdly, Walker, Grimshaw, and Armstrong (2001), Hrisos et al. (2008) and Price et al. (2010) point out that multi-faceted CPD programme

would need to work on beliefs, attitudes, and processes. Cumulatively, these researchers seem to suggest that CPD that attempts to improve impact on patient care could work by finding a theoretical and practical way to integrate the personal, social and structural levels of healthcare practices.

Assuming these issues can be comprehensively tackled by planned and designed CPD, healthcare professionals are more likely to improve their practice if they perceive gains, see their trusted peers change their behaviours, and in turn are ready and prepared to change behaviours (Bero et al., 1998; Grimshaw et al., 2002; Price et al., 2010). By any measure, this is a tall order for a CPD programme unless a predictive relationship between constructs such as behaviour, learning, change and practices is discovered and deployed.

Grol et al. (2009) provide the ultimate guide to the various models of implementing changes to practice in the field of healthcare today. These models try to capture and systematise all the complexities of practice into a series of steps that can be executed and measured in the grand plan of change. These models are informed by social learning theory (Bandura, 1995), the influence of small-group interactions on peer learning (Webb, 1989), and theories of planned behaviour change (Ajzen, 1991). In order to make such costly combination, continuous, multi-level approaches improve practice, these approaches assume that professionals have a high degree of freedom and choice over their behaviour (agency), are united in a common vision and identity (bonding social capital), and are able to mobilise the support of powerful social groups (bridging social capital), particularly their informal networks, to bring about changes to practice.

However, these assumptions for the design of CPD are challenged by other research into the social reality of healthcare practice. As Scott, Mannion, Davies, and Marshall (2003) discovered, the culture of primary care practices in the UK is one of internal stability and loyalty to the ‘clan’ rather

than to external drivers of reform, reflecting the hierarchical control mentality in healthcare. They also describe healthcare systems as complex, while showing that various teams in healthcare have conflicting needs, challenging rational approaches of planned organizational culture change. This work provides an alternative orientation to the allure of multi-faceted social CPD interventions to improve practice. It suggests that healthcare professionals deal with inconsistencies, mixed messages and contingencies in their daily practices. It also suggests that supporting professionals cope with the complexity of practice by learning to make sense of what is happening and responding effectively could be more valuable than imparting scientific content knowledge or tailor-making interventions when trying to address barriers to change.

Indeed, research by Grol & Wensing (2004) suggests that hierarchical healthcare contexts make addressing the barriers to changing practice through multi-faceted interventions challenging, despite attempts to be inclusive and participatory. Cabana et al. (1999) showed that, even if tailor-made, prescriptive best practice guidelines reduce the agency of healthcare professionals by imposing additional burdens and pressure on an already over-worked and over-regulated workforce to conform to what is expected of them. Gabbay and Le May (2004), in their ground-breaking ethnographic study on the implementation of clinical guidelines in a British healthcare context, suggested that through negotiations and discussions with peers, objective decontextualised guidelines become subjective situated ‘mindlines’.

These studies suggest caution in accepting the generalized notions of multi-faceted participatory CPD interventions to implement guidelines – healthcare professionals, even if included in planned changes to practice, may overtly accommodate the changes but covertly resist or adapt them to suit what they can reasonably make sense of and handle.

Clearly, this contrasting research must have a major bearing on the ostensible promises of social CPD interventions to improve impact on practice. Yet, despite the reality of the lack of solidarity among managers, doctors, and other health care professionals in a competitive workplace with unequal power relations (Martin, Currie, & Finn, 2009) and the fluidity of practice change, these issues remain invisible to dominant CPD implementation approaches who advocate using interactive approaches and opinion leaders to implement guidelines to changing practice.

This contrasting literature also shows that the hopes of mobilizing diverse groups of healthcare professionals and management to improve practice assume a homogenous group but ignore their competition for power and resources. It suggests that social learning CPD approaches do not cross the implementation divide between planned social learning and the messy power struggles in the reality of practice when trying to work through barriers. Ultimately, 'social' approaches do not work because the implementation of CPD through social learning to address the barriers to changing practice is not distinct from practice itself – they are mutually constitutive. If implementing guidelines, either through didactic or social interactive learning theories, cannot change practice, then why do so many CPD researchers and implementers create expectations that it can? I argue that the conceptual assumption that practice is something fixed which can be manipulated through social CPD approaches in healthcare organizations is now ready to be challenged rather than accepted with a more robust theoretical understanding of practice, as I will show in the next chapter.

The impact of the 3rd approach to CPD on improving practice: Communities of practice (CoPs)

The impact of CPD approaches using CoPs for knowledge sharing and collaborative learning to improve practice appear to be mixed and contingent (Sandars & Heller, 2006; Sandars et al., 2007). To understand why practice is hard to change in CoPs, researchers in organizational learning contend that there are several problems with the espoused virtues of this metaphor.

Scrivener (2002) argues that artificially created communities are unable to move beyond sharing explicit knowledge. Explicit knowledge alone however is not enough for interprofessional collaboration because learning happens not only in acquiring and exchanging packaged information, but when professionals know how to integrate explicit knowledge with their tacit knowledge in the context of healthcare practice (Sandars, 2007). In fact, as conceived by the originator of the CoP concept Wenger (1998), communities of practice provide a sense of belonging for professionals, and regenerate and stabilize their knowledge in practice over time. As a result, a CoP can act as a filter to screen out the input of new knowledge and new ways of thinking. Yet, new knowledge and new thinking are precisely the necessary conceptual precursors to new practices that might be contrary to the lay theories of 'good practice' the members of a CoP unconsciously carry.

In addition to the issue of trust that I mentioned in the last Chapter, Wenger (1998) had also stressed the importance of meaning and identity formation as key factors in the situated learning (Lave & Wenger, 1991) processes he theorized for his conception of CoPs. In his articulation, learning is not simply the acquisition of knowledge and skills, but an ongoing experience with others that becomes meaningful over time. Through processes such as sharing ideas, solving problems, and collaboration, learners become socialized into ways of knowing and being. Learners are immersed in social practices with peers, mentors and experts to acquire and construct new forms of interaction and thinking (Vygotsky, 1962). In adapting his concept to organizational learning, Seely Brown and Adler (2008) concluded that the process Wenger described as ''legitimate peripheral participation'' is one by which novice learners take on new tasks, explore artefacts, and ''learn to be'', consequently developing a sense of belonging and constructing their identity, as they learn quite new ways to use and value their capacities to improve practice in relation to peers and experts in context.

Given Wenger's findings from his original ethnographic work with insurance claims processors, it is striking that his CoP concept has been assimilated into short CPD course designs with little appreciation for the importance of facilitating long-term processes to develop the meaning and identity of diverse groups of healthcare professionals, as Sandars et al. (2007) found out when attempting the CoP approach in online CPD. Wenger and Snyder (2000), when explaining how to implement CoPs for organizational learning, stressed the need to create shared expertise and passion for a joint enterprise in a specific domain to build knowledge, interest and shared learning. As pointed out earlier for the multi-faceted social CPD interventions, the utility of Wenger's notion as a CPD approach is equally hampered by the hierarchical reality of healthcare, and the extant beliefs of existing CoPs, both of which act as barriers to designing CoPs for the purpose of improving practice.

Other research into organizational learning has further problematised Wenger's notion by decoupling community from practice. Gherardi and Nicolini (2002) showed that in trying to encourage collaboration in organizations, 'created' CoPs may not have the desired effect of improving practice because professionals in different existing CoPs may be more concerned to compare and compete, rather than share practices. In healthcare, researchers have shown that trying to harmonize practice across CoPs can also produce discord and conflict that stand in the way of learning (Freed, 1999; Bate, 2000; Gabbay et al., 2003; Ferlie et al., 2005; Currie & Suhomlinova, 2006). While improving practice in organizations requires cross-departmental and inter-professional knowledge creation and sharing, the processes by which learning across extant CoPs, with or without the support of technologies, may be facilitated remain poorly understood (Bechky, 2003; Mørk, Aanestad, Hanseth, & Grisot, 2008; Oborn & Dawson, 2010). Practice theorists (see Gherardi, 2009) also critique the writings of Wenger (1998; 2002) for conveniently obscuring the discourses and power struggles that shape the delicacies of changing practice when he introduced his CoP metaphor as a model for professional and organizational learning, suggesting a naïve vision of community grounded in humanistic notions

inconsistent with the political strategies of social practices. Indeed, they argue that it is not the community of practice, but the practices of a community that need to be more carefully investigated.

These organizational studies begin to unpack the complexities of deploying CoPs for CPD programmes based on the belief that planned situated learning can improve healthcare practice and patient care. They suggest that the design of CPD needs to take into account findings from the practice literature that, unlike the literature on professional learning, does not reify the community as a container. Overcoming the idealized myth of the community suggests that a way forward for CPD design to improve practice would be to look at the complex interaction between professionals' behaviours, thoughts and their social practices, and how these interactions can be changed by educational programmes.

The impact of the 4th approach to CPD on improving practice: Reflective practice

Despite the preponderance of the reflection metaphor, the impact of healthcare CPD approaches using reflective practice methods on improving practice is unproven and contested (Mackintosh, 1998). In a recent systematic review, Mann, Gordon, & Macleot, (2009) found no evidence to support or refute the claim that reflection improves competence. They also found no studies that measured changes in clinical practice as a result of reflection. They further found that guidance and supervision with mentors in safe spaces for sharing of multiple perspectives is key to reflection. Overall, their findings allude to several reasons for the low impact of reflective practice approaches on improving practice when reflective practice has been used for short-term CPD interventions in healthcare. I now proceed to explore these issues in relation to Donald Schön's original theory of the reflective practitioner (1983; 1987).

Firstly, while Schön's concept of reflective practice showed just how abstract and complex the relationship between learning, reflection and practice is, Jarvis (1992), Quinn (2000) and Sweet (2010) argue that it has been rationally applied in healthcare CPD implementation for individual incident analysis. These researchers criticize such rational approaches that do not acknowledge what Schön was trying to elucidate and account for – the complexity and dynamism of reflection. Instead, as Swanwick (2005) argues, rational approaches take a superficial account of reflection, more akin to a cognitive thinking process.

In his original concept, Schön (1987) referred to two types of reflection - *reflection-on-action* and *reflection-in-action*. Reflection on action happens after an event, to make sense of what has happened as a means of learning. Reflection-in-action is the extremely subtle and intuitive process of on the spot decision making that characterises any professional practice. As Schön (1983) evoked, professionals' messy daily work takes place in 'swampy lowlands'. Here, they are continually making sense of practice and trying to solve problems as they go about their daily work alone and with others. Yet making sense can be both painful and nauseating. As Atkins and Murphy (1993) argue, it is not only analytic reflection-on-action but also the creative reflection-in-action that "... must involve the self and must lead to a changed perspective" (p.1191) prior to any modifications to practice being even contemplated, much less implemented. Thus the conceptual fragmentation of reflection-in-action from reflection-on-action in CPD, which has come to prioritise the latter and ignore the former, is probably at work in explaining the low impact on practice of reflective practice in healthcare that Mann, Gordon, & Macleod (2009) found in their systematic review.

Even if the two aspects of reflective practice were integrated and applied for short-term CPD interventions, it would fail without paying greater attention to the structural barriers at work in preventing changes to practice because of the context of healthcare itself. These structural barriers, in addition to the performativity and mangerialism mentioned earlier, include the lack of trust,

patriarchy, and high-stress work environments with odd hours (Quinn, 1994).

As a result of these structural barriers, CPD programmes, rather than inputting new knowledge, situating learning in communities, or teaching how to reflect on action, would need to find ways to open up the space where professionals feel comfortable for asking and critically reflecting on the 'why are things done this way' questions. These approaches in safe spaces would also need to take on board Sandars' (2006) argument that in addition to reflective practice, educators need to precipitate transformative learning among professionals to address barriers to improving practice. By failing to conceptually know how to design socially safe spaces for critical processes however, I echo the warnings of Cox (2002), who found that, in nursing, reflective practice approaches can lead to professionals 'faking it' - writing up false stories just to fill in their reflective logs for validation purposes – thereby further entrenching rather than changing practices.

I would further extend Cox's argument with what Mann et al. (2009) found in their systematic review - when reflective practice CPD approaches are not aligned with the self-directed learning needs of professionals but imposed, they can be resented and dismissed as 'busy work'. Future short-term CPD designs would also need to consider the advice of Zukas, Bradbury, Frost, & Kilminster (2010) – how, in the performative culture in which healthcare professionals work today, where what has been made to matter is accountability for reaching targets, reflective practice could be designed to support critical inquiry into the structural barriers to sustainably improving patient care.

Nevertheless, Rolfe (2005) raised another challenge to the potential of reflective practice CPD approaches, namely the rhetoric and regulative power of evidence-based medicine. His study showed that in such a healthcare culture, reflective practice, despite its popular appeal, has come to be perceived as somehow having a less valid basis for improving practice

as compared to applying guidelines derived from experimental studies.

I have to pause here to alert the reader: could the lower perceived validity of reflective practice approaches in healthcare CPD not be because of its lesser potential for change but rather because reflection, as Cheetham and Chivers (2001) critique, has been reduced to rational cycles in the guise of continuous personal improvement? Could the value of reflection for improving practice in the informal nature of work based learning, as argued for by Eraut (2000; 2004), and in the dynamism of apprenticeship into workplace cultures, as discovered by Griffiths and Guile (1999), be contradicted by attempts to teach and inculcate reflective practice as a measurable, expected trait of medical and health care professionals, that Mamede and Schmidt (2004) and Hays and Gay (2011) want?

I would argue so.

The issue thus raised by this discussion is not the validity of Schön's insightful concept but the conflict of ideas caused between medical and education professionals when trying to implement reflective practice in the context of healthcare. Guided by different normative beliefs and understandings about 'change' and 'practice' under the different paradigms of biomedical and educational research and practice, the literature reveals that what appears to have happened is the dynamism between reflection and learning in practice has been stripped away to reduce reflection to a 'post-experience' measurement tool for appraising and validating professional competence.

Atkins and Murphy (1994) raised the first alarm bells, when they pointed out the dangerous fallacy in claims made in healthcare CPD research that reflection is not a form of research that can improve practice but needs to prove itself against the gold standard of evidence, the randomized control trial. These findings seem to support notions of the hidden curriculum that

operates in healthcare and medical educational programmes, which can obfuscate the intended curriculum. The hidden curriculum in this case comes from the type of biomedical scientific knowledge from experiments that is valued as evidence of impact on changing practice in healthcare over practical knowledge from reflecting on experience. This discursive domination in turn impedes the value and logic of collective approaches to reflecting in teams that has been documented in the literature on healthcare CPD, namely action research.

The action research CPD approach in healthcare has been the subject of a number of studies. A recent rapid literature review (Sandars et al., 2012) found fifteen action research studies on curriculum development and implementation, including e-learning, with conflicting methods, results and reporting. Approaches to and extent of participation were different, as were the number of cycles conducted, which ranged from one to four. All the contexts were different, and while all produced practical knowledge among participants on how to do action research, there was “little critical reflection that can inform further interventions in subsequent cycles and also to provide generalisable theory.” (Sandars et al., 2012, 2). Also, there was little evidence of action research producing transformative change.

This review indicated that these studies did not seem to contemplate the different kinds of learning necessary for organizational change and improvements to practice through action research.

As originally conceptualized by Argyris and Schön (1974), there is a distinction in action research between what they term single and double loop learning. The learning that appears to emerge from the studies of mainstream action research in healthcare appears to be mostly single-loop learning, which occurs when a way of doing work is found ineffective and another way is sought to solve the problem. Yet the practical, problem solving pressures of healthcare professionals in practice appears to limit the

potential to get beyond single loop learning. As pointed out earlier, the hierarchical and target-oriented culture of healthcare remains a challenge to the kind of double-loop learning which Argyris and Schön (1974) claim is necessary to not only solve problems, but also critically question the assumptions behind practices to identify the reasons why the problem existed in the first place.

Thus, while CPD action researchers drawing on the critical perspectives of action research (Carr & Kemmis, 1986) seem to be predisposed to advocating a critical stance to improve practice, their expectations appear frustrated by the instrumental perceptions of healthcare professionals themselves towards this approach as a way to improve quality and service delivery. As Groundwater-Smith (2005) points out however, the possibility of adopting a critical stance appears difficult for professionals to adopt given the dominant culture of marketisation, managerialism, positivism and evidence-based medicine in healthcare today. This research suggests that while researchers see the potential of action research to improve practice, their efforts are likely to be frustrated by the lack of sustained high morale, enthusiastic leadership, sufficient time, motivation, resources and energy to critically explore the possibility of radical reforms (Meyer et al., 2000) to improve practice. What professionals and managers perceive as an improvement is not what researchers and educators perceive as improvement.

This difference in views thus leads to researchers perceiving a disappointing impact of action research despite the recognition of action research as a research method in mainstream UK healthcare policy (Fulop, Allen, Black, & Clarke, 2001; Greenhalgh et al., 2004). Meyer et al. (2006) for instance, perceives that such mainstream action research is mainly for diffusing innovations, ‘does not reflect a critical emancipatory stance’ (2006: 484), and is unlikely to support the critical reflection to develop new theories to transform practice and improve care.

On the whole, however, over and over again in the types of healthcare CPD we have been analyzing so far from the literatures, what we come up against is the need to be extremely careful about uncritically applying various learning theories - whether objectivist, social, situated, critical, reflective or action research - as 'add-ons' for changing practices. Without a critical purchase on the dynamic between the currently separated concepts of learning, behaviour, change, practice, contexts, implementation and research, against the fields of healthcare and medicine, CPD approaches seem not only to be consistently ineffective, but run up against and reproduce the structural barriers to improving practice, thus nullifying their impact.

The impact of the 5th approach to CPD on improving practice: Online approaches

Research into online CPD approaches, while having produced numerous evaluation studies and several systematic reviews, shows that the impact of online CPD approaches on improving practice is as yet unclear. Ruiz, Mintzer, and Leipzig (2006), in their overview of e-learning in medical education, highlighted that there are as many answers as there are ways to measure and define impact when they argued that "evaluating the direct result of an education program by measuring changes in learners' behaviors, institutional changes, and better patient care is often complex, time-consuming, and costly." (p. 210)

Most reviews have typically focused on online CME, which has limited the use of e-learning to a narrow spectrum of knowledge and skills (Sandars & Walsh, 2004; Wutoh et al., 2004; Cook, 2009). Although my focus is on online CPD, I include e-learning and online CME research in this section to take an inclusive perspective on this emerging field of study. However, given the large diversity of individual descriptive evaluations of particular approaches in a wide variety of contexts for a diverse range of healthcare professionals, I selectively consider individual studies in this section because of the difficulty of cross-comparison, and look mainly at recent reviews.

In a systematic review of sixteen studies, Wutoh et al. (2004) claimed that Internet-based CME programmes are as effective as other CME in imparting knowledge, but little was known from studies in their review as to whether positive changes in knowledge are translated into improving practice. Arguing that most claims of change to behaviour were subjective, they called upon researchers to conduct more randomised control trials to evaluate whether online CME programmes were effective.

The 'lessons from the literature' review by Sandars and Walsh (2004) of 45 studies on e-learning for general practitioners in England found only two studies that resulted in changes in clinical or professional behaviour. Given that this review was done when e-learning was just beginning to make inroads into supporting doctors learn online, among the common issues they understandably highlighted from studies in their review was the low competence and confidence in using technologies, low participation and organisational lack of support. Crucially, this review was the first to recognize that "socio-technical issues will need to be overcome and that an evidence base needs to be developed" (Sandars & Walsh, 2004: 305) if e-learning for doctors was to improve impact on practice.

Curran and Fleet's (2005) review of the evaluation outcomes of 86 studies of online CME approaches using the Kirkpatrick (1994) evaluation model led them to conclude that most programmes relied on participation satisfaction data, and there was "limited research demonstrating performance change in clinical practices and there were no studies reported in the literature that demonstrated that web-based CME was effective in influencing patient or health outcomes" (p. 561). The conclusion of their review advanced knowledge by arguing that evidence-based approaches to "enhance knowledge construction and transfer to the practice setting' (p. 566) were needed to improve the impact of online CME.

In their meta-analysis of 201 studies of web-based learning in the health professions, Cook et al., (2008) claimed that it is associated with large positive effects compared with no intervention, but small effects when compared with traditional methods. In a follow-up editorial on why e-learning research appeared to have failed to improve impact of e-learning approaches on practice, Cook (2009) called for studies on how and why online approaches work, not only if they work.

In their systematic review of the qualitative data from 19 studies done in the UK to analyse which e-learning approaches enhanced the learning experiences of healthcare professionals, Carroll, Booth, Papaioannou, Sutton, and Wong (2009) came up with five broad themes. They suggest that peer communication, flexibility, support, knowledge validation, course presentation and design are key.

These major reviews appear to resonate with the common themes appearing in the research on healthcare CPD overall. To support healthcare professionals improve practice, research seems to suggest that online CPD could work if several features are incorporated. These include some of the themes identified from face-to-face CPD approaches, namely social, interactive, facilitated, and “embedded and supported in clinical practice.’ (Wilkinson et al., 2004: 424). In addition, online approaches appear to be welcomed by professionals when they reduce isolation, are flexible, build their digital skills, help them to critically evaluate information on the Internet, and to have control over their learning (Curran & Fleet, 2005).

As for research approaches, the reviews seem to suggest the need for randomized control trial experimental approaches and comparative interventions (Wutoh et al., 2004; Cook et al., 2008). Understandably, these suggestions reflect the dominance of biomedical research practices in healthcare CPD without critically considering the difficulties of doing randomized control trials in education (Riehl, 2006).

In addition to the lack of studies designed to improve the impact on practice and patient care outcomes, as Zeiger (2009) suggests, the research shows that many of the online CPD interventions do not critically discuss the design of online pedagogical models, but only showcase particular teaching and learning techniques. As discussed in Chapter 1 on the distinction between pedagogy and teaching and learning, this lack of attention to the pedagogical designs of online CPD in existing studies presents a serious flaw because of the failure to consider how contextual barriers, organizational frameworks, and philosophical assumptions might affect the delivery of online CPD (McPherson & Nunes, 2004; Conole, Dyke, Oliver, & Seale, 2004), and the consequent impact on practice.

Online CPD studies also seem to use the dominant learning theories from face-to-face CPD such as behaviouralism, social constructivism, reflection, situated and collaborative, or action research. However, by not explicitly stating and showing how their online teaching approaches match up with dominant learning theories, existing online CPD studies suffer the risk of a lack of awareness about the underlying theories of their instructional approaches, a point raised in e-learning research by Nunes and McPherson (2007). Additionally, the translation of learning theories, which may have been appropriate for 'real-life' CPD onto online CPD, does not consider the issue of 'technologies-in-practice' highlighted in Chapter 1 by which healthcare professionals adapt technologies to suit their intentions. The conceptual separation between learning theory and changing practice, highlighted earlier in the face-to-face approaches for CPD, appears thus to have migrated online without any attempts to consider the inter-relationships and mutual constitution of learning, behaviour, change, practices, and contexts with technologies.

Despite the rising use of Web 2.0 social networking tools by healthcare professionals, in addition to the offered e-learning modules and online communities, the review found no studies exploring which theories can be

used with Web 2.0 technologies to design networks to deliver online CPD effectively for the purpose of improving impact on practice and patient care.

In summary, there is no doubt a growing interest in conducting research on a variety of online CPD approaches to find out what works. However current online CPD research, like most research in traditional CPD prior to the Internet shows low impact on improving practice and patient care except with a complex mix of features as described above. In any case, most studies on online CPD have so many qualifications and limits that all findings must be read with caution and critical awareness (Wutoh et al., 2004; Cook et al., 2008). Studies and reviews on online CPD and CME also seem not to have crossed the conceptual gap between learning and practice change, focusing on improving learning while endeavouring to change practice.

Appendix 2:
Phase 1 of the case study: methods and results

Method: *A survey among the target population with an online questionnaire*

The aim of Phase 1 was to gather perceptions and experiences of the intended beneficiaries of the intervention. This initial exploration was necessary to get a 'feel' of what could work for widely dispersed healthcare professionals. It was also a way to check my initial perceptions about the theory of Reflexive Networking as an approach that could improve healthcare professionals' capacity for agency to change practices grounded in the 'practical logic' of their daily lives.

In selecting an appropriate method to gather data on the perceptions and experiences of intended beneficiaries, I relied on the guidance from realist evaluation on constructing data to inform the theory of the intervention (Pawson & Tilley, 1997). In the light of this theory-driven rather than data-driven approach, I sought a straightforward data-collection instrument that "could capture correctly those aspects of the subject's understanding which are relevant to the researcher's theory" (Pawson & Tilly, 1997, p.164). As widely dispersed healthcare professionals would know better than anyone else whether a facilitated synchronous discussion approach to delivering online CPD programmes could support them improve their practice, I was interested to learn from them if their perceptions and experiences resonated with my theory. To do so, I needed an instrument whereby I could hone down my theorised hypothesis about the change mechanisms to increase their capacity for agency into clearly understood constructs that gave the opportunity to the intended users to relate the intended intervention to their daily lives and their needs for online CPD – I wanted them to teach me what they thought could work as I taught them my theory. Thus this data instrument was not simply a stand-alone technique to gather subjective attitudes and beliefs, but a necessary tool for efficiently supporting the "conceptual refinement process" (Pawson & Tilly, 1997, p.165) of the intervention towards the next phase.

Although I wanted to get 'as close' as possible to the daily professional habitus of the participants so as to make 'realistic' inferences about their perceptions and experiences, time and funding limits precluded visiting

widely dispersed participants to interview and observe them in various workplaces across the country. In addition, I did not want to bias the research by knowing them personally as I was interested in how their dispositions towards online learning with others could be affected with collaborative online CPD, independent of their generic disposition towards traditional individual modular CPD. As such, I decided not to use face-to-face interviews or focus groups as data collection methods to gather their perceptions and experiences.

Given the above limits, and in line with the theory-testing approach of realist data collection, I decided that an exploratory survey implemented in the form of an online questionnaire with a purposive sample of the target population to collect data on their existing perceptions and assumptions about the value of online CPD approaches using Web 2.0 social networking tools for improving practice would be most appropriate to meet the objectives of Phase 1.

For this purpose, the design of the online questionnaire followed a formula for questions on perceptions and experiences, by which the intended users are given a “formal description of their own thinking followed by an opportunity to explain and clarify that thinking” (Pawson & Tilly, 1997, p.169). I carefully contextualised the questions based on my initial theory, bearing in mind the lives of busy healthcare professionals, and drew upon questions from prior surveys done using online questionnaires among healthcare professionals in the UK to gather their perceptions and experiences of aspects of online CPD (Sandars & Schroter, 2007; Sandars et al. 2010).

Thus, the task I gave the respondents was to agree, disagree and categorize themselves according to the preferences and potential benefits for online CPD using Web 2.0 tools for facilitated synchronous discussions, which I contextualised as ‘live chats’. I construed these as semi-structured categories of the online questionnaire, which I explored in the form of closed and open-ended questions. These questions were carefully unfolded to guide the intended users through my theory, and allow them to reflect on their experiences and perceptions of the potential of online CPD in the context of their lives, and the causes and consequences of their choices and opportunities to engage with online CPD to improve practice.

By using a 5-point quantitative Likert scale for the close-ended questions, I could abstract their perceptions and experiences into a set of variables that could be presented diagrammatically, and compare the perceptions and

experiences across the intended users to check for statistical significance and to fine tune my initial theory of what could work for whom. By allowing for free-text responses, the online questionnaire was also designed to provide the intended users the space to clarify their responses, and reveal their existing barriers to engaging with online CPD, so that these could be tackled in the design of the proposed intervention (Pawson & Tilly 1997).

A potential limitation of the online questionnaire approach is the likelihood of a low and incomplete response rate, as indicated by prior research using this approach to collect data among healthcare professionals (Mann & Stewart, 2000; Sandars, 2007). I did not find this might be a valid concern for my study because the aim of my data collection was not generalizability or transferability of these findings across the wider population of healthcare professionals, but to conduct an initial survey among a small likely cohort of beneficiaries prior to specifying my intervention. As a result of the rise in the use of online surveys in recent years, I also did not think that a short 15 minute survey would impose much burden on the intended users, and that most would be familiar with online surveys by this time. Thus, even a low response rate would provide me insights into the nature of their habitus in their existing social fields, to allow sociologically grounded theorising to more optimally affect their choices and abilities to participate in collaborative online CPD programmes.

Similarly, I did not consider the need to conduct an initial pilot to validate this new online questionnaire as a limitation to realising the objectives of Phase 1. I had to design a new questionnaire because no validated questionnaire to answer the objectives of Phase 1 theorised reflexively were available. As Phase 1 was intended to be exploratory rather than confirmatory towards testing the theory, the actual validation came from implementing the online questionnaire in Phase 1, which would then be refined and adapted for use in Phase 2 and 3, providing continual refinement and specification of the online questionnaire as a data collection method to support theory-building. I also found piloting this instrument difficult because of the lack of a comparable and well-run online network of healthcare professionals providing online CPD that was outside the mainstream health system. However, as a form of initial checking, the questionnaires were informally piloted with my research supervisors and the team from i-Physician.

Finally, I chose an online questionnaire approach to surveying the intended users because the categories were constructed clearly to allow for the

development of an initial objective classification of proxy variables for the 'capacity for agency' outcome that this study was interested in affecting to improve impact. Admittedly the sample size for the survey which resulted in the 'capacity for agency' instrument is small, and the lack of time for interviews precluded richer detailed information about their thoughts and actions. Nevertheless, I argue that as an exploratory research, this approach is useful in attempting to come up with robust sociologically-grounded data collection instruments, which go beyond the academic labels and categories researchers implicitly apply such as learning, knowledge, skills, attitudes, and behaviours, towards an objective interpretation of the subjective agency of healthcare professionals in relation to their wider social structures. This 'agency' instrument that emerged through this process was formulated into the MoA tool that was used in Phase 2.

Thus, to summarize this section, the overall benefit of using an online questionnaire and a survey approach to meet the objectives of Phase 1 was:

- It allowed a practical and efficient collection of data about the perceptions and experiences of widely dispersed healthcare professionals on how facilitated synchronous discussions as an approach to online CPD could support them improve their practices,
- It offered an opportunity to test the programme theory by allowing intended users to place their experiences and perceptions according to the conceptual categories of the theory, and
- It served as a sociological interpretation of the existing capacity for agency among this group when using online CPD to improve practice, to develop an instrument prior to the intervention

A purposive sample for the survey

To implement the survey, I had to identify a sample of the intended users of the intervention, which for the purpose of this study has been theoretically defined in the last chapter as 'widely dispersed healthcare professionals'.

I used the approach of purposive sampling for this purpose. I found a purposive sampling approach beneficial for survey research because I was interested in collecting data from a group of knowledgeable subjects who shared the similar characteristics of isolation and lack of access to face-to-face CPD, and who could benefit from an online CPD approach (Patton, 1990). Also, as compared to convenience or random sampling, a purposive sampling was appropriate because the target population who might know

what type of programme could work in their contexts was small, and the research was about refining the constructs of a specific theory under investigation (Pawson & Tilly, 1997, p.160).

To identify widely dispersed healthcare professionals across the UK, I first contacted the education manager of i-Physician. However, I learnt that they did not have a breakdown of doctors who were 'rural' or 'remote' in their existing databases. We decided to try and identify which NHS Primary Care Trusts (PCTs) in the UK were classified as rural/remote so that we could approach them to identify potential participants. To identify rural/remote NHS PCTs, I contacted through e-mail and telephone a variety of government and quasi-governmental organisations, including the Department of Health, the Department of Environment and Rural Affairs, the Royal College of General Physicians (RCGP), the NHS Primary Care Federation, the Rural GP online forum led by Dr. David Hogg, the Institute of Rural Health in Wales and the Centre for Rural Health in Scotland. I also discussed with a researcher at my university, Gillian Swan, who had done prior work in developing a clinical peripherality index for rural health services in Scotland (Swan et al. 2008). However, there appeared to be no available standard authoritative classification of rural/remote NHS Trusts across the UK by the government or professional associations. After two weeks of this process, Sam Hunt, Policy Officer from the NHS Primary Care Federation, provided us with the best available breakdown – a 2007 classification of PCTs by rural/urban conducted by APHO, The Network of Public Health Observatories. A commercial company called CACI did this classification. As this classification was the only one that clearly identified rural/remote primary care organisations using a scoring system between 0-100%, we decided it was the most appropriate for our sampling purpose. All those primary care organisations that scored more than 70% 'rural' were selected.

The marketing manager of i-Physician then identified doctors from the i-Physician membership databases who worked in the postcodes that these primary care organisations covered. This sample thus came to about 1,500 rural doctors. They were sent a short email inviting them to go to the provided web link to take part in the survey hosted by the Bristol Online Survey tool. The survey was kept open for 2 months, December 2011 – January 2012. After the first email invitation received a low response due to the end of the year holidays, a second email reminder was sent by i-Physician at the beginning of January. By inviting these approximately 1,500 rural doctors, I expected a response from anywhere between 50-100

respondents, assuming a 1-5% response rate. When the survey closed at the end of January 2012, 66 doctors responded.

The survey for Phase 1 in the form of the online questionnaire and the interpretation of the results are presented below. Readers who wish to see the entire survey can contact the author.

Note: the survey is entitled ‘Improving the Impact of online CME’ rather than ‘online CPD’. I have explained the rationale for this switch above.

Completing the survey provided for informed consent for the survey.

All data collected was entered in an SPSS database and stored on a secure password- protected folder on the university’s student network.

Increasing the Impact on Practice of Online CME results

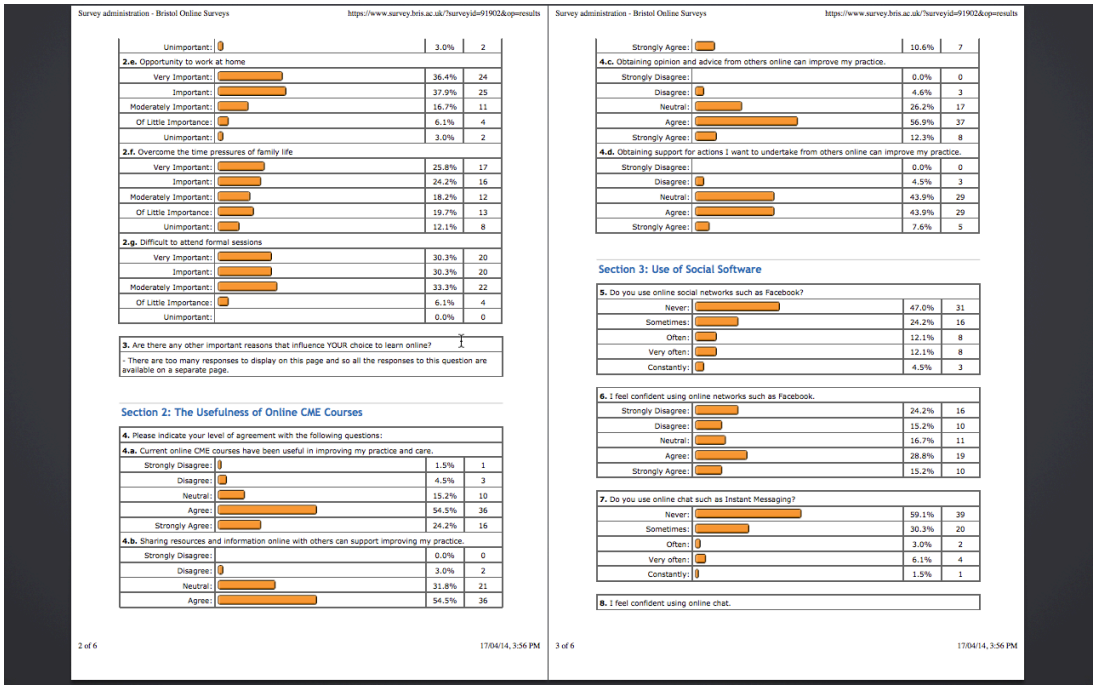
Survey overview

Number of respondents: 66
Expected number of respondents: 50
Response rate: 132.0%
Launch date: 26 Sep 2011
Close date: 31 Jan 2012

1. How often do you use online CME courses?			
I am a first time user:		1.5%	1
I am an infrequent user:		59.1%	39
I am a regular user:		39.4%	26

Section 1: The factors for choosing online CME

2. How important are these factors in YOUR choice to learn online? Please answer ALL questions			
2.a. Opportunity to work anytime and anywhere			
Very Important:		56.1%	37
Important:		34.8%	23
Moderately Important:		4.5%	3
Of Little Importance:		3.0%	2
Unimportant:		1.5%	1
2.b. Overcome the difficulties in attending face to face meetings			
Very Important:		43.9%	29
Important:		34.8%	23
Moderately Important:		10.6%	7
Of Little Importance:		10.6%	7
Unimportant:		0.0%	0
2.c. Opportunity to work at own pace			
Very Important:		22.7%	15
Important:		47.0%	31
Moderately Important:		24.2%	16
Of Little Importance:		6.1%	4
Unimportant:		0.0%	0
2.d. Overcome the time pressures of work			
Very Important:		28.8%	19
Important:		28.8%	19
Moderately Important:		24.2%	16
Of Little Importance:		15.2%	10



Survey administration - Bristol Online Surveys https://www.survey.bris.ac.uk/?surveyid=91902&op=results

Unimportant:	3.0%	2
2.e. Opportunity to work at home		
Very Important:	36.4%	24
Important:	37.9%	25
Moderately Important:	16.7%	11
Of Little Importance:	6.1%	4
Unimportant:	3.0%	2
2.f. Overcome the time pressures of family life		
Very Important:	25.8%	17
Important:	24.2%	16
Moderately Important:	18.2%	12
Of Little Importance:	19.7%	13
Unimportant:	12.1%	8
2.g. Difficult to attend formal sessions		
Very Important:	30.3%	20
Important:	30.3%	20
Moderately Important:	33.3%	22
Of Little Importance:	6.1%	4
Unimportant:	0.0%	0

3. Are there any other important reasons that influence YOUR choice to learn online?

- There are too many responses to display on this page and so all the responses to this question are available on a separate page.

Section 2: The Usefulness of Online CME Courses

4. Please indicate your level of agreement with the following questions:		
4.a. Current online CME courses have been useful in improving my practice and care.		
Strongly Disagree:	1.5%	1
Disagree:	4.5%	3
Neutral:	15.2%	10
Agree:	54.5%	36
Strongly Agree:	24.2%	16
4.b. Sharing resources and information online with others can support improving my practice.		
Strongly Disagree:	0.0%	0
Disagree:	3.0%	2
Neutral:	31.8%	21
Agree:	54.5%	36

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Survey administration - Bristol Online Surveys https://www.survey.bris.ac.uk/?surveyid=91902&op=results

Strongly Agree:	10.6%	7
4.c. Obtaining opinion and advice from others online can improve my practice.		
Strongly Disagree:	0.0%	0
Disagree:	4.6%	3
Neutral:	26.2%	17
Agree:	56.9%	37
Strongly Agree:	12.3%	8
4.d. Obtaining support for actions I want to undertake from others online can improve my practice.		
Strongly Disagree:	0.0%	0
Disagree:	4.5%	3
Neutral:	43.9%	29
Agree:	43.9%	29
Strongly Agree:	7.6%	5

Section 3: Use of Social Software

5. Do you use online social networks such as Facebook?		
Never:	47.0%	31
Sometimes:	24.2%	16
Often:	12.1%	8
Very often:	12.1%	8
Constantly:	4.5%	3

6. I feel confident using online networks such as Facebook.		
Strongly Disagree:	24.2%	16
Disagree:	15.2%	10
Neutral:	16.7%	11
Agree:	28.8%	19
Strongly Agree:	15.2%	10

7. Do you use online chat such as Instant Messaging?		
Never:	59.1%	39
Sometimes:	30.3%	20
Often:	3.0%	2
Very often:	6.1%	4
Constantly:	1.5%	1

8. I feel confident using online chat.

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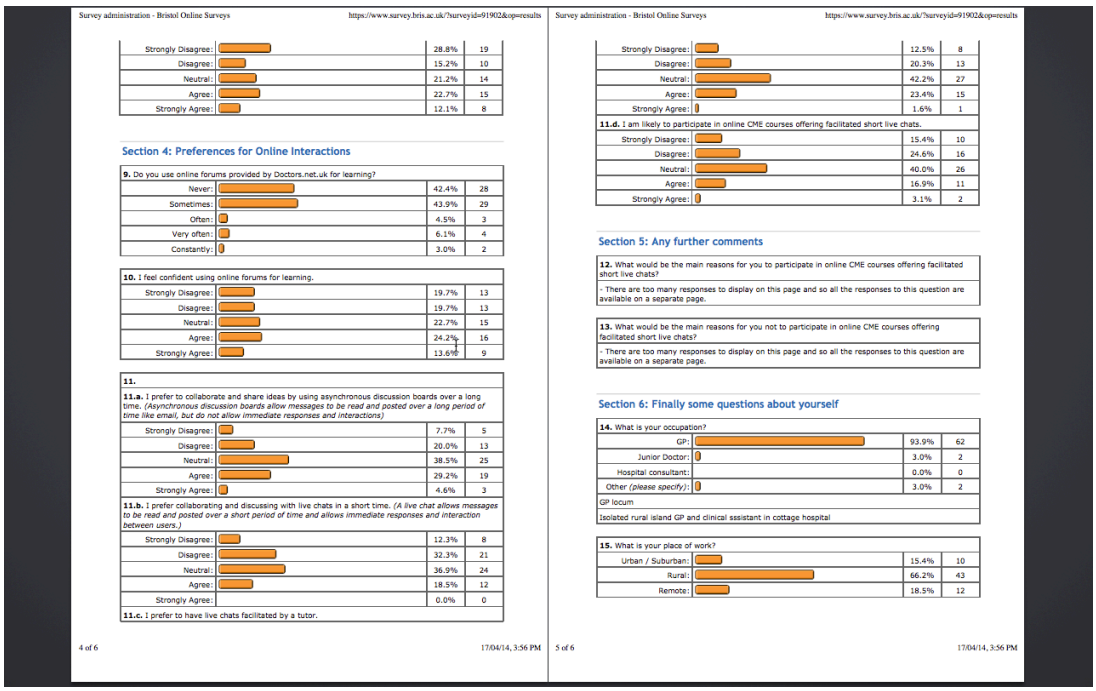

Survey administration - Bristol Online Surveys https://www.survey.bris.ac.uk/?surveyid=91902&op=results

Strongly Disagree:	28.8%	19
Disagree:	15.2%	10
Neutral:	21.2%	14
Agree:	22.7%	15
Strongly Agree:	12.1%	8

Section 4: Preferences for Online Interactions

9. Do you use online forums provided by Doctors.net.uk for learning?		
Never:	42.4%	28
Sometimes:	43.9%	29
Often:	4.5%	3
Very often:	6.1%	4
Constantly:	3.0%	2

10. I feel confident using online forums for learning.		
Strongly Disagree:	19.7%	13
Disagree:	19.7%	13
Neutral:	22.7%	15
Agree:	24.2%	16
Strongly Agree:	13.6%	9

11.		
11.a. I prefer to collaborate and share ideas by using asynchronous discussion boards over a long time. *(Asynchronous discussion boards allow messages to be read and posted over a long period of time like email, but do not allow immediate responses and interactions)*		
Strongly Disagree:	7.7%	5
Disagree:	20.0%	13
Neutral:	38.5%	25
Agree:	29.2%	19
Strongly Agree:	4.6%	3
11.b. I prefer collaborating and discussing with live chats in a short time. *(A live chat allows messages to be read and posted over a short period of time and allows immediate responses and interaction between users.)*		
Strongly Disagree:	12.3%	8
Disagree:	32.3%	21
Neutral:	36.9%	24
Agree:	18.5%	12
Strongly Agree:	0.0%	0
11.c. I prefer to have live chats facilitated by a tutor.		

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Survey administration - Bristol Online Surveys https://www.survey.bris.ac.uk/?surveyid=91902&op=results

Strongly Disagree:	12.5%	8
Disagree:	20.3%	13
Neutral:	42.2%	27
Agree:	23.4%	15
Strongly Agree:	1.6%	1
11.d. I am likely to participate in online CME courses offering facilitated short live chats.		
Strongly Disagree:	15.4%	10
Disagree:	24.6%	16
Neutral:	40.0%	26
Agree:	16.9%	11
Strongly Agree:	3.1%	2

Section 5: Any further comments

12. What would be the main reasons for you to participate in online CME courses offering facilitated short live chats?

- There are too many responses to display on this page and so all the responses to this question are available on a separate page.

13. What would be the main reasons for you not to participate in online CME courses offering facilitated short live chats?

- There are too many responses to display on this page and so all the responses to this question are available on a separate page.

Section 6: Finally some questions about yourself

14. What is your occupation?		
GP:	93.9%	62
Junior Doctor:	3.0%	2
Hospital consultant:	0.0%	0
Other *(please specify)*:	3.0%	2
GP locum		
Isolated rural island GP and clinical sssistant in cottage hospital		

15. What is your place of work?		
Urban / Suburban:	15.4%	10
Rural:	66.2%	43
Remote:	18.5%	12

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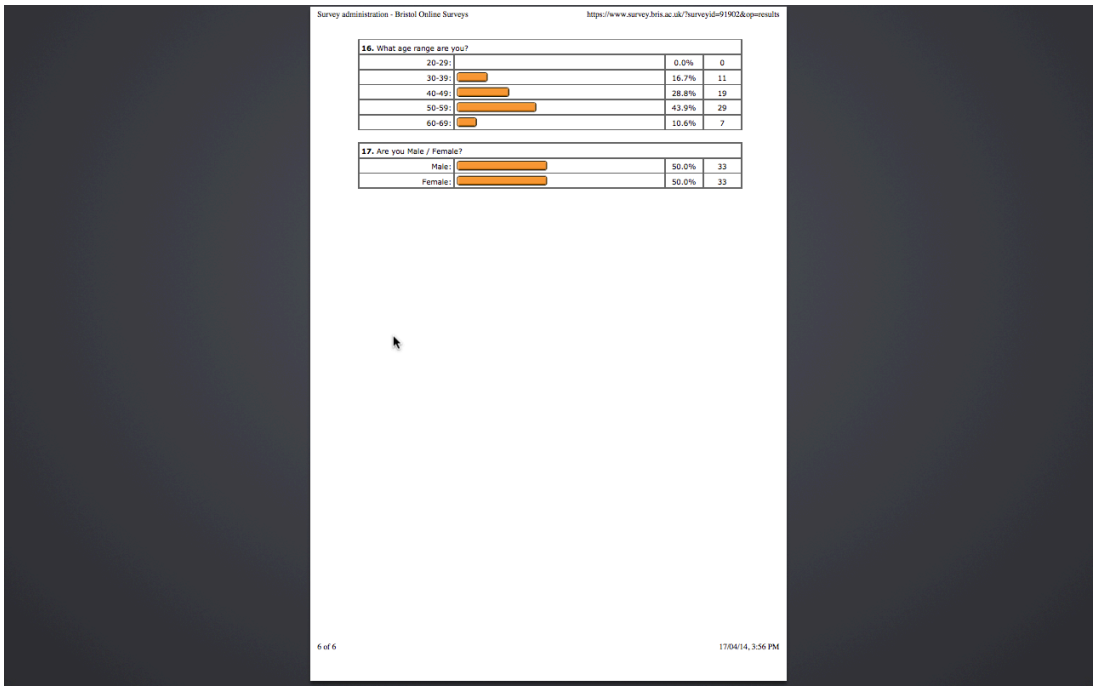

Brief Discussion of Results

Aim of Online Survey:

To obtain a sense of potential users' perceptions and experiences of online CME and Web 2.0 tools; their expectations for online CME, and to get a feel of what could work in supporting them improve practice; to prepare for Phase 2.

The majority of respondents are GP.

For Q2, the key finding is that the most important factor that influences the participation of respondents is "Opportunity to work anytime and anywhere" no matter where the work place is, the age group and gender. Thus, to focus on the convenience makes sense. The second significant factor is "Overcome the difficulties in attending face to face meetings", once again, shows respondents value the convenience of online CME.

For Q4, 79% of respondents said online CME course are useful; similar for each group and both gender. 65% of respondents agreed that "Sharing resources and information online with others can support improving my practice" especially for those aged between 30 and 39. 68% agreed that "Obtaining opinion and advice from others online can improve my practice".

There is no significant difference among age groups while female found that it is more useful than male. Only 52% agreed that “Obtaining support for actions I want to undertake from others online can improve my practice”.

For Q5, 47% said that they never use online social networks, and the increase of the age group, the less frequent they use it

For Q6, only 44% agreed that they are confident using online networks. For age group 60-69, no one said that they are confident in it. And male are more confident than female in this case.

For Q7, 59% of respondents never use online chat, the number increases with the increasing of age group. Female respondents are less likely to use it than male.

In terms of Q8, only 35% of respondents agreed they feel confident using online chat and male respondents are more confident than their female counterpart.

In terms of Q9, 42% of respondents never use online forums provided by Doctors.net.uk for learning. The percentage of never you use online forums provided by Doctors.net.uk for learning increases when age group increasing.

For Q10, 38% said that they feel confident using online forums for learning. Male respondents are more confident than their female counterpart.

In Q11, 33% of respondents agreed that they prefer to collaborate and share ideas by using asynchronous discussion boards over a long time. There is no significant difference between age groups and genders. While only 18% said that they prefer collaborating and discussing with live chats in a short time and male respondents are triple than female. But when it comes to “prefer to have live chats facilitated by a tutor”, the percentage increased to 24%. Also noteworthy is that 41% hold a neutral attitude. Only 20% of respondents think they are likely to participate in online CME courses offering facilitated short live chats.

Interestingly, “Place of work” does not have significant influence on respondents choices except for the convenience of online learning.

For other reasons that influence the choice to learn online, those with significant importance are “Accessibility and availability”, “Choice” and “Time issue”.

The most significant factor for “The main reasons to participate in online CME courses offering facilitated short live chats” is “Interaction and learning”.

The most outstanding factor for “the main reasons for you not to participate in online CME courses offering facilitated short live chats” is “Time issue”.

Interpretation

Doctors living in rural/remote settings should be encouraged to use online CPD with Web 2.0 tools because accessing face-to-face CPD is difficult for them. Thus, researchers and practitioners should critically evaluate which pedagogic and technological mechanisms and social research methods are appropriate for overcoming the identified barriers and leveraging the identified benefits to online CPD adoption if they would like to encourage such doctors to use online CPD. The mechanisms and methods that will be useful will be those that can modify the dispositions of these doctors and help them acquire valuable resources (financial, social and cultural), while motivating them to become reflexive learners through OCPD. These findings need to be incorporated into a Reflexive Networking online CPD delivery approach to increase their capacity for agency and have the desired impact in terms of improved practice and patient care outcomes.

Appendix 3: Letter of support

[redacted]

Gurmit Singh
PhD Student (ESRC)
School of Education
University of Leeds

20th June 2011

To whom it may concern,

I believe that ethics approval is required for the study that will involve the company [redacted]

1. I confirm that [redacted] are willing to be a Research Project Partner for the project *"Improving practice with online healthcare continuing professional development (CPD): A research study on the use and impact of a facilitated synchronous discussion tool"* 01/06/2011-01/06/2013
2. I confirm that [redacted] gives permission and freely supports the 3 linked studies in this research project (survey, pilot study, experiment with a comparison group), including introduction to prospective participants, and research ethics and governance.
3. I confirm that [redacted] have nominated a key contact who will be an active member of the regular project steering group, that will meet regularly during the intervention. This contact will also act as a critical friend for the project. (If this contact is yourself please provide your contact details)
4. I confirm that [redacted] will not receive any actual or in kind financial contribution

My contact details (as key contact)

[redacted]

Yours faithfully,

[redacted]

Educational Lead and Clinical Advisor
[redacted]

Page 1 of 1

Appendix 4.1: Information Sheet

Improving the Impact on Practice of online CME

A Pilot Study

University of Leeds & i-Physician

Participant information sheet

You are being invited to take part in a research pilot study. Before you decide, it is important that you understand the purpose of the pilot study, and what taking part will involve.

What is the purpose of the pilot study?

We are educational researchers at The University of Leeds. We are working with i-Physician to develop a new approach to increase the impact of online Continuing Medical Education (CME) on the care of patients. This approach can also be used for revalidation purposes, providing evidence of quality improvement.

We would like to try out an innovative approach of online CME with doctors who do not have easy access to face-to-face CME courses. This new online approach provides an alternative approach for participants to share their experiences and learn together.

What would my involvement be?

If you agree, we can include you in this exciting pilot study. You will be asked to take part in **four** online discussions with a small group of doctors and a tutor over **two** months. Each discussion will be held every two weeks and last 60 minutes. You will collaboratively discuss and develop a practical way of implementing a new clinical guideline in your practice so that it can improve patient care. The times of each online discussion will be negotiated between members of the group and your tutor. At the end of the four online discussions, you will receive a certificate of participation and this can be used to provide evidence for revalidation purposes.

You will be expected to fill in a self-assessment questionnaire before and after the online discussions. You will also be asked to conduct a patient care audit or case based reflection before and after the online discussions. This will not be too onerous to do.

We will provide you with sufficient training in how to use the online discussion tool so that you feel confident in using the new technology.

What will happen to the results?

The findings will help the researchers and i-Physician design more effective online CME We will write up how well the approach worked in a report and for peer-reviewed publications and conferences.

Will my taking part be kept confidential?

Only a dedicated research team will know you took part. No personal records will be taken. While the online discussions will be recorded, they will only be used anonymously for research purposes. Data will be stored securely at the University of Leeds and you will not be able to be identified from this data. All information written or presented outside of the research will not use anyone's name. No individual doctor will be identified.

Disclosure

Please note that the researchers have a professional obligation to report any evidence of serious professional misconduct to the General Medical Council. This decision will only be taken after full discussion with the doctor concerned and after informal discussion with the screening advisor of the GMC.

Deciding whether to take part

It is your decision whether to take part or not. You may ask a colleague to help you make the decision if you wish. If you decide to take part, you can change your mind at any time.

The information we collect is intended to improve the online CME education given to doctors in future. There are no known disadvantages to taking part. If we think that we might be causing you any inconvenience during the pilot study, we will check whether you are still happy to take part.

The study has been approved by the **University of Leeds research ethics committee** and **I-Physician**.

If you would like to take part, we will ask you to sign a consent form and give you a copy. We will also send you a summary of the research results, if you wish.

For any queries, please contact the researcher at: Gurmit Singh, University of Leeds Medical Education Unit 07856 292 210/ edugsi@leeds.ac.uk

Thank you.

Appendix 4.2: Informed Consent Form

Improving the Impact of online Continuing Medical Education (CME)

Informed Consent Form to take part in a pilot study

	Tick one Yes	No
I have read the enclosed leaflet about the above project.	☐	☐
I have asked any questions I have about the project. (if you answer no a researcher will contact you to answer any questions you have)	☐	☐
I know enough about the project now to decide if I want to take part.	☐	☐
I understand that it is my decision to take part or not.	☐	☐
I understand that if I do not want to take part I do not have to give a reason.	☐	☐
I understand that if I take part, I can stop at any time.	☐	☐
I understand that the online discussions will be recorded and used anonymously for research purposes.	☐	☐
I agree to take part in the pilot study.	☐	☐

Signed _____ Date_____

Name (in block letters) _____

Appendix 4.3: Programme Details

Improving the Impact of online Continuing Medical Education (CME)

Managing Emergency Contraception in General Practice

Programme details

Rationale

This online CPD programme aims to:

i. Support healthcare professionals managing emergency contraception improve their practice and patient care,

ii. Equip and enable professionals with more choices and to feel more confident and in control of their practice, and

iii. Provide healthcare professionals an opportunity to try out and test a virtual classroom for facilitated online discussions, Adobe Connect.

This CPD programme is situated in daily practice, while supporting professionals to learn and change with the tools and resources of a tutor and a network.

The intention is that the online social collaborative learning will be applied by the participants towards their CPD.

Objectives

By the end of the programme, it is intended that the professionals should be able to:

i. Identify the key practice problems they face in managing emergency contraception

ii. Understand the latest scientific knowledge and skills on managing emergency contraception

iii. Apply the practical knowledge learnt

iv. Locate and organize useful e-learning resources for future reference

v. Communicate effectively and work collaboratively online with peers and tutors

vi. Identify the key people in their network they can turn to for support online

vii. Demonstrate a change in practice in relation to managing emergency contraception

viii. Conduct a pre/post agency assessment and case based reflection to demonstrate evidence of change

Delivery

This programme uses a virtual classroom, through Adobe Connect. The goal of these facilitated discussions is to support professionals discuss cases, solve problems and improve practice and patient care.

The core content used for studying emergency contraception is the Faculty of Sexual & Reproductive Healthcare (FRSH) clinical guidance - emergency contraception August 2011 (updated January 2012) (available at www.fsrh.org/pdfs/CEUguidanceEmergencyContraception11.pdf)

The programme was delivered according to the following format and sequence:

i. A review of the Faculty of Sexual and Reproductive Healthcare clinical guidance on emergency contraception. This review was prepared by the expert tutor for this programme. (April-May 2012)

ii. Self-study of an online module on emergency contraception. This module was prepared by the expert tutor and i-Physician staff. (April-May 2012)

iii. A trial run of the Adobe Connect virtual classroom, for which the tutor and participants were provided with a Self-Help and FAQ Guide prepared by the research team (14 May 2012)

iv. The filling in and return of the pre-course questionnaire (15-27 May 2012)

v. 4 facilitated online discussions on Adobe Connect (28 May, 13 June, 28 June and 9 July 2012)

vi. The filling in and return of the post-course questionnaire (June 2012)

vii. The conduct of 8 online individual interviews with the 7 participants and tutor (July-August 2012)

viii. The evaluation of the results (September 2012)

Note:

It was intended that after the programme finished, participants would be able to continue individual dialogues with the tutor through e-mail for another 6 weeks to work through issues, as well as continue using their Doctors Net forum. Participants could then have participated in an optional final online discussion to gain closure, and also to conduct another case-based reflection to evaluate if they have sustained the change in practice. However, due to time issues, in particular participants' summer half-term holidays with their children, this was not possible during this case study.

Appendix 5: Ethics Approval

Research Support
3 Cavendish Road
University of Leeds
Leeds LS2 9JT

Tel: 0113 343 4873
E-mail: j.m.blaikie@adm.leeds.ac.uk

Gurmit Singh
School of Education
University of Leeds
Leeds, LS2 9JT

AREA Faculty Research Ethics Committee
University of Leeds

19 July 2011

Dear Gurmit

Title of study: **AREA 10-193**

Ethics reference: **Improving the impact on practice and patient care outcomes of online health care continuing professional development (CPD) with Reflexive Networking**

I am pleased to inform you that the above application has been reviewed by the ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee and I can confirm a favourable ethical opinion on the basis described in the application form and supporting documentation as of the date of this letter. The following documentation was considered:

Document	*Version*	*Date*
AREA 10-193 Ethics_GS_July 2011_Final.docx	1	13/07/11
AREA 10-193 Ethical Review_GS_Appendices.docx	1	13/07/11

The committee felt there could be a risk of the doctors identifying patients and therefore breaching confidentiality. Even if they do not refer to a patient by name, they may be identifiable, for example, if they have a rare condition or if the doctor has said where they live or work. You are asked to consider whether it would be appropriate to put something in the information sheet and consent form to make the participants aware of this risk.

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval. This includes recruitment methodology and all changes must be ethically approved prior to implementation.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

Yours sincerely

Jennifer Blaikie
Research Ethics Administrator, Research Support
On behalf of Dr Anthea Hucklesby
Chair, AREA Faculty Research Ethics Committee
CC: Student's supervisor(s)

Performance, Governance and Operations
Research & Innovation Service
Charles Thackrah Building
101 Clarendon Road
Leeds LS2 9LJ Tel: 0113 343 4873
Email: j.m.blaikie@leeds.ac.uk

Gurmit Singh
School of Education
University of Leeds
Leeds, LS2 9JT

AREA Faculty Research Ethics Committee
University of Leeds

20 June 2012

Dear Gurmit

Title of study: **AREA 10-193 Amendment June 2012**
Ethics reference: **Improving the impact on practice and patient care outcomes of online health care continuing professional development (CPD) with Reflexive Networking**

I am pleased to inform you that your amendment to the above application has been reviewed by the Chair of the ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee and I can confirm a favourable ethical opinion on the basis described in the amendment form and supporting documentation as of the date of this letter. The following documentation was considered:

Document	*Version*	*Date*
AREA 10-193 120614-Amendment form_GS_June.doc	1	14/06/12
AREA 10-193 Interview Info sheet and Consent Form_June 2012.docx	1	14/06/12

Please notify the committee if you intend to make any further amendments to the original research as submitted at date of this approval. This includes recruitment methodology and all changes must be ethically approved prior to implementation.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

Yours sincerely

Jennifer Blaikie
Senior Research Ethics Administrator, Research & Innovation Service
On behalf of Prof Anthea Hucklesby
Chair, AREA Faculty Research Ethics Committee

CC: Student's supervisor(s)

Appendix 6: Validity and Quality

Validity

As a case study, the study has internal validity because the description of the context richness, the process of the data collection and analysis, and the decisions I made at critical junctures, add truth-value to the complexity of the research process as I developed my craft. And, the study has external validity because the modelling of a dynamic online pedagogical model to improve impact has developed findings that are theoretically generalizable and transferable to similar cases of online CPD in other contexts, both healthcare and other professions. Presentations of early findings from this thesis (Singh et. al., 2012) have resonated with researchers and practitioners experiencing similar issues in e-learning and CPD and looking for theoretically-informed practical models and tools to solve the design, implement, deliver and evaluate conundrum.

Yet, in thinking through these questions, I gained the insight that the terms internal and external validity that are conventionally applied to case study projects are not helpful in the context of this thesis. Adopting Bourdieu's theory of practice as 'action method' breaks free from the assumption that there is an ontological divide between the internal and the external in conducting simultaneous research inside and on complex open social systems.

On top of this, using Bourdieu's theory of practice to study and design a new social practice through reflexive networking has allowed for a critical realistic construction of the data, as explained earlier. Social reality has been perceived as the dynamic interplay of structure and agency that can be affected by investigating the underlying mechanisms of interventions to try and change practice to improve impact.

In doing so through a case study, I have conceived interventions for changing practice as a process to do research and to change practice that is useful for the intended recipients, by turning around my theory to give them not only voice, but agency, through a conceptual model called reflexive networking.

While the model under test aimed to affect their capacity for agency, it rests on Bourdieu's dynamic theoretical conception of the real world, whose interests and assumptions as a reflexive sociologist must be recognised.

The validity of his model of practice upon which reflexive networking draws for improving impact through online CPD has not been investigated before, and this exploratory study has allowed for an ideal opportunity to validate it for educational intervention as a lived experience design prior to further testing in future research.

As a result, the validity of this study for contributing to the evidence base to inform policy and practice rests on the following claims I make for relevant and principled research that is both applied and critical:

i. The model under investigation, as well as the MOA tool, have *face validity* based on the Bourdieu theoretical construction of the model and the tool for implementing interventions and doing evaluations with a reflexive edge;

ii. The model has *construct validity* because it makes credible assumptions about changing practice and improving impact based on Bourdieu's theory and an underlying network of theories from across education and healthcare disciplines that have been tested and distilled through a critical analysis of data;

iii. The case study research strategy and the model have *context validity* because it has developed and tested a unified research and implementation approach for university-industry collaboration that can support practitioners and policy makers wishing to develop context-specific models to solve a practical problem in the real world of evaluating how to change practice and make online learning and collaboration more valuable;

iv. The model and the MOA tool have *consequential validity* because the assumptions, intentions and consequences of its propositions have been shown to be valid and socially acceptable in the real-world through a critical analysis of the data, and can be used to inform theory, policymaking and practice;

v. The model's features and the MOA tool have *catalytic validity* because the findings supported the industry partner with a greater awareness of the issues and features of online CPD programme delivery and evaluation that can be used to support improving its e-learning provision, and can be shared with other CPD providers, rather than simply gathering dust on the shelf, and

vi. The model and the MOA tool have *pragmatic validity* because they helped the stakeholders and the end users to test the usefulness and usability of an educational technology innovation for online CPD, and provides results that are useful and can be applied to benefit them, as well as other healthcare professionals and educators.

I accept that the above validity claims of an exploratory case study to pilot and proof-a-concept of a model and do critical social research may still not necessarily qualify is as 'valid' in the elite chambers of policy making to change practice. Who validates who and who gets judged and punished is not a logical practice but deeply embedded in cultural historical ways of thinking and doing research that I am respectfully disrupting to produce a new interdisciplinary way of thinking and acting that overcomes historical and unethical demarcations of valid/invalid research. Healthcare CPD and medical education research are strongly integrated with biomedical paradigms, where a strong social restraint on invalidating critical social research still holds to this day. I hope therefore that these claims from a reflexive standpoint to theory and experience from my social position will enable my readers and users of the findings of this thesis to view the reflexive networking model more confidently, and to more fully utilize its results to continue testing it and optimizing its applicability, than would otherwise be the case from a small-scale single case study.

Being rigorous in doing reflexive research within a Bourdieu framework with and by designing a network and an online field of practice has meant gaining a practical understanding of the issues I faced as a researcher, as well a practical understanding of the issues faced by the stakeholders, the educator, and the healthcare professionals in learning online with the intention to improve impact on practice. To achieve rigour has meant ensuring a consistent interpretation of the evaluation of impact with the theoretical analysis of the data that had been collected, while using a dynamic theory *of* practice that had transcended the false binaries of theory/practice, research/intervention, academic research/applied research and learning/change in the first place. Unlike qualitative case studies, a reflexive case study is - in Bourdieu's words - an 'epistemological experiment' (1989, p.33) to produce 'knowledge' about the 'impact' of Reflexive Networking on the 'agency' to improve 'practice' and 'patient care'. Yet, the essence and universality of knowledge, once an abstracted hallmark of the academy doing 'research', has been challenged by Bourdieu and other critical social science scholars, who have imagined and shown

knowledge as knowledgeability - practical, situated, embedded, enacted, historically grounded, time bound, contingent, and context-specific. Hence, reflexively mixing methods and findings is less an issue of wobbly methodological pluralism or strict adherence to methodological purity to discover the truth than of doing 'social praxeology'. That, is, the rigorous logic of my actions as a researcher in setting up research, doing research, and explaining research is akin to the role of a midwife during the birthing process – she is concerned to ensure that the process is both ethical and practical in protecting the health of all those involved and reducing risk. In this case, she also has to speak up at times when her concept of what is going to make a good delivery clashes with what the subject of the process – the mother – may desire or feel is 'fair', based on her socio-cultural values and dispositions. Now, if the midwife is skilled in mixing progress with safety, she could speak up by tuning in to the perceptions of the participants. She could then speak up and express herself on an issue concerning the birthing, using her capitals (experience, expertise, reputation) to assert her intentions into their thinking. But she must be able to sense the latent opportunity for change in the situation. And this can be at times not easy, especially if one is from a different socio-political position and cannot immediately relate socially. Seeing myself as a midwife apprentice, I saw my role as giving expert practical help before, during, and after the birth of a child, in this case the child being the 'new' practice, while accumulating local and practical knowledge about 'how things got done and changed around here'. This kind of research is what Bourdieu calls, 'social maieutics' (Grenfell & James, 1998: 51). And I assure you, it was not easy!

Basically, I am taking a stand, as a pragmatically objective researcher with a stake in the game being played, and putting into practice the values I have gained through my educational journey, as a learner, an educator, and a researcher. These values can be seen by anyone by looking at what I have written, the issues I have spoken up on, the kinds of work I have done, and the goals I have advocated for CPD.

Grasping the complexity of the disciplines and the situation I faced, I actively used methods as appropriate within my constrains rather than passively applying the 'correct' case study rules, and justifying the knowledge produced critically to contribute to disciplinary and paradigm change (Kincheloe & Berry, 20004). In this light, I have enhanced the rigour of the case study as a strategy for interdisciplinary critical and practical knowledge production by integrating insights from the strategic use of quantitative and

qualitative approaches and the empirically generated data with the conceptual framework of the study by reflexivity, relational thinking, and a consideration of both the role of the researcher and the construction of the research object to validate the model under investigation. These relational insights would not have been possible without moving beyond the norms of RCTs, case studies, or normative behaviour change theories, yet are necessary to inform evidence-based policy and practice and improve impact.

Quality

No clear criteria exists to distinguish between the quality and the qualities of the quality of educational research today. In the ongoing battles to determine outcomes and impact between those who wish for more measurement and those who call for rich understandings of complex experiences, different discourses and practices define quality. Yet, the legitimacy of research is contested in competing fields and research communities, as different perspectives strive to gain ascendancy and dominate theory and practice. In the current situation, this contest has resulted in the domination of the RCT, and the relegation of critical and reflexive research to the margins. In this section, I explain why working against the grain of the dominant theory and practice of educational research is vital to improve quality.

Firstly, it is important to realise that there exists a tension between quality and impact. Is quality research ethical and critical knowledge about the invisible entities of structure and agency, or only that which tests an ‘effective’ innovation that serves the cause of impact, as defined by funders who control and regulate the field of educational research practice? Resolving this tension requires constantly mediating and grappling with both, at the edges of disciplinary and structural fields, through a critique of the politics of quality and impact.

A step forward is thus to think about quality from a reflexive standpoint to theory and practice. Quality is emergent, a cause and an effect of research, in the daily practice that is undertaken that does not reify academic notions over a practical sense of what, how and why to do things to move a process along.

In this sense, the quality of this study comes from its ability to illustrate how a Bourdieusian framework can be utilized to raise questions about the capacity for agency of professionals within the marketplace of online CPD in healthcare, the positions that they occupy within a field of CPD, and how

their location within this space influences the quality of the learning support that they receive and can consume for their benefit. It suggests quality as not a preconstructed mechanical category but related to the complex interactions and relationships among the agents in the network who occupied positions and had a stake in the practice, rendering doubtful any claims that RCTs are the gold standard for quality.

Hence, enhancing the quality and qualitative value of networks and networking to bolster reflexivity can foster a knowledge culture and ecology and improve impact. While reflexive, this approach is also intended to give something valuable back to the research and practitioner communities. This intention has been my guiding star in improving the quality of my study and my work. Carving a pathway to improve quality and impact would thus be a testimony to the quality of navigating Reflexive Networking intelligently in choppy waters to reach the promised shore.

You might ask, Is it subversive? Is it radical as Bourdieu intended? This thesis has tried to question and change the rationalistic assumptions of the dominant mode of testing educational interventions in healthcare, the RCT, which is becoming a virulent new disease (St John 2006). It has dared to 'test' a hypothesis yet disrupted the assumption that such testing requires positivist or realist experiments by enacting a case study in a complex social reality. It has digressed from normative social practices and claims from case study best practices to disrupt the symbolic violence of the 'need' to build theory without changing and analysing the complexity and social space of the contexts of case studies. It has integrated ideas, notions and concepts from different disciplines to solve a problem. It has employed an interpretive lens to overcome the assumed objective privilege of university researchers distant from lived experiences. It has turned to a relational sensitivity to handle a complex and uncertain situation, and to make sense of why people thought and acted the way they did. It has been sensitised and become slightly less disillusioned about the possibility of researchers from marginal backgrounds to do transformative social practice online because of the sheer practical limits of doing critical work online with research partners and learners in other settings. Yet, it has taken the risk such active methods come, with to carve a pragmatic and realistic way forward in interdisciplinarity to improve the implementation, uptake and use of new educational technologies, and address broader research goals. It has justified what it is doing as I am doing it in a process to create a new social practice across organizational boundaries. It has been a rigorous exercise in

testing the limits of my agency in changing other people's thinking and actions through changing my thoughts, words and actions as a reflexive networker striving to do research for social justice in the long, long run. It has marked my habitus, and made me vulnerable as well as determined over three years, as someone more concerned with designing for long-term outcomes of practice change rather than looking for quick-fix short-term zaps to 'nudge' behaviour change through the promises and illusions of educational technologies, social networking technologies, and networking. Yes, it will take longer, because time is stretched out, and explanation goes deeper to the core, in a superficial world where everything new must make education faster, cheaper, better. Because it has engaged and critiqued different view points on a complex problem, it has made this thesis difficult to situate in the competing fields of e-learning, healthcare CPD, and medical education, each with their own hidden curriculum of the 'right' kind of research that needs doing. It is humane and humble in its aims and claims, yet openly declarative of its interests in creating a new norm for online CPD innovations that puts healthcare professionals and their educators first in finding attempts by funders and researchers to improve impact by improving them and what they do, by first improving my self and what I can do for them. If this is not rigorous quality to objectify a model rather than succumb to opportunistic reductionism and randomised determinism for glory in the field, then I do not know what is.

Appendix 7: Research Ethics

Informed consent

I recognized that informed consent is a process that goes beyond the initial act of filling in a form. In this research, I regularly informed all stakeholders and participants about the research objectives, the research design, the ethics process, the potential outcomes and benefits. All procedures to be followed were explained clearly in writing.

Minimizing risk/benefit ratio

All efforts were taken to minimize costs for participants in both groups of the experiment.

I provided full research project management, training for tutors, and sharing of findings to maintain transparency. In addition, the costs of participation were minimized for i-Physician, the industry partner, by hosting the intervention online, and using an existing university license for the use of Adobe Connect software for facilitating synchronous discussions.

The risks to learners in the case were minimized by agreeing to guidelines for effective collaborative learning with synchronous discussions, and providing skills training in the use of the software. This minimized the risk of discomfort and resistance to learning with new technologies.

The benefits for the group included increased knowledge about an area of clinical practice and how to implement a clinical guideline to improve practice, gaining revalidation, increasing access to strategic learning support online, and obtaining opinion and advice from peers and tutors in a safe space. These benefits, I anticipated, would motivate and validate changes to behaviour and practice.

The sustained engagement process, together with the low risks and high benefits of the study for both stakeholders and participants, increased the likelihood of continued informed consent throughout the research, with very few adverse effects.

I addressed the risks of the fieldwork for the industry partner by improving my skills in risk assessment through a workshop provided by Health and Safety Services, University of Leeds. The risk assessment steps that I took included:

- Identifying hazards of implementing online courses for healthcare professionals
- Avoiding risks of failure by developing a collaborative relationship
- Surveying intended beneficiaries to tailor-make the proposed online course
- Drawing upon lessons from other online course evaluations, and incorporating these into the research design
- Following good practice/critical success factors to manage risks of failure, and
- Conducting usability testing with a pilot studies with intended users to increase ease of use, comfort and familiarity with online collaborative learning

Confidentiality

I protected against the risk of breech of privacy and confidentiality in multiple ways. Confidentiality of information collected from study subjects during study interactions was maintained through the project's data management system. No personal data was be collected or stored. Thus, there were no reports maintained that could identify individual project participants. All project electronic databases were secured on the University of Leeds M Drive.

To protect confidentiality when disseminating results, all identifying markers of participants have been removed when reporting the data from the study. Because I was interested in the social practices of a group of learners on a short online course, and in the impact on practice and patient care, I mainly refer to 'the healthcare professional', 'the learners', 'the tutor' and their 'patients' in the upcoming chapters.

To preserve participants' anonymity in this study, I only use data that is relevant to analysis of agency, online collaborative learning, producing change, and improving practice and patient care outcomes.

In addition, although this research took place online, no public intrusion was possible because the online space was a secure password-protected site only the participants, tutors, program managers and researchers could access. All participants were made aware that they were being observed

online as part of the research. These measures enhanced confidentiality of the observations.

Data safety

I received the university's ethical approval for this study (FREC AREA 10-93, 19 July 2011) as part of my attempt to deal with the issue of data safety by providing for independent scrutiny of the study. I also received a second ethical approval for this study (FREC AREA 10-193 Amendment June 2012, 19 June 2012) when I submitted an amendment to include a phase 3 of online interviews after phase 2 ended. These are in Appendix 5.

Data safety was also increased through regular review of the research with the industry partner through presentations and reports on interim results. An initial kick-off meeting was conducted in November 2010. A second meeting to discuss the proposed intervention and the pre-intervention online survey was held in May 2011. This meeting resulted in a go-ahead to proceed and the implementation of the intervention took place from October 2011- August 2012.

Furthermore, all data collected through this research was kept in a secure manner as advised by the Information Systems Services procedures.

Reporting of online discussions

This study's design also presents a unique ethical concern on the reporting of synchronous discussions for collaborative learning to improve practice.

The synchronous discussions on Adobe Connect were intended to be a safe online social space. If this intention materialised, I realised I could be privy to 'listening in' to situations and scenarios in the participants' work lives, which would usually not be openly aired. After all, research had shown that people are prone to openly sharing with online 'others' things they would not reveal to close physical others. Also, I could, during this project, have access to organizational and personal information about staff, managers, colleagues, and participants, as we discussed and negotiated the most effective way to proceed.

In addition, I could also witness conflicting points of view about healthcare policies and practice between managers, tutors and participants.

On the other hand, this group of participants would be coming together for the first time, and they would be entering a constructed online learning field with a diverse range of values, beliefs and assumptions. In only four

synchronous discussions, they might barely begin to scratch the surface of bonding to negotiate online friendships and professional relationships.

As a result of these ethical concerns, I decided not to use any information from the synchronous discussions that was likely to create at that time (or as far as I could predict in the future) discord amongst the healthcare professional community. I also do not use any personal information about any of the learners or industry partners that may unwittingly affect future relationships.

Divulgence of something dangerous or illegal

Another ethical concern I had was that something dangerous or illegal might be divulged during the online discussions. Although this was a highly unlikely event during a short programme, there was an ethical need to make participants aware of this issue.

To address this issue, I inserted a clause in the informed consent form for Phase 2 and 3 informing participants that in such circumstances, a discussion with the General Medical Council could be initiated, as the public would have a right to know. One of the research supervisors of this study, Dr. John Sandars, acted as 'responsible doctor' to monitor this issue during this study.

As seen in Appendix 4.2, the participant information sheet for Phase 2, a paragraph has been added to this effect for participants saying:

"Please note that the researchers have a professional obligation to report any evidence of serious professional misconduct to the General Medical Council (GMC). This decision will only be taken after full discussion with the doctor concerned and after informal discussion with the screening advisor of the GMC."

In light of research demonstrating the immense challenges that still remain in enhancing online collaborative learning among healthcare professionals (Sandars et al. 2007; Guan et al. 2008), I did not anticipate the above issue to be a problem. To keep the discussions on topic, I deliberately designed them around implementing one evidence-based clinical guideline. To ensure that discussions were productive in working towards improving practice and widen participant reflexivity, I encouraged the tutor to guide the discussion towards positive outcomes and solutions-based thinking, rather than naming and blaming "the system' or specific individuals.

Ethical responsibility as a change agent

I recognize the potential challenges in producing change to intricate practices through relatively few online synchronous discussions. Therefore, as a change agent with a stake in the intervention outcomes and an ethical commitment to a productive learning experience for the participants, I maintained an ethical responsibility to resist pushing the tutor and students to rush to change too quickly. I appreciate the sensitivity required to support changing minds and attitudes. I was thus also upfront and honest with the stakeholders about my scepticism in how to precipitate change as we reflected on our practices as online educators working for improving patient care in the positivist culture of healthcare.

Pressure to change

Research projects, such as this, can understandably create added pressures on healthcare professionals to demonstrate change in response to what they are given. I felt that letting the participants know that they were to join a safe online space to discuss, and collaborate to improve practice would reduce their anxieties about how they and their practices might be shared and observed by researchers.

Reducing the pressure to change was an important precursor to one of the pedagogic objectives of this study, namely facilitating effective collaborative learning. In addition I decided not to associate changes to patient care outcomes with individual healthcare professionals' learning per se, when the evidence suggests that improving practice is a complex mix of factors.

Summary of ethical concerns

In undertaking a Bourdieusian approach to critically investigate the impact of a constructed object of inquiry in the messy reality of educational practice, noticing and attending to these ethical issues is not a one-off quick-fix for this study alone. It is ongoing in the quest to work ethically and collaborate across disciplinary and field boundaries to produce useful knowledge to improve practice and patient care with Web 2.0 tools for delivering CPD programmes. I do not wish to suggest that I have satisfactorily resolved these issues forever from one study. Instead, I have forefronted these issues because I am keen to continue using what I learn from this study about doing research and pedagogy ethically online in future work. I hope that these ethical considerations will enable further reflexive inquiry and improve

the principles for the design of integrated online educational research and practices.

Appendix 5 shows copies of the two ethical approval letters from the University Ethics Research Committee for this study.

Note: I did not apply for NHS ethics since this research study was not being done in the healthcare professionals' capacity as working within the NHS.

Appendix 8: List of Publications and Presentations related to this thesis

Book chapters

Singh, G. et. al.(2014). Healthcare Electronic Continuing Professional Development: 5 Key Design Features to Improve Impact. In: Trentin, G. ed. *Network Based Continuing Medical Education: Social Media and Professional Development.* New York, New York: Nova. pp. 35-56.

Singh, G. & McPherson, M., 2014. Improving the impact of Electronic Continuing Professional Development (eCPD): Evaluation of a Reflexive Networking Innovation. In: Trentin, G. ed. *Network Based Continuing Medical Education: Social Media and Professional Development.* New York, New York: Nova. pp. 101-126.

Journal Articles

Singh, G. (2013). Disrupting the Implementation Gap with Digital Technology in Healthcare Distance Education: Critical Insights from an e-Mentoring Intensional Network Practitioner Research Project. *European Journal of Open, Distance and e-Learning*. Vol. 16, Iss. 1, pp. 66-77.

Sandars, J., Singh, G., Kokotailo, P. (2012). The importance of social and collaborative learning for online continuing medical education (OCME): Directions for future development and research. *Medical Teacher*, 34, 649-652.

Sandars, J., Singh, G., McPherson, M. (2012). Are we missing the potential of action research for transformative change in medical education? *Education for Primary Care*, 23.

Singh, G. (2011). An online abstract mentoring program for junior researchers and health care professionals. *Distance Education*, 32/2, 229-242.

Presentations

Singh, G. & McPherson, M. (2013). Structural Constructivism as an Epistemology for Professional e-learning: Implications & Recommendations for the Design of eCPD Pedagogical Models. Prague, Czech Republic, 24-26 July 2013.

Singh, G. (2013). electronic CPD (eCPD) Governance: A Practice Theory View to Improve Impact. eHealth workshop 2013, Middlesex University, London, UK, 25-26 April 2012.

Singh, G. (2012). Reflexive Networking is Smarter. Showcase 2012, University of Leeds, Leeds, UK, 3 December 2012.

Singh, G (2012). How to make learning Smarter. Showcase 2012, University of Leeds, Leeds, UK, 3 December 2012.

Singh, G. et. al, (2012). 10 key features to improve the impact of online healthcare CPD on practice and patient care: A critical interdisciplinary review of the literature. AMEE 2012, Lyon, France.

Singh, G. (2012). The importance of a reflexive edge to realist medical education research to improve impact on policy and practice IMPACT 2012, 2-3 August 2012, School of Education, University of Manchester, UK.

Singh, G. (2012). Improving the impact of online continuing professional development: A reflexive network model. e/merge 2012, 16-18 July 2012 online conference presentation and Q&A session.

Singh, G. (2012). Improving learning by improving practice? Building a reflexive network to enable smarter inter-professional collaboration. e-learning 2.0 Conference, 7-8 June 2012, University of Brunel Business School, London.

Singh, G. (2012). Strategic reflexive experiments: Disrupting the randomized control trial? White Rose Doctoral Training Centre Spring Conference 2012, University of York, 2nd May 2012.

Singh, G. et. al, (2012). Healthcare continuing professional development through reflexive networks: disrupting online communities of practice ProPEL 2012, Stirling, Scotland.

Singh, G. (2012). What are the main barriers and benefits for improving practice with Web 2.0 learning tools for UK rural doctors? Faculty of Education, Social Sciences and Law Graduate School Postgraduate Research Conference, 23rd March 2012, University of Leeds, Leeds, UK. *2nd Prize Poster*

Singh, G. (2011). Reflexive Networking: A conceptual framework for online healthcare CPD to improve impact on practice and patient care ASME Researching Medical Education Conference, 16th November, London.

Singh, G. (2011). Improving healthcare practice with online continuing professional development (CPD): A research proposal on the use and impact of facilitated synchronous discussions Medical Education Research Development 4th Annual Yorkshire Meeting, 14th June 2011, University of Leeds, Leeds, UK. *Runner Up*

Singh, G. (2011). Producing change to healthcare practices: Designing networks of reflexive professionals for cost-effective online continuing professional development ESSL Annual Postgraduate Research Conference, 10 May 2011, University of Leeds, Leeds, UK.

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