Exploiting free online learning for continuous professional development in nursing:

a theoretical framework to support individual and organisational learning.

Tanya Yvonne Andrewes

A thesis submitted in partial fulfilment of the requirements of Bournemouth University for the degree of Doctor of Philosophy.

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The abstract.

Tanya Yvonne Andrewes

Exploiting free online learning for continuous professional development in nursing: a theoretical framework to support individual and organisational learning.

This primary research explored how registered nurses use free online learning, including open education resources, as continuous professional development. The research comes in response to the issues caused by the decentralisation of continuous professional development practice for nursing. The burden of continuous professional development activity has been placed on individual nurses.

The aim of the research was to develop a theory that will support nurses to use free online learning as continuous professional development. A scoping literature review, undertaken to situate the research, revealed a paucity of existing research in the field of continuous professional development practice. There is a lack of research relating to the specific use of open education resources as continuous professional development, both in nursing and generally.

Using a constructivist grounded theory methodology, eighteen registered nurses across clinical practice and education-based settings were interviewed. Data analysis resulted in two theoretical categories: 'learning as a social endeavour' and 'being swallowed up in practice'. The categories reflected challenges for nurses around using free online learning as continuous professional development, that arise from the controls placed on their post-registration learning by their employing organisations.

The research found that online mandatory training practices created barriers to nurses' independent use of free online learning for professional development. Mandatory training was often completed in nurses' own time, using their own resources. This resulted in nurses' secondary socialisation to online training practices, so that learning could be finished quickly and signed off for their managers. These practices became established as theories-in-use for engaging with free online learning as continuous professional development.

The research findings add to the scholarship of organisational learning theory, specifically focusing on the novel area of free online learning for continuous professional development. The research resulted in the development of a theoretical framework to support the integration of free online learning into organisational learning activities, in the context of learning for service improvement.

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Author's declaration.

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Andrewes, T., 2024. "Blessing or Beast?". Reflections on the use of video-conferencing software to collect qualitative data. *Faculty of Health and Social Sciences Postgraduate Research Conference.* Bournemouth University 4th June 2024.

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Reporting Framework Matrix.

The thesis is cross-referenced against the consolidated criteria for reporting qualitative research (COREQ) (Tong et al. 2007). See appendix 1 for mapping of the thesis. Although this framework is a little dated, it is an established tool to support the reporting of qualitative research that uses in-depth individual interviews and focus groups. As such, it is relevant for reporting this research.

The COREQ framework guides the researcher to report the research against three domains. Domain one focuses on the research team and reflexivity, specifically the personal characteristics of the researcher and their relationship with the research participants. Domain two focuses on the study design, specifically the theoretical framework, participant selection, setting and data collection. Domain three focuses on data analysis and the reporting of findings.

Mapping the thesis against the COREQ framework checklist enables the reader to locate evidence that demonstrates the researcher's attention to the research process. Consequently, it informs their judgement about the quality of the research.

1: Introduction to the thesis.

This primary research study explores registered nurses' continuous professional development practices, specifically the use of free online learning for developing professional knowledge towards triennial revalidation with the Nursing and Midwifery Council. The theoretical framework, which was developed within a constructivist grounded theory methodology, offers a novel contribution to the professional knowledge base. It focuses on the exploitation of free online learning for continuous professional development towards organisational learning, as a new way of thinking about learning for professional practice. The theoretical framework actively supports the integration of free online learning as a component of service improvement projects, to enhance the experience of healthcare services for patients and their families or significant others.

The research was undertaken in the United Kingdom. It concerns the post-registration continuous professional development practices of nurses who are authorised to practice by virtue of being active on the Nursing and Midwifery register. A registered nurse is an individual who has completed an approved undergraduate or postgraduate training programme and demonstrated achievement of the necessary knowledge, skills and behaviours required to confirm proficiency (Nursing and Midwifery Council, 2018a; Nursing and Midwifery Council 2018b). To maintain a place on the professional register, nurses must engage in continuous professional development, undertaking learning independently and with others to ensure they are keeping up to date with evidence-based developments in practice (Nursing and Midwifery Council 2018a, 2019b).

Registration is renewed annually, but every three years nurses must provide evidence of learning to renew their registration. The triennial revalidation process, established in 2016, confirms that the nurse remains fit to practice on the basis that they have completed their continuous professional development and have reflected on their practice experiences (Launder 2019). Revalidation requires each registered nurse to discuss their continuous professional development learning with another registrant, who confirms to the Nursing and Midwifery Council that the requirements have been met for remaining on the register. The Nursing and Midwifery Council also hold a register of midwives, but this research focuses exclusively on nurses' continuous professional development, so the term registered nurse will be used throughout the thesis.

The Nursing and Midwifery Council (2015) recommend the use of free online learning as continuous professional development. Open education resources are one source of free online learning available to registered nurses. Open education resources are defined as:

> *"Copyrightable works… either in the public domain, or licensed [to provide] users with free and perpetual permission to retain, reuse, revise, remix, and redistribute them" (Wiley 2019).*

The formal language of the open movement and open education resources is highly specialised, and this can result in different individual perceptions of the meanings or definitions of key terms. Whilst open education resources are specific learning materials available on the Internet that have a Creative Commons license allowing adaptation and reuse, the terms open learning, open education and free online learning have been used interchangeably by the general populus (Wiley, 2019). A reason for this is the historical use of terminology around learning materials that are hosted on the Internet, and that are cost-free for end users. Open education resources had previously been defined more broadly, as learning materials that are available in the public domain and whose use does not incur a financial cost (Harley, 2011; Wiley and Green, 2012) .

The term openness is understood to refer to a range of aspects of education, namely focusing on equity by increasing access to effective education for all and fostering participation and co-creation of knowledge (Atenas et al., 2024). In the United States of America, where open education resources use is more developed than it is in the United Kingdom, there is a strong focus on open textbooks that are collaboratively produced and that serve to reduce the financial burden of education for students. In 2006 the Open University in the United Kingdom began sharing their copyrighted learning materials online through the OPENLEARN platform (Stanistreet, 2006). These materials were presented as open learning because they are available to individuals at no cost, although they are dependent on their access to the technology required for Internet access.

Rolfe et al. (2012) propose that the high numbers of students studying health care programmes and the significant amount of common learning across the programmes, for example science-based subjects, creates genuine opportunities for delivering learning through open education resources. In this research open education resources refers to materials that are available in the public domain and that are licensed for retention, revision, reuse and redistribution. Open education resources

may be used in different contexts and for different purposes by different groups of nurses. The research will gather data from nurses in both clinical and educational backgrounds. Educator participants, if they have utilised open education resources in their teaching, may come to the research with their knowledge and understanding of open education resources as education tools, as well as tools for continuous professional development. Nurses based in clinical practice are likely to come to the research from the perspective of using online learning resources for continuous professional development because they are not perceived to incur a financial cost (Andrewes et al. 2023). The research focuses directly on how open education resources are utilised as continuous professional development towards revalidation, not on their use in a teaching context. Since open education resources are stored and accessed through the Internet, the research participants may refer to their use of technology to access their learning. The research is not however, concerned with the broad use of technology as a pedagogical tool for learning, or evaluation of the quality of the specific learning resources that have been accessed.

The introductory chapter presents the research problem and explains the context of professional education for nursing and continuous professional development practice. It also sets the context for the development of free online learning for continuous professional development for nurses. It then explains the process of establishing the research question and its aims, framed within a qualitative research paradigm. The introduction offers a reflective analysis of the researcher's positionality at the outset of the study, and its direct influence on the specific and purposeful selection of constructivist grounded theory methodology for data collection and analysis.

1.1: Note regarding the presentation of the thesis.

The presentation style throughout the thesis will be a blend of third and first person. The use of first person is proposed as appropriate for constructivist grounded theory, where the discussion needs to offer evidence of reflexive analysis as one measure of the trustworthiness of the research (Lincoln and Guba 2013; Stenfors et al. 2020). Researcher notes that include reflexive analysis, analytical memos and images will be interwoven throughout the thesis. These offer evidence of critical analysis in relation to the researcher's background and the influence of their experience, knowledge and values on the development of the research question.

The researcher notes will offer further evidence in the ***methodology, data collection and analysis*** chapters, and ***findings*** by explaining decisions in the research process. In the ***introduction*** the researcher discusses how their experience and values influenced the identification and the development of the research question. Researcher notes within the ***methodology, data collection and analysis*** and ***conclusion*** chapters will explain their decisions and actions in respect of both the research process and the coding of data. This will illustrate to the reader, the researcher's influence on the development of the findings and the co-constructed grounded theory.

1.2: The research problem.

Identification of the research problem is borne out of the researcher's background as a registered nurse and their interest in learning and professional development. From a beginning in clinical practice, the researcher subsequently worked through a partnership role as a lecturer-practitioner supporting the delivery of validated post-registration education programmes, before moving into an academic role in nursing education. During their career, the researcher has seen the development of nursing as a graduate profession, with nurses studying up to doctorate level and contributing to high impact clinical and professional body of knowledge, concurrent with the development of evidence-based practice (Sackett and Rosenberg 1995; Sackett et al. 1996). The exploitation of advances in technology makes the dissemination of research and professional knowledge easy, so there is a clear imperative for nurses to remain up to date with the developing body of nursing knowledge post-registration. This is endorsed within The Code (Nursing and Midwifery Council 2018a) and is a requirement for revalidation.

1.2a: Problem 1. The decentralisation of continuous professional development practice for nursing.

A specific problem around continuous professional development practices for nursing is the decentralisation of education provision over the last fifteen years, because of significant cuts to health service training budgets. Decentralisation has shifted the balance from employer resourced and certificated continuous professional development courses that were commissioned to meet service requirements, to individual resourcing of learning towards revalidation. This position raises challenges

for registered nurses in meeting continuous professional development requirements (Royal College of Nursing 2019; Jackson and Manley 2022). Wray and Aleo (2021) propose that this decentralisation of continuous professional development means that some nurses fail to meet the requirements of the Nursing and Midwifery Council, this point reinforcing the imperative for the research.

Launder (2019), reporting on a Market and Opinion Research International (MORI) poll about revalidation, notes that between April 2018 and March 2019, 94% (204,545) of nurses, midwives or nursing associates on the register achieved revalidation. Of the 6% of nurses who chose not to revalidate, 6% reported not meeting the revalidation requirements. Other reasons for leaving the professional register were retirement (53%), no longer practising (35%) and ill health (5%). The Nursing and Midwifery Council's annual data report on the register listed concerns about meeting revalidation requirements in the top ten reasons for leaving the professional register (Nursing and Midwifery Council 2023a).

In the annual revalidation data report 6,729 professionals were reported as revalidating after their individual revalidation date, but before the end of March 2023 (Nursing and Midwifery Council 2023b). Reasons for the extension on revalidation date are not specified in the report. Consequently, there is no definitive data that decentralisation of continuous professional development was the cause of delays but undertaking research in this area will support understanding of the pressures registered nurses face around completing revalidation processes.

1.2b: Problem 2. Understanding the impact of continuous professional development learning on practice.

Continuous professional development activity offers benefits for nurses in terms of maintaining currency of knowledge for practice. It constitutes a problem however, because of the inherent difficulties in measuring the impact of individual learning on patient experience, and on practice within the organisations that nurses work (Manley et al. 2018; Wray and Aleo 2021). The problem of measuring the outcomes of learning is somewhat exacerbated by the decentralisation of continuous professional development practice. Even with the previous model of employer commissioned and supported education, it was considered difficult to measure the outcomes of learning (Wray and Aleo 2021). Employers could be confident under this model however that

nurses were receiving education that was focused on service aims and organisational philosophy (Elliot and Pickering 1997).

Decentralisation has led to individual responsibility for sourcing and engaging with learning materials for continuous professional development, and the focus and content of learning is their own choice. The researcher has previous experiences of undertaking funded continuous professional development that benefits the service they worked in. They propose that it might be assumed but not guaranteed, that professional learning will be focused on the nurse's current context of practice within an organisation and therefore benefit the organisation. Jackson and Manley (2022) present this as a contemporary problem because the individualised nature of decentralised continuous professional development learning creates distance from the practice setting. Consequently, there is further distance between the learning and the organisation specific philosophy and mission. The potential for nurses engaging in rich and meaningful learning directed from and within the organisation is thus lost.

1.2c: Problem 3. The need for registered nurses to source free online learning for continuous professional development towards revalidation.

The inequity caused by different organisational models for supporting staff learning compounds the difficulties of gathering evidence about the benefits of continuous professional development for practice (Wray and Aleo 2021). For example, some organisations continue to release nurses from practice settings to complete formal, certified face-to-face learning. Others, notably community practice-based settings, allocate specific protected time for nurses to complete their continuous professional development within the work setting. This enables nurses to complete their mandatory training in work time. The protected time can be used to support non-mandatory continuous professional development once mandatory training is completed. Other organisations expect their nursing staff to source and complete their continuous professional development in their own time and at their own cost.

The Nursing and Midwifery Council (2015) endorse the use of cost-free online learning as an acceptable and practical means of meeting professional learning requirements. It is proposed to be a helpful strategy for those nurses who struggle to achieve continuous professional development requirements because of their shiftwork patterns, specialty or geographical context. The guidance about content of

continuous professional development that can be used for revalidation muddies the waters. The Nursing and Midwifery Council (2015) propose that some mandatory online learning can be included as evidence for revalidation.

Cardio-pulmonary resuscitation, which is directly relevant to practice can be included, but general training including health and safety and fire safety are not relevant for revalidation (Nursing and Midwifery Council 2019a). Beyond that, the only guidance is that continuous professional development should focus on maintaining up-to-date evidence-based knowledge for practice. When considering the suggested use of free online learning as continuous professional development, it is assumed by employers and professional bodies that nurses have the time, access to technical resources, technical skills and incentive to seek out and engage with free online learning resources.

The use of open education resources is considered relevant to continuous professional development, with learning materials available in a wide range of subject areas across health and social care, including nursing (Hurley 2020). Open education resources offer a relevant and flexible source of professional continuous professional development for nursing, being available at any time that suits an individual, however their use is still quite new and there is little evidence of how health care professionals source and engage with them (Pickering and Swinnerton 2017). There is a lack of published evidence available to support understanding about how nurses apply and share learning from open education resources in and for practice.

In summary, the research problem combines tensions caused by the decentralisation of continuous professional development practice, a lack of knowledge about practices of registered nurses with free online learning, and a lack of knowledge about how that learning impacts on practice to enhance the patient experience.

1.3: The research question.

The research question is driven by the research problems and by the researcher's experiences as a registered nurse and educator. Their professional interest lies in the development of open education resources and the decentralisation of continuous professional development, with a drive by the Nursing and Midwifery Council (2015) to use free online learning to develop professional knowledge. Whilst the recommendation is to use free online learning as continuous professional

development for revalidation, personal correspondence from the Nursing and Midwifery Council (Madu 2021) reveals that there is no data collection about how continuous professional development is undertaken. As such, it is difficult to assess if, why, when and how free online learning resources are being used for continuous professional development towards revalidation following decentralisation.

The research will explore the extent to which nurses are using open education resources as continuous professional development, how they are using them and the learning that arises from them.

1.3a: The aim of the research.

The research aim is to develop a theoretical model that supports registered nurses to use free online learning, including open education resources, as continuous professional development towards revalidation. A constructivist grounded theory methodology will be used to frame the data collection and analysis and the development of the grounded theory (Charmaz 2014).

By exploring registered nurses' practices and experiences of using free online learning as continuous professional development for revalidation with the Nursing and Midwifery council, the research will seek to:

1.3b.i Scope the circumstances in which registered nurses use free online learning, including open education resources.

1.3b.ii Identify the types of learning that take place when registered nurses use free online learning as continuous professional development and identify how that learning is shared with others.

1.3b.iii Develop a theoretical model that will support registered nurses to use free online learning as continuous professional development.

1.4: Continuous professional development as a requirement for remaining on the United Kingdom professional register.

When the researcher qualified as an Enrolled Nurse in 1989, before converting to a Registered General Nurse in 1992, they were expected to engage in ongoing learning. There was not however, a formal requirement to provide evidence of this to the English National Board who were the professional body for nursing at that time. The introduction of evidence-based practice (Sackett and Rosenberg 1995) a few years into the researcher's professional career quickly filtered into nursing. It resulted in the requirement for nurses to undertake and record continuous professional development activities, as a formal component of re-registration on the professional register.

This post-registration education and practice (PREP) standard required all registered nurses to develop a portfolio of learning from continuous professional development activities to illustrate their fitness for practice (Castledine and Murray 1996; Bradshaw 2000). The professional body reviewed portfolios on a randomised basis, to endorse nurses' evidence of keeping up to date with the developing evidence-base for practice.

Employers' response to PREP was largely through sponsorship of nurses on formal accredited continuous professional development programmes, relevant to the funding organisations' vision and philosophy. In 2015 the requirements for continuous professional development changed. The fundamental need to maintain a portfolio of evidence of professional learning was maintained. A new aspect was that nurses must also engage in professional discussions with another registrant, about their learning and their reflections on practice.

After the professional discussion, the evidence of continuous professional development is verified by that colleague, as a current registrant (Nursing and Midwifery Council 2015). The portfolio of evidence can still be called on for review by the professional body, as it had been in the past, however the new aspects of professional discussions and verification of evidence offer a more robust means of guaranteeing that all nurses and midwives are undertaking continuous professional development to ensure they are 'fit for practice'.

1.5: The open movement and open education resources.

This section introduces the context of open education resources, which is appropriate based on the research question. At the outset of the research the focus was specifically on open education resources as a tool for nurses' continuous professional development. Consequently, the research proposal, participant information and semi-structured interview schedule for the purposeful data collection use the specific term open education resources. The ***scoping literature review*** focuses specifically on open education resources as continuous professional development.

As the research progressed it became apparent that the term, whilst familiar to the researcher, was not familiar to the participants. At this point, the terminology was altered to free online learning as this reflected the research participants' language. This is explained further in the researcher notes 1 in section 1.6a. Even though the language used by participants was not 'open education resources' the open movement has influenced the development of free online learning materials, so the use of their language does not fundamentally change the research question. Open education resources remain as one means of nurses accessing free resources for continuous professional development.

A brief background of the development of the open movement and open education resources offers context to this research study by outlining the availability of free online resources. It also outlines the challenges or barriers to accessing them as continuous professional development. The open movement, with its history in educational technology capitalises on the creation of the Internet and the World Wide Web in the 1990's to offer free online learning resources. The open movement builds on previously existing models of distance education offered by higher education providers such as The Open University. These traditional models of distance education offered a blend of text-based resources, access to audiovisual resources delivered on the television network and facilitated learning in day or summer schools (Weller 2020). The distance education model enables people in remote locations to access learning but is not free of cost. Open education resources extend access and enable independent and cost-free learning, to individuals, at a distance.

The Web (1.0), created in 1989 by Sir Tim Berners-Lee, enabled universal access to information by linking computers through a web browser and linking documents using hypertext technologies (http) and unique web addresses. Initially, use of the Internet required some technical expertise or skills but authoring tools such as WordPress,

which was developed around 1995, supported the sharing of information by individuals and this led to academics sharing their publications (Weller, 2020). The Internet also enabled the sharing of learning and teaching materials, reducing the cost of education and enabling all universities to share learning materials online. Simultaneously, the development and use of Internet-based networking tools such as bulletin boards facilitated discussions between people with similar interests.

Initially, expensive equipment, specialist software and a degree of technical skills and understanding was required to access the Internet, and early adopters were characteristically well-educated people who had above-average earnings (James et al, 1995, cited by Weller 2020). Access to the Internet relied on dial-up modem connections so communication was asynchronous, with users working off-line then logging in and out briefly to post their contribution to discussion boards, download, or upload files. These early communication systems have developed into the online discussion forums and social media platforms that we know today, that enable both synchronous and asynchronous activity, facilitating collaborative working (Weller 2020).

In education, the advances in technology have supported learners' agency, so they can learn how, when and where they want to (Hasebrook and Maurer 2004). They support the use of different approaches for learning and teaching, including problem-based and resource-based learning that focus on the critical appraisal of resources towards the resolution of a real-world problem (Bacon and Dillon 2006, cited by Weller 2020). It became possible for groups of learners to co-create and upload online content relevant to their practice context using tools like wikis. By the Millenium, online learning, sometimes called e-learning, was accepted as a pedagogically based, purposeful approach to learning and teaching. The wide range of electronic media available on the Internet, including video and images through the open platforms YouTube and Flicker, means that learners can access resources in different formats that reflect their preferred way of learning.

The increasing focus on digital rather than physical resources led to the development of reusable learning objects, education resources specifically developed with the intention of updating or adapting and reuse. Reusable learning objects support the open movement by the sharing of learning resources on the Internet, which can be used, developed and improved by others (Mestre 2012; Wiley, 2002, cited by Weller 2020). They are most useful for the sharing of consistent or stable content (Downes, 2001, cited by Weller 2020). Reusable learning objects have been developed for use

in medicine, nursing and allied health professions to support undergraduate and postgraduate education and development (Petit dit Dariel et al. 2013; Williams et al. 2015). Although reusable learning objects are considered to have succeeded to some degree, organisations and individual developers were found to be reluctant to share them outside of a specific audience. The reasons for this were that there were not universal or open tools with which to build them, and copyright restrictions meant that work could not be revised or customised (Weller 2020).

The 2000's saw an increased focus on the openness of learning objects and education resources in line with the development of open-source and open data. E-learning standards were created at this time to ensure standardisation and interoperability of learning objects (Weller 2020). The emphasis shifted to the development and sharing of the smallest/simplest, possible/portable, open/online, learning/living, tool/technology (SPLOT), offering the simplest way for users to access learning resources without needing to register or create accounts (Levine, 2008 and Lamb, 2018, cited by Weller 2020).

Access to cost-free learning without the need to create an account remains a key feature of open education resources. The Sharable Content Object Reference model (SCORM) was developed to ensure content creators produce content that is assured to work on all major platforms. Advances in web technology led to the use of hashtags to describe resources, which helped to overcome the complexity of using extensive metadata for learning objects. It also meant that users could find learning content more easily.

Open education resources feature the development and sharing of educational content with an open licence that allowed the resource to be freely accessed and adapted. The UNESCO (2012) definition of an open education resource is.

> *"Teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions."*

In 2004, Massachusetts Institute of Technology (MIT) led the way for the public sharing of learning resources using permissive Creative Commons licences that support reuse and repurposing by others. The reality was that the utility of learning materials outside of MIT was limited but it set a precedent for a culture of sharing learning materials on the Internet.

Creative Commons (2022) estimates that there are now over 2.5 billion Creative Commons licensed learning resources, representing an increase of 1.5 billion since 2015. Many of these are USA based open textbooks that seek to increase access to education and to reduce the associated financial costs for students (Weller 2020). True open education resources that have Creative Commons Licences and that support reuse are few compared to the number of open resources that can be accessed and used by anybody, but that are not licensed for reuse. Examples of the latter include Massive Open Online Courses, and free FutureLearn courses. In the context of this research, it includes learning resources housed in repositories such as e-Learning for Healthcare that can be freely accessed and used but not adapted for reuse.

Weller (2020) defines this as a drift of learning resources back to a broadcast model that moves away from the communication-based, collaborative intent of open education. On balance, the broadcast model is more reflective of the delivery of nurse education. Nurse educators are professionally obliged to assure the quality and accuracy of learning and teaching materials that nurses access, including free online learning resources. This responsibility ensures that the students can develop the knowledge, skills and behaviours required for registration (Nursing and Midwifery Council 2018b). The development of the open movement means that anybody could publish anything, ungoverned and uncensored, on the Internet. This poses a concern for quality assurance of learning materials for nursing continuous professional development. The use of free online learning resources in the broadcast model, such as those hosted in e-Learning for Healthcare, minimise concerns about quality assurance and maximise flexibility for registered nurses who are learning.

The pandemic significantly influenced digital learning and specifically open education resource use in the United Kingdom, across all educational sectors, due to the need to deliver teaching online during lockdown (Bessette 2020; Van Allen and Katz 2020; Javadi-Pashaki et al. 2021). The pandemic offered an opportunity to promote e-learning for continuous professional development practice, provided that registered nurses had appropriate infrastructure and were supported with educational preparation to use them effectively.

Decentralisation has shifted the responsibility for continuous professional development to individual nurses after professional registration. The open movement and open education resources support cost-free and flexible access to learning materials for continuous professional development. Opportunities to use them are,

however, likely to be dependent on nurses' access to technological resources and Internet infrastructure. It is also dependent on nurses' knowledge and skills for sourcing, critically appraising the quality and relevance of content, and engaging with free online learning.

This research has come at a crucial moment in time with nurses' need to use free online learning as continuous professional development, and the developing awareness of cost-free resources online. The research will explore registered nurses' practices of using free online learning, including open education resources as continuous professional development, to develop understanding about when, how and why they are used, and what the outcomes of using them are.

1.6: The researcher.

The researcher is a female registered nurse and a nurse educator. They are a first-generation graduate from a council estate background and upbringing, with the privilege of access to higher education as a direct result of their professional nursing career. This is significant, as their experiences have led them to understand the transformative potential of learning across the lifespan. Consequently, they place high value on access to education opportunities for all. Since the open learning movement reflects a proactive drive to make education freely available to all, it is an area of personal interest to the researcher. The use of open education resources is of professional interest to them in the context of the proliferation of online resources for nursing and health sciences over the last decade, which can be used to support continuous professional development for revalidation.

The researcher has personal experience of receiving and delivering health care education, both in person and at a distance. Their professional roles since qualifying as a nurse have naturally led to their exposure to open education and to open education resource use. The researcher's original nurse training programme was delivered face-face. Their early continuous professional development was through formal programmes of education that were validated by the professional body. Completion of these accredited continuous professional development programmes resulted in professional qualifications that were recordable against the researcher's professional registration number. These were all through face-to-face delivery, including their training for a nurse educator role. In the postgraduate teacher training

programme, the researcher was introduced to open learning in the form of a paper-based workbook, supporting the face-to-face delivery. Later in the researcher's career (from 2003), they were directly involved in projects to develop open learning materials for students in their employing organisation. In this context, open referred to online provision of learning materials to complement face-to-face teaching, for flexible and independent access by students, outside of classroom hours.

The researcher has fulfilled their continuous professional development requirements throughout their career, focused on developing and using open and accessible education resources and delivered through face-to-face and distance education. These experiences result in the researcher valuing the affordability and accessibility of open education resources as continuous professional development or for personal interest, even before the pandemic. The advent of the pandemic as this research commenced has significantly and rapidly increased the development and availability of open education resources for professional learning. The researcher valued the opportunities lockdown gave for personal and professional development when many organisations offered free access to learning as part of a community response to the pandemic.

1.6a: Positionality of the researcher at the outset of the study.

The reflexive diary entry (researcher notes 1) presents an analysis of the researcher's positionality at the outset of this study. The positionality in this context refers to the researcher's ontological and epistemological viewpoints about the research methodology. It also refers specifically to where they stand in relation to the research participants (Yip 2024). The researcher as insider refers to someone who has experience of the phenomenon under investigation, whilst an outsider is somebody that does not. Positionality can refer to a range of aspects or situations including gender, race, culture, professional role or lived experiences. The researcher proposes that an analysis of their positionality throughout the research will be crucial as it is likely to alter over time. Taking notice of alterations in positionality will serve as a check for them, helping them to act consciously to avoid issues such as power imbalance and to truly listen to the voices of the participants, so that the resulting theory is grounded in the data.

Researcher notes 1: Researcher positionality.

There are three key aspects of professional experience and values that could impact on my decision-making and actions during the research.

As a registered nurse educator, with significant experience of meeting continuous professional development requirements, I am an 'insider'. My own experience of using free online learning as continuous professional development could lead me assume that I naturally understand the experiences shared by the participants. I need to review my positionality regularly and document my decisions and actions throughout the research. This will avoid the risk of using questions in the research interview on a superficial level or taking responses at face value. I need to take care that I check my understanding of participants' responses by asking them to "tell me a bit more" about their answer or to give an example. Using in vivo quotes will help to demonstrate the primacy of the data.

My role as a distance educator has led me to develop knowledge about the open movement and open education resources. I have used open education resources and completed formal education in the area. In this context I am likely to be an outsider in relation to the research participants. They might perceive that I have an a priori or hidden agenda in the research because of my perceived specialist knowledge.

In my role as a nursing educator there is a potential for a power imbalance between the participants and myself. Nursing educators are perceived to have a power relationship by virtue of their role in assessing academic work of undergraduate and postgraduate learners. Informal conversations prior to undertaking the research suggest that because revalidation is a formal assessed exercise, it can cause anxiety. I need to give clear information about expectations from participants to ensure informed consent, whilst emphasising that that their continuous professional development practices are not being assessed.

As a staff postgraduate student, I am an insider to academic colleagues who might wish to participate. I need to ensure that they do not feel pressurised to take part, but I will welcome their participation if they are eligible. For potential participants in clinical practice, I am an 'outsider'. To

recruit clinically based nurses, I will have to challenge myself to go beyond my comfort zone to drive recruitment to achieve a balance of clinically-based and education-based participants.

Postscript reflection.

*My 'outsiderness' as someone who is experienced in using open education resources quickly became evident. My formal language created a barrier to recruitment, which was challenging (see **chapter 4**). I learnt that potential participants were unfamiliar with the term 'open education resources', so did not realise that they were eligible to participate in the research. My failure to analyse this issue delayed recruitment and may have resulted in the limited geographical spread of participants, as discussed in **chapter 7**. I finally recruited to the research by directly contacting potential participants, which started a snowballing recruitment process and was ultimately successful.*

Trundle et al. (2025) emphasise the need for researchers to not only be reflexive within the research process, but to be purposefully reflexive about the activity of reflexivity itself. My reflexivity as a researcher was a blend of individual and cooperative activity. The latter was facilitated through regular high-level discussions with my supervisory team throughout the research process, that led to further individual reflection and memoing. Whilst my individual analysis of positionality at the outset of the research was a good starting point, it did not enable me to predict the issues with language use noted above. A more formal analysis of my positionality through a structured pre-suppositional interview using deep level questioning, as advocated by van Veggel et al. (2024) may have resulted in a realisation that the formal language of open education resources might serve as a barrier to recruitment.

Analysing researcher positionality at the outset of the research draws attention to areas where the researcher needs to purposefully act, in the context of a constructivist grounded theory study, to ensure ethical and informed practice. This includes

research design and participant sample, recruitment, data collection and analysis and co-construction of the grounded theory.

1.7: Scoping literature review.

It is an ethical and philosophical imperative within the PhD to generate new knowledge for practice (Lichtman 2014a; Bournemouth University 2022, 2024). To this end a ***scoping literature review*** will be conducted and reported on in chapter 2 of the thesis. This will enable the research to be situated within the current knowledge base and will justify the need for the research.

2: Scoping review of the literature to situate the research.

This chapter presents the scoping literature review that was undertaken to situate the research within the professional knowledge base. The chapter explores the recommendations for managing the literature when using a constructivist grounded theory methodology. It explains the rationale for undertaking the scoping literature review prior to data collection and analysis. Finally, it presents the review findings.

2.1: Situating the literature review(s) within the qualitative research process.

The literature review is renowned for being a contested and much debated aspect of the doctoral research process. The predominant conflict about the literature review in qualitative research lies with its timing (Dunne 2011). There is consensus that active engagement with the literature is fundamental to rigorous research because it situates new data within the existing evidence base of professional knowledge. There is also consensus regarding the ethical imperative to ensure that research will address a gap in knowledge (Lichtman 2014b; Bournemouth University 2022). These arguments create a compelling case for reviewing the literature in the discipline before confirming the research question and conducting the research.

In contrast, the proponents of the grounded theory methodology actively discourage early engagement with the literature. This is to avoid violating the inductive approach to data analysis that grounded theory exploits (Glaser 1983 and Morse 2002, in Lichtman 2014b). Glaser and Strauss (1999) advocate that one single immersive literature review should be undertaken, only after data collection and analysis is complete. Waiting until this point in the research process serves to demonstrate how the theory has developed from the data.

Controlled access to the literature, however, is proposed to support transparency and thus rigour in the research process. Glaser and Strauss (1999 p38) reinforce the importance of undertaking research in subject areas that are “outside of existing theory and contemporary emphasis”. It is difficult to know this unless the literature has been reviewed to confirm it. Essentially, there is a balance between developing meaningful and relevant research questions inspired by professional knowledge and expertise and avoiding unintentional duplication of existing research and/or violation

of inductive data analysis. An early literature review is therefore justified to assure the researcher and other stakeholders, including ethics committees, that the research is warranted and relevant, before proceeding with recruitment, data collection and analysis.

Creswell and Poth (2018) argue for an early literature review in qualitative research, on that basis that understanding the literature is central to justifying the methodology for the study. Crucially, they suggest that an initial literature review may reveal theoretical models from professional areas outside of the discipline under study. These models may be irrelevant to the population or discipline being studied, or incomplete if they fail to address variables of interest to the researcher (Creswell and Poth 2018, p88). They do, however, provide an indication of research in the area that is outside of the discipline under study.

The research study follows the constructivist grounded theory method developed by Charmaz (2014) from the Glaser and Strauss (1999) grounded theory method. Charmaz takes a middle ground in terms of the initial literature review, supporting it as an important process to justify the research question and to set it in context within the scholarship of the discipline. A structured scoping review approach (Arksey and O'Malley, 2005) was adopted for this early rapid literature review. The purpose was to help shape the research question and to ensure that it was not replicating existing work in the field. In the context of this research, the scoping literature review represents a stage in the research process, rather than a discrete method leading to the publication and dissemination of results.

The methodological framework for scoping literature reviews, developed by Arksey and O'Malley (2005) and updated by Levac et al. (2010) provides guidance for the review process. They note that the process in the scoping review is iterative in its application, rather than linear. As such the researcher is required to demonstrate reflexivity in the process, making adaptations and repeating steps if necessary (Arksey and O'Malley, 2005). The original iteration of the methodological framework proposed five clearly defined stages in the scoping literature review process, with an optional aspect of consultation with stakeholders and others to strengthen the process. Levac et al. (2010) developed the five stages further and proposed that consultation with stakeholders is fundamental, therefore it becomes stage six.

The stages of the scoping literature review are:

1. Clarifying and linking the purpose of the scoping review and the research question.
2. Identification of relevant research, requiring balancing of feasibility with the breadth and comprehensiveness of the scoping review.
3. Selection of research for the review using an iterative team approach.
4. Extraction and charting of the data returned in the review.
5. Collation and reporting a summary of the results including numerical and qualitative thematic analysis.
6. Incorporation of consultation with stakeholders to inform the scoping review process.

In the case of this research stages one to five inclusive were employed, with the researcher engaging in reflexive discussions with the supervisory team in stage three.

The structured approach to the initial literature review demonstrates rigour in the research process and creates a clear action trail, as advocated by Salmond and Cooper (2017). Literature was gathered using a database search, a Google search and a search by author name. The search included literature in the Joint Information Systems Committee (JISC) resources, ResearchGate resources and publications in the Open Education Resource Research Hub. The reporting of the scoping literature review in this chapter adheres to EQUATOR guidelines, using the PRISMA reporting method.

2.2: Introduction to the scoping literature review.

This scoping literature review explores the use of open education resources as continuous professional development in nursing, a topic of global relevance for all registered nurses. Over the last decade there has been a move away from employer-financed continuous professional development using accredited study programmes, to individually sourced continuing professional development (National Council of State Boards of Nursing 2012; Nursing and Midwifery Council 2015; Nursing and Midwifery Board of Australia 2020). The Nursing and Midwifery Council proposes that free online learning, including open education resources, are an appropriate source of cost-free learning for nurses.

This recommendation appears to provide an easy answer to the problem of decentralised continuous professional development provision for nurses. It does not however, account for the need for nurses to have access to digital resources and

infrastructure for learning. The reality is a picture of digital poverty (Office for National Statistics 2019; Foord 2020; Peate 2022), which is in opposition to the United Nations (2022) sustainable development goal for education. The goal is focused on ensuring "inclusive and equitable quality education and promoting lifelong learning opportunities for all".

Recommending free online learning for continuous professional development activity, including open education resources, actively disadvantages some nurses (Andrewes et al. 2023). The scoping literature review seeks to understand whether nurses are using open education resources for professional learning, and if they are using them, how, and why that is. The results will inform the development of the research question.

The use of open education resources supports the 'open movement' by enabling the sharing of learning materials online, at no cost to the end user. The purpose of developing and sharing open education resources is to widen access to education or knowledge for all (United Nations 2022). Open education resources have been developed in a wide range of subject areas. In healthcare, they have historically been developed and used as components of undergraduate nursing programmes (Williams et al. 2015). In this context, open education resources have been used alongside face-to-face education to enrich and extend students' learning.

The pandemic accelerated the development of standalone open education resources, particularly during the lockdown periods when education facilities were forced to deliver their learning online. In the United Kingdom Health Education England hosted a range of established and new mandatory open education resources on their e-Learning for Healthcare platform (https://portal.e-lfh.org.uk/). These resources supported the rapid and widespread delivery of core learning about the COVID-19 virus for all nurses working in practice in a pandemic context. The curation of free online learning resources in e-Learning for Healthcare and other repositories including OpenLearn and FutureLearn created a perpetual education resource. These resources remain available at no financial cost to individual nurses seeking continuous professional development.

2.3: Aims of the review.

The overarching aim of the scoping literature review was to explore how open education resources are used as continuous professional development in nursing. The specific questions that the review aimed to answer are:

2.3i: Do registered nurses use open education resources as continuous professional development? If so, why, and how do they use them?

2.3ii: What are the factors that influence the use of open education resources as continuous professional development in nursing?

2.4: Method.

2.4a: Design and data collection.

An initial broad literature search enabled the development a search strategy for the full scoping literature review by testing key words and phrases that were closely focused on the research question. It revealed that there is limited published research exploring the use of open education resources as continuous professional development in nursing. The scoping review framework developed by Arksey and O'Malley (2005) was adopted to provide a full picture of all the available literature relevant to nursing. The scoping review process is presented in figure 1 using the PRISMA flowchart (Page et al. 2021).

Alternative key words returned in the test search that were relevant to the research question, such as professional and employee training, were incorporated into the full database search. Irrelevant search terms such as college students and education prog* were excluded. Truncation and BOOLEAN operators were applied to extend the breadth of the search. Databases for the scoping literature search were identified by mapping those where results were returned in the initial broad literature search (see table 1). In addition, the scoping literature review included a search of relevant registers, these being Open Dissertations, ResearchGate, the Open Education resource Hub and JISC. The scoping literature search was conducted in March 2021.

Table 1: Final search terms, databases, and registers.

Search terms	Databases	Registers
CPD or 'continuing professional development' or 'professional development.' Registered nurse or nurse or staff nurse or graduate nurse or qualified nurse. Open education* resources or open education resources. Professional and employee training. Learning resources. Open access.	Education Source. Education Resource Information Centre (ERIC). Web of Science. Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete.	Open Dissertations. ResearchGate. Open Education Resource Research Hub (OERHH). Joint Information Systems Committee (JISC).

2.4b: Inclusion and/or Exclusion Criteria.

The inclusion criteria were peer-reviewed empirical research, published in the English language and focused specifically on open education resources as continuous professional development in nursing. The date range of publications was 2005-2021. Papers were excluded if the research focus was on college students, on the development of open education resources, or on the evaluation of specific open education resources.

2.5: The scoping literature search.

2.5a: Search Methods.

The PRISMA flowchart (see figure 1) details the process of the literature search and provides an audit trail for others to follow, as advocated by Saimbert (2017). The

search returned six hundred and six results. Five hundred and ninety-six papers were retrieved from databases and registers and ten were retrieved from other sources. Seven of the results were from author searching, one from JISC and two through hand-sifting from reference lists. There were two hundred and nineteen papers remaining from the database and registers search after three hundred and seventy-seven duplicates were removed.

The titles and abstracts of two hundred and nineteen papers were reviewed. One hundred and forty-four papers were discarded as they did not meet the scoping review inclusion criteria. Combined with the ten papers retrieved from other sources, a total of eighty-five full-text papers were reviewed and their eligibility for the scoping review assessed. There were sixty-four papers discarded, including all ten papers retrieved from other sources, because they were not primary research or were insufficiently focused on the research question. Ultimately, twenty-one full-text papers were taken forward to critical appraisal.

There were limited publications available through the databases, so a concurrent search was performed in Google Scholar using the same search terms as the database search for consistency (see table 1). The search returned one thousand six hundred and forty results but there were no significant papers within the first fifty results that were reviewed. An alert system was set up enable screening for novel papers, to offer a sense of developing scholarship around open education resources as continuous professional development in nursing. There were no relevant novel papers published between March and May 2021.

The scoping literature review included a search for current projects focusing on open education resources and continuous professional development in JISC and ResearchGate. The JISC search revealed a series of thirty-three guides to support the development and use of open education resources. None of these guides referred to the use of open education resources as continuous professional development specifically. Projects and publications that were available in ResearchGate focused on developing and promoting the use of Massive Open Online Courses. There were

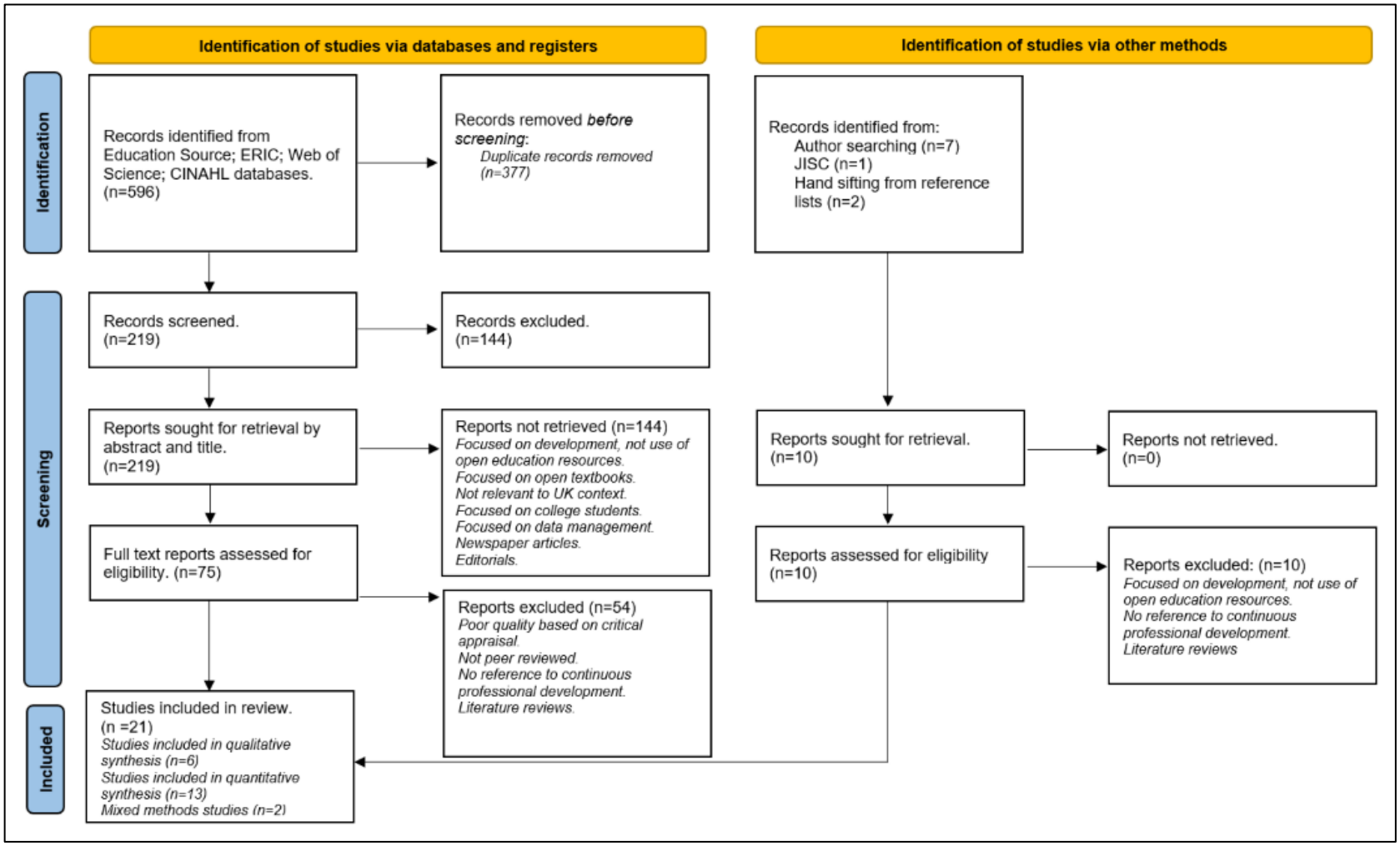


Figure 1: PRISMA flowchart (Page et al. 2021).

no publications regarding their use as continuous professional development. There were no relevant publications in JISC or ResearchGate that were relevant to the scoping literature review.

The database search highlighted research focusing on the development of Reusable Learning Objects (RLOs) within a pre-registration nursing programme. Reusable learning objects are a form of open education resources, designed as standalone resources that can be accessed, shared and modified for learning purposes (Mestre 2012). The papers retrieved in this area reported on research into reusable learning objects that was conducted by academics from the University of Nottingham and De Montford University. The reusable learning objects have been designed using multimedia components that engage students in interactive learning towards a single focused learning outcome and that enable self-assessment of knowledge (Windle and Wharrad 2010).

The research into reusable learning objects also focused on evaluation of nursing students' assessment performance when using them (Rolfe et al. 2012; Roberts and Windle 2017) or on the sharing and reuse of them (Windle et al. 2010b; Rolfe et al. 2012; Urstad et al. 2021). These papers were not eligible for inclusion in the scoping literature review, however, they were read in full. The researcher noted that the authors proposed reusable learning objects had potential for use as continuous professional development in nursing (Wharrad et al. 2005; Lymn et al. 2008; Williams et al. 2015). Consequently, the researcher conducted a focused author search to identify further published work that had specifically focused on the use of reusable learning objects as continuous professional development. No further publications were identified at the time of the scoping literature review.

2.5b: Review of publications in the Open Education Resource Research Hub.

A search of the Open Education Resource Research Hub was undertaken to situate the research in the wider context of scholarship in open learning. This was a three-year project that focused broadly on the impact of open education resources on teaching and learning practices. Its particular focus is on identifying the influence of openness. Even though there is a significant amount of data available from the

project, there was no specific research available about open education resources as continuous professional development.

The Open Education Resource Research Hub data summarises findings from fifteen projects and twenty surveys. It encapsulates more than six thousand responses from informal learners (50.3%, n= 3212), formal learners (24.7%, n=1578), educators (21.6%, n=1382) and librarians (3.4%, n=218) (de los Arcos et al. 2014). The report presents findings about the influence of open education resource use on student performance. It also reports on whether open licenced material is used differently to copyrighted online materials for learning purposes. The findings draw heavily on demographic data and analytics about engagement with the open education resources, completion rates and attrition. A notable point is that despite multi-national membership, the Open Education Resource Research Hub research is predominantly focused on the USA. It has a strong bias towards reducing the financial burden of education materials for students, through the development of open textbooks, which is not relevant to this research (de los Arcos et al. 2014; Brown et al. 2020).

The Open Education Resource Research Hub evidence report highlights a general low awareness of the existence of well-established open education resource repositories and of Creative Commons learning materials (de los Arcos et al. 2014). Individuals have greater awareness of familiar educational open resource sites such as YouTube, Khan Academy and TED, than of open education resource repositories. Consequently, they focus on using these resources above Creative Commons licensed open education resources. The Open Education Resource Research Hub educators report (de los Arcos et al. 2015) describes open education resource use by educators, formal and informal learners. Formal learners are those registered on a study programme towards a certificated academic award, whilst informal learners have accessed open education resources, on OpenLearn for example, but are not registered on a study programme.

Ten thousand registered users were invited to complete a questionnaire about their use of open education resources (Law and Jelfs 2016) but only one thousand one hundred and twenty-seven responded. In the sample educators made up 15% (n=169) of respondents, and 75% of those (n=127) were using OpenLearn for their professional development. The core users of OpenLearn were Open University students who were seeking to improve their confidence, to preview learning materials supporting module selection and to supplement their learning Law and Jelfs (2016). Although the response rate to the questionnaire was low and the sample were not

nurses, the data does confirm that some individuals do use open education resources as continuous professional development. The review of this data enabled the researcher to develop a broad understanding of the scholarship around open education resource use. This was helpful when situating the research.

The research outputs on the Open Education Resource Research Hub website confirm a predominant focus on the implementation and evaluation of open education resources within undergraduate programmes of study. There is a limited but useful summary of UK users accessing open education resources in health and social care and medicine (Open University OERHub 2015). The data which is presented in table 2 is quite dated and is incomplete, because twenty of twenty-three respondents did not indicate the intention of their study. Nevertheless, it does give an indication that some healthcare professionals in the United Kingdom are accessing health and social care open education resources for professional knowledge development.

Table 2: Summary of data from Open Education Resource Research Hub. Access to open education resources for healthcare.

OER users across the world - Total number of respondents 7,500.		
Total formal learners. (n=2132). UK (n=302) 14%.	Total informal learners. (n=3328). UK (n=754) 23%.	Total educators (n=1819). UK (n=227) 12%.
Number of users accessing medicine and/or health and social care OERS by category and reasons for access.		
FORMAL LEARNERS.	INFORMAL LEARNERS.	EDUCATORS.
FEMALE (n=2). Medicine (n=0). Health and Social Care (n=2). For professional development (n=0). To stay up to date in a subject area (n=0). Not specified (n=2).	FEMALE (n=17). Medicine (n=3). Health and Social Care (n=17). For professional development (n=0). To stay up to date in a subject area (n=0). Not specified (n=17).	FEMALE (n=2). Medicine (n=0). Health and Social Care (n=2). For professional development (n=0). To stay up to date in a subject area (n=2).

Number of users accessing medicine and/or health and social care OERS by category and reasons for access.		
FORMAL LEARNERS.	INFORMAL LEARNERS.	EDUCATORS.
MALE (n=1). Medicine (n=0). Health and Social Care (n=1). For professional development (n=1). To stay up to date in a subject area (n=0).	MALE (n=1). Medicine (n=0). Health and Social Care (n=1). For professional development (n=0). To stay up to date in a subject area (n=0). Not specified (n=17).	MALE (n=0).
TRANSGENDER (n=2). Medicine (n=0). Health and Social Care (n=0).	TRANSGENDER (n=5). Medicine (n=0). Health and Social Care (n=0).	TRANSGENDER (n=2). Medicine (n=0). Health and Social Care (n=0).

The data suggests that there is low engagement with open education resources for healthcare. This could foretell a problem with recruitment to the research, however, the data fails to account for the nurses who are accessing free online learning that is not specifically an open education resource.

2.5c: Quality Appraisal.

The final twenty-four papers were analysed using well-established critical appraisal tools. The relevant Critical Appraisal Skills Programme [CASP] checklists were applied for qualitative studies or randomised controlled trials (Critical Skills Appraisal Programme 2018). The CASP tool for quantitative research was not relevant for assessing the papers in the scoping literature review because of its focus on clinical interventions. The alternative Effective Public Health Practice Project quality

assessment tool was used for the analysis of non-randomised quantitative studies (Thomas et al. 2004). The Mixed Method Appraisal version 2018 Tool (Hong et al. 2018) was used to critically appraise the mixed method studies. The application of these tools enabled the researcher to conduct a robust assessment of the papers. Research papers with a moderate to strong level of trust after critical appraisal were included in the scoping literature review (see table 3). Three papers were discarded at this stage, due to a weak level of trust.

2.6: Grey literature.

Grey literature was reviewed in the process of the scoping literature search. The grey literature is not included in the scoping review because it does not contain specific research data. It is summarised below as it does offer context for the research by illustrating the drive use open education resources in the face of decentralisation of continuous professional development.

The Nursing and Midwifery Council's (2015) view of free online learning as a relevant and flexible way of meeting continuous professional development requirements is widely endorsed in the professional literature (Sweigart et al. 2014; Kirkup 2015; Power and Coulson 2015; Davis et al. 2016; Swigart and Liang 2016; Brennan 2017; Glasper 2018; Ryder et al. 2018; Nguyen-Truong et al. 2019; Berland et al. 2020). The grey literature encourages nurses to make use of open education resources for continuous professional development. This is supported because it can avoid nurses incurring individual costs for learning (Schellinger and Coghill 2020). The use of open education resources is proposed as supportive for nurses because it enables personal choice about learning content. It also affords breadth of access for nurses who are geographically isolated from other learners or learning facilities.

The grey literature offers a compelling argument for the use of open education resources as continuous professional development in nursing. At face value, the use of free online learning including open education resources appears to herald a rich opportunity for independent continuous professional development. The scoping literature review, however, highlights a paucity of published papers about nurses' continuous professional development practices using open education resources.

Table 3: Summary of critical appraisal and level of trust in papers reviewed.

Overall rating for CASP tools ***** 90% boxes 'yes'** **** ≥ 70% but < 90% 'yes'** *** ≥ 50% but ≤ 70% 'yes'**		**Overall rating for EPHPP and MMAT** **STRONG (no weak ratings)** **Moderate (one weak rating)** **WEAK (≥ two weak ratings)**	
***	**	STRONG	MODERATE
Singleton, H. et al. (2021). Deteriorating patient training using non-immersive virtual reality: A descriptive qualitative study. Forde, C. and Gallagher, S. (2020). Postgraduate Online Teaching in Healthcare: An Analysis of Student Perspectives. Thompson, J. et al. (2020). Virtual patients as a tool for training pre-registration pharmacists and increasing their preparedness to practice: A qualitative study. Coventry, T.H. et al. (2015). Organizational impact of nurse supply and workload on nurses continuing professional development opportunities. Elf, M. et al. (2015). Implementation of open educational resources in a nursing programme: experiences and reflections. Petit Dit Dariel, O. et al. (2013). Exploring the underlying factors influencing e-learning adoption in nurse education. Moule, P. (2006). E-learning for healthcare students: developing the communities of practice framework.	Shaw et al. (2014). E-learning portal for professional development in cancer care. Cooper, S. (2005). Contemporary UK paramedical training and education. How do we train? How should we educate?	Padilha, J.M. et al. (2021). Easiness, usefulness and intention to use a MOOC in nursing. Padilha, J.M. et al. (2019). Clinical Virtual Simulation in Nursing Education: Randomized Controlled Trial. Goldberg, L.R. et al. (2015). Relationship between participants' level of education and engagement in their completion of the Understanding Dementia Massive Open Online Course. Knox, S. et al. (2015). A national study of Continuous Professional Competence (CPC) amongst pre-hospital practitioners. Ricks, E. and Ten Ham, W. (2015). Health information needs of professional nurses required at the point of care. Kyalo, I.W. and Hopkins, S. (2013). Exploring the Acceptability of Online Learning for Continuous Professional Development at Kenya Medical Training Colleges. Beckett, H., (2020). Effect of e-learning on nurses' continuing professional development.	Riley, E. and Carmack, J.K. (2020). Adopting Open Educational Resources in a Nursing Informatics Course: An Evaluation of Student Performance and Course Satisfaction. Williams, J. et al. (2015). Using reusable learning objects (rlos) in injection skills teaching: Evaluations from multiple user types. Blake, H. (2009). Staff perceptions of e-learning for teaching delivery in healthcare. Lymn, J.S. et al. (2008). Pharmacology education for nurse prescribing students – a lesson in reusable learning objects. Wharrad, H.J. et al. (2005). Putting post-registration nursing students on-line: Important lessons learned.

2.7: Data abstraction and synthesis.

Relevant empirical research papers (n=21) were returned in the three broad areas of open education resource development and use, open education resources for nursing and healthcare education, and open education resources for continuous professional development (see table 4). The research papers were entered into NVivo Pro 12®. The researcher familiarised themself with the data, then used a process of coding to identify common themes (Braun and Clarke 2022). The process of data analysis and synthesis was quality checked through supervision. The results of the data from the scoping literature review are presented below.

2.8: Findings.

Data analysis resulted in the identification of four themes. These combine to impact on nurses' decision making about using free online learning, including open education resources as continuous professional development. The theme titles are incentives for open education resource use, engagement with open education resources, impact of open education resources on the student experience and barriers and challenges of open education resource use.

The four themes form a cyclical model which illustrates factors that influence nurses' engagement with open education resources (see figure 2 on page 36). The model supports the development of understanding about why nurses engage, then either reengage or cease to use open education resources in the future. A central thread throughout the four themes is critical analysis skills. This factor is the catalyst, at each stage of the cycle for engagement or disengagement with open education resources.

Incentives for open education resources use include nurses' need to revalidate with the Nursing and Midwifery Council. It is also influenced by educators' incentives to use or to promote the use of open education resources. Interactive engagement in open education resources is positively evaluated as an incentive for nurses to use them for professional learning. There is a significant positive impact on learning noted when open education resources are realistic and contextually meaningful for the nurses' practice context. The barriers and challenges for using open education resources as continuous professional development include time, lack of confidence in critical appraisal skills; and technical and accessibility issues (Andrewes 2021, in Jewitt 2021).

Table 4: Research focus in the literature on open education resource use.

Attitudes of academic staff towards implementing open education resources within a curriculum	**Academics and students' engagement with open education resources and online resources**	**Evaluation of online learning materials within a specific (taught) programme**
Cooper (2005). Contemporary UK paramedical training and education. How do we train? How should we educate?	Lymn et al. (2008) Pharmacology education for nurse prescribing students – a lesson in reusable learning objects.	Wharrad et al. (2005). Putting post-registration nursing students on-line: Important lessons learned.
Blake (2009). Staff perceptions of e-learning for teaching delivery in healthcare.	Ebenezer (2015). Nurses' and midwives' information behaviour: a review of literature from 1998 to 2014.	Moule (2006). E-learning for healthcare students: developing the communities of practice framework.
Kyalo and Hopkins (2013). Exploring the Acceptability of Online Learning for Continuous Professional Development at Kenya Medical Training Colleges.	Goldberg et al. (2015). Relationship between participants' level of education and engagement in their completion of the Understanding Dementia Massive Open Online Course.	Elf et al. (2015). Implementation of open educational resources in a nursing programme: experiences and reflections.
Petit dit Dariel et al. (2013). Exploring the underlying factors influencing e-learning adoption in nurse education.	Knox et al. (2015). A national study of Continuous Professional Competence (CPC) amongst pre-hospital practitioners.	Williams et al. (2015). Using reusable learning objects (RLOs) in injection skills teaching: Evaluations from multiple user types.
Nguyen-Truong et al. (2019). Academic and Community–Engaged Approach to Integrating Open Educational Resources in Population Health Course.	Ricks and ten Ham (2015). Health information needs of professional nurses required at the point of care.	Padilha et al. (2019) Clinical virtual simulation in nursing education: randomized controlled trial.

Attitudes of academic staff towards implementing open education resources within a curriculum.	**Academics and students' engagement with open education resources and online resources.**	**Evaluation of online learning materials within a specific (taught) programme.**
Padilha et al. (2021). Easiness, usefulness and intention to use a MOOC in nursing.	Forde and Gallagher (2020). Postgraduate Online Teaching in Healthcare: An Analysis of Student Perspectives.	Beckett, H., (2020). Effect of e-learning on nurses' continuing professional development
	Shaw et al. (2014). E-learning portal for professional development in cancer care	Riley and Carmack (2020). Adopting Open Educational Resources in a Nursing Informatics Course: An Evaluation of Student Performance and Course Satisfaction.
		Thompson et al. (2020). Virtual patients as a tool for training pre-registration pharmacists and increasing their preparedness to practice: A qualitative study.
		Singleton, H. et al., 2021. Deteriorating patient training using non-immersive virtual reality: A descriptive qualitative study

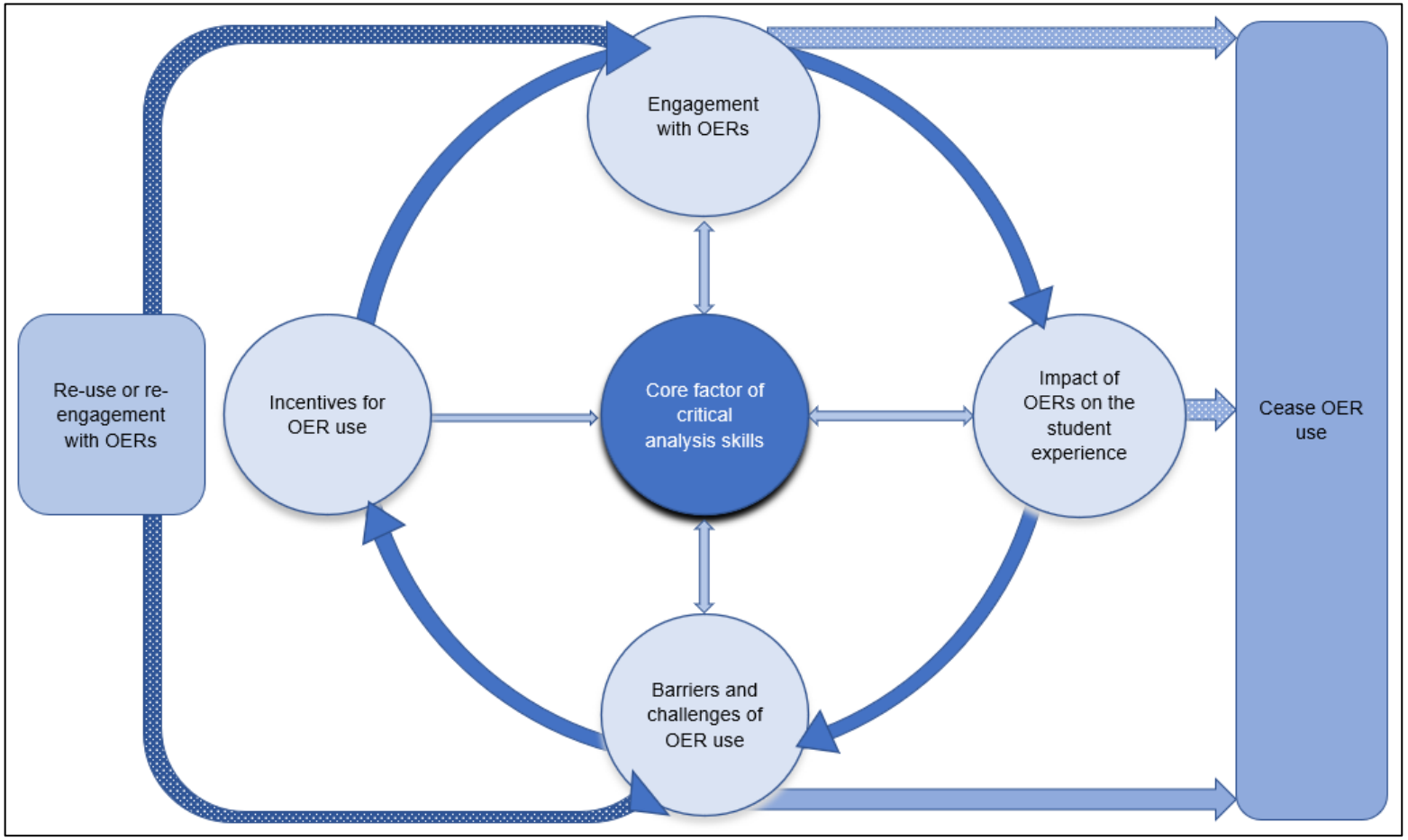


Figure 2: A cyclical model to illustrate factors that impact on learners' engagement with open education resources.

The barriers and challenges for using open education resources as continuous professional development include time, lack of confidence in critical appraisal skills; and technical and accessibility issues (Andrewes 2021, in Jewitt 2021). The perception of their value as continuous professional development from managers and educators also impacts on nurses' engagement with them. The four themes are discussed in full below.

2.8a: Incentives for open education resource use.

The theme incentives for open education resource use reflects the focused intentions of health care professionals to complete their continuous professional development activity. It also refers to the incentives of educators to use open education resources in the delivery of learning in taught undergraduate or continuous professional development programmes. The research data focuses predominantly on the educational perspective, specifically the use of open education resources within face-to-face, taught programmes of study, as opposed to standalone open education resources (Lymn et al. 2008; Blake 2009; Kyalo and Hopkins 2013; Williams et al. 2015; Forde and Gallagher 2020; Thompson et al. 2020; Padilha et al. 2021).

Only one study explores open education resource use outside of a taught course, in this case for mandatory training (Beckett 2020). The sequential explanatory study investigates the experiences of thirty-nine registered paediatric nurses who were required by the Welsh Health Board to complete mandatory e-learning modules. The participants described the e-learning as being valuable. The data revealed however, that most participants only completed the mandatory modules and did not engage with a range of additional e-learning resources that were available to them (Beckett 2020).

The incentive for open education resource use appears to be driven by educators. Once open education resources are integrated within a taught programme, the students have the incentive to use them to complete their course. Exposure to open education resources is proposed to highlight the potential for their independent use as continuous professional development in the future (Lymn et al. 2008; Blake 2009; Kyalo and Hopkins 2013; Williams et al. 2015; Forde and Gallagher 2020; Thompson et al. 2020; Padilha et al. 2021). In 2009, a questionnaire survey exploring the perceptions of one hundred and two nursing and midwifery staff at the University of

Nottingham around e-learning highlighted educators' intention to use e-learning (Blake 2009).

The term e-learning in Blake's (2009) research mostly referred to electronic resources of the time, including PowerPoint, e-mail and websites. The research does refer however to the developing use of online simulation exercises for professional learning in nursing. This includes the use of virtual learning environments to post lecture notes, using film or audio clips in the classroom and using reusable learning objects. The reference to educators' intention to use reusable learning objects may be biased by an organisational drive to use them within the pre-registration nursing curriculum. It does reflect an incentive by educators to use reusable learning objects as supplementary learning at the time of the research (Blake 2009).

The attitude of educators towards open education resources is proposed to be key to their adoption. Petit dit Dariel's (2013) study explored the attitudes of thirty-six United Kingdom nursing academics towards adopting e-learning. Four types of educators were described, e-learning advocates, humanist educators, sceptic educators and pragmatist educators. Only the e-learning advocates actively encouraged open education resource use, believing their role was not just to deliver all the required information to the learners. They emphasised the need to go beyond imparting information, to equip learners with relevant information technology skills for their professional role. This understanding of the students' future professional role incentivised them to integrate open education resources in their teaching practice.

Kyalo and Hopkins (2013) present quantitative data gathered from one hundred and twenty lecturers in Kenya, 48.3% of whom were nurses. The research considers their experiences and attitudes around using e-learning as continuous professional development. The lecturers perceived that online learning was less valued by managers than [accredited] formal learning. Managers in research focus groups disputed this, but they went on to propose that online learning is a way to reduce organisational costs of continuous professional development. Beyond this they argued that it offers more flexibility to individuals, essentially placing more value on it than on formal learning. At the start of the study, 31.7% (n=38) lecturers had used e-learning in the past and 20% were still using e-learning at the time of the study. The data indicated that 73.3% (n= 88) of all lecturers expressed their intention to engage in e-learning in the near future. This significant projected increase in open education resource use is likely to be the result of the organisation's incentives to shift to more online learning at that time.

Where open education resources were integrated into the course curriculum students felt incentivised to engage with them, to complete their programme of study (Forde and Gallagher 2020). They rated the open education resources positively in terms of contributing to knowledge development and stated an intention to use them for continuous professional development in the future (Williams et al., 2015). A study by Knox et al. (2015), which explored paramedics attitudes to continuous professional development, indicated the high value of practical learning which was relevant to their roles. This was in stark contrast to their experiences using e-learning and participants placed low value on e-learning alone. They did not feel incentivised to use e-learning in isolation as continuous professional development because of the lower value they placed on it. Ebenezer (2015) reviewed the online information seeking behaviour of nurses, finding that their nurse participants preferred to seek advice from humans over online information. Nurses did feel incentivised to seek online information, but only in the moment at the patient's bedside. They did not directly associate online information-seeking with continuous professional development.

Lymn et al. (2008) used reusable learning objects to support pharmacology education for eighty-four nurse prescribing students. The evaluation of the reusable learning objects as tools to support learning was positive and several students continued to access these tools post-qualification. The pre-registration pharmacist participants, who were exposed to virtual patient case studies as means to develop prescribing skills and knowledge, found them to be powerful learning tools (Thompson et al. 2020). Similarly, nurses who were exposed to a Massive Open Online Course to support professional skills development in self-care for patients stated a new incentive to use open education resources as continuous professional development (Padilha et al. 2021). The developing capability of technology has increased the opportunity of educators to incentivise open education resources use by integrating engaging activities that are meaningful to learners' practice.

The theme incentives for open education resource use reflects a developing intentional focus on the integration of open education resources within academic programmes. This opens the mind of nurses to the potential of open education resources for independent continuous professional development after registration with the Nursing and Midwifery Council. The incentive to develop and use open education resources reflects the recognition of time and cost pressures on organisations and on individual students for professional learning. It seeks to provide a cost-efficient and flexible means to undertake continuous professional

development. The incentive for use is increased when the open education resources are relevant in the context of professional practice and individual development needs.

2.8b: Engagement with open education resources.

The theme engagement with open education resources reflects the influence of individuals' previous experiences of using open education resources on their future use of them. It also reflects the factors that influence their engagement with them. These factors are the level of interactivity of the resource, its relevance to learning needs, the time investment required and mechanisms for feedback on learning.

Time is a significant factor influencing individuals' engagement with open education resources and their experiences with them. Elf et al. (2015) reported that participants' engagement with open education resources gave them a broader view of course topics beyond the facts disseminated by the educators. Lymn et al. (2008) reported that learners had a greater depth of understanding following their engagement with reusable learning objects. In both cases, participants in the studies reported investing significant time engaging with online resources. They also spent significant time working to develop information technology and critical appraisal skills so that they could use the resources effectively.

Participants consistently spent longer than they anticipated engaging with the open education resources (Lymn et al. 2008; Williams et al. 2015). Participants in Beckett's (2020) study described how they spent time engaging with online mandatory training as required by their employers. The length of time required for learning was an issue and the participants expressed dissatisfaction about having to learn in their own time at home. Some nurses in Beckett's (2020) study had engaged with mandatory e-learning within their work hours, at work, but they reported being interrupted by colleagues because they were needed to support clinical staff. This resulted in a feeling that learning was devalued.

Ricks and ten Ham's (2015) descriptive survey of one hundred and thirty-six health and social care professionals' information seeking behaviours found that eighty-three participants (61%) spent between 15 minutes to more than one hour per week, accessing information at the bedside around treatment, prevention and control measures and disease management protocols. Unlike Ebenezer's (2015) research,

participants reported that they did associate Internet searching with learning for continuous professional development. They reported updating information using Internet-based resources, although this was not necessarily through completion of an open education resource. In total ninety-two participants (68%) expressed a wish to be supported with the continuous professional development by receiving health-related information on a regular basis, ranging from weekly to monthly. This was proposed to save them the significant amount of time they spent searching for learning.

Blake's (2009) study reported that participants had high levels of engagement with reusable learning objects. The research was undertaken during a concerted move to implement reusable learning objects within an undergraduate nursing programme at the time. Of educators with reusable learning object experience, 23.5% engaged with them in an authoring context. There were 52% who used them with pre-registration students, 32.4% with post-registration students, 10% with postgraduate students, and 6% with students outside of their school. Of those educators using reusable learning objects in teaching, 62% had done so within the last six months. They predominantly engaged with resources in their institutional repository, with a few participants using external resources.

Elf et. al's (2015) qualitative study exploring the implementation of open education resources within a nursing programme at a Swedish university reported similar findings. Students relied predominantly on the [video] resources that had been produced and recorded at their own institution. They reported difficulty locating open education resources outside of the institution that accurately reflected their culture and legal system. This was important as the relevance of the learning resource to nursing practice is key to engagement. Williams et al. (2015) described how educators in their study were using reusable learning objects with their students. The educators used them as teaching supplements, recognising that they do not negate the need for face-to-face teaching. Engagement with the reusable learning objects was supported with human interaction, which served to strengthen the relevance of them for students.

Recent studies by Thompson et al. (2020) and Singleton et al. (2021) present the use of virtual reality as a highly interactive resource that supports active student engagement. Thompson et al. (2020) describe how immediate animated feedback within a virtual patient case study helped to develop a sense of professional responsibility for students. Participants were more active in reflection on learning after

using the virtual patient case study, compared to non-interactive case studies. Virtual reality resources were described as highly engaging and effective at creating enhanced realism of learning for nursing practice. Singleton et. al's (2021) study explored the use of non-immersive virtual reality technology for developing skills to manage deteriorating patients. Students reported feeling that they could engage with the virtual reality simulation in an effective way that felt less pressurised and felt like a safer environment for applying learning than practice placement. The interactivity of the resources in both these studies increased learners' engagement with the technology-based learning.

The level of engagement with open education resources is also influenced by the characteristics of the community who are learning (Wharrad et al. 2005; Moule 2006). Wharrad et al. (2005) explored the experiences of twenty registered nurses who were completing a part-time degree programme. Participants found the web site valuable for sharing learning resources, for peer communication and support. There was a significant correlation between those students who accessed the site from home and communication with peers on the programme. Participants who expressed having computer anxiety found it difficult to engage with the website and this had a statistically significant impact on peer communication.

Moule's (2006) case study explored the development of communities of practice using online systems. Through the analysis of online diaries, online discussions and interviews, Moule explored students' commitment to their online learning groups. She concluded that whilst not all students were committed to their groups, where students did engage with the website, there was evidence of joint enterprise and shared repertoire online. Goldberg et al's (2015) analysis of data drawn from a Massive Open Online Course for dementia with nine thousand, five hundred and thirty-eight registrations, revealed a significant correlation between the number of forum posts and completers, versus non-completers. Based on their findings, it is concluded that levels of engagement with the learning appear to influence completion or success.

The theme engagement with open education resources focuses on the need for them to be accurate, meaningful and realistic, and framed within a relevant cultural and legal context. For learner, receiving instant feedback to support assessment of their understanding helps them to facilitate practice learning, in a safe environment without the pressure of making a mistake in placement. The amount of time spent engaging with open education resources is correlated with increased depth of learning and with completion of learning programmes.

2.8c: Impact of open education resources on the student experience.

The theme impact of open education resources on the student experience reflects the added value that they brought to individuals' learning. Many students had a positive qualitative experience of using open education resources. They reported that they gained a broader view of topics being studied when they used open education resources, than when they received information directly from the educators alone (Lymn et al. 2008; Elf et al. 2015; Forde and Gallagher 2020). Exposure to open education resources resulted in students highlighting their value, which in turn created an intention to use them in the future (Lymn et al. 2008; Padilha et al. 2021). The impact of open education resources was positive because they supported flexibility of time and space for study, especially for students with a wide geographical spread from the campus, and for postgraduate students (Blake 2009).

Where virtual reality was used, students enjoyed interacting with the resources, describing how using a variety of learning approaches enriched their study experience (Thompson et al. 2020; Singleton et al. 2021). Whilst participants in Beckett's (2020) study engaged with traditional open education resources and not virtual reality resources, they did highlight how the content was meaningful for their practice. This led to them actively applying the knowledge in practice. Learners' experiences of using open education resources were not universally positive, however. Elf et al. (2015) reported students' frustrations about the time required for Internet searching and the inaccuracies found in open education resources that they had sought out themselves.

The data presented in this scoping literature review reinforces that human interaction is key to participants' learning using Internet-based resources. This human interaction includes preparing learners to use open education resources (Wharrad et al. 2005; Blake 2009; Elf et al. 2015). Knox et. al's (2015) data reinforces that using e-learning as the sole means of continuous professional development, without opportunities for social interaction, is very poorly rated. This is reinforced in the findings of Beckett (2020). Online platforms for learning and for collaborative teamwork have been found to support peer engagement and to develop communities of practice, although this is not uniform or guaranteed (Wharrad et al. 2005; Moule 2006). In the case of virtual reality resources, students referred to their power in supporting the development of critical thinking and communication skills in a real-world context (Thompson et al. 2020; Singleton et al. 2021).

There is a developing body of evidence supporting the significant impact on the level and depth of learning that open education resources afford. Riley and Carmack's (2020) retrospective survey explored course outcomes for seventy students doing a text-book module and seventy-three using an open education resource supported module in nursing informatics. They found a statistically significant difference in mean course grades for the open education resource group, compared to the textbook group. Williams et al. (2015) proved that reusable learning objects have had a positive impact on student knowledge, on-course success and knowledge retention. Padilha et al. (2019) recorded statistically significant differences in knowledge retention immediately after their virtual reality intervention for physiology education, and at two months post-intervention, compared to a control group. Furthermore, students' learning satisfaction was significantly higher in the virtual reality intervention group.

The theme impact of open education resources on the student experience reflects a predominantly positive experience, provided that open education resources are realistic, accurate and appropriate for purpose. This requires open education resources to reflect the skills, knowledge and cultural context of the learners. The data provides clear evidence of the potential for enhanced and sustained professional learning through open education resource use. Blended learning approaches are considered a valuable alternative to open education resources alone, exploiting the power of face-to-face learning to help learners apply new knowledge in their practice context. Virtual reality resources that focus on active engagement and provide learners with instant feedback on their actions have been demonstrated to have a significant positive impact on learning.

2.8d: Barriers and challenges of open education resource use.

The theme barriers and challenges of open education resource use incorporates a range of factors that individuals face when seeking to implement or to use open education resources. This can be in the context of curriculum-based or independent learning. Time is frequently cited as a barrier to open education resource use, both for educators (Blake 2009) and for learners (Cooper 2005; Lymn et al. 2008; Shaw et al. 2014; Ebenezer 2015; Ricks and ten Ham 2015; Beckett 2020). A significant time factor for participants is having to complete continuous professional development in their own time, because of employers' difficulties staffing the health service (Cooper 2005).

For educators, time refers to developing knowledge and skills to create open education resources. It also concerns the investment of time required to monitor learners' engagement and to respond to their calls for support with finding resources, or their concerns of trust or accuracy of learning content (Blake 2009). For learners, time refers to their efforts finding open education resources, evaluating their quality, engaging with them and reflecting on the learning (Lymn et al. 2008; Shaw et al. 2014; Ebenezer 2015; Ricks and ten Ham 2015). Lymn et al. (2008) highlight how computer anxiety and unfamiliarity with technology significantly increases the time commitment required.

The attitudes of educators have been found to create a barrier or challenge for open education resource use. Kyalo and Hopkins' (2013) data presents a prevalent view that institutions and professional bodies place less value on online qualifications than on formal education programmes delivered face-to-face. Despite their managers disputing that this is the case, the participants view it as a cost-saving exercise. Educators in Blake's (2009) study experienced what are described as persistent barriers to e-learning, meaning that they were present all or most of the time. These barriers were lack of confidence with e-learning, lack of time to prepare materials and lack of guidance and support when developing and using e-learning.

Some issues were raised about the problems with the Internet infrastructure and students' information technology skills (Blake 2009). A few participants specifically reported barriers that were caused by negative attitudes. There were doubts raised by participants about the difference in quality between face-to-face and online discussions. Their concerns focused specifically on the capacity of e-learning to develop the skills of caring competence required for the profession, compared to face-to-face teaching. Participants were also concerned that students would not access e-learning, which results in a higher staff workload monitoring engagement (Blake 2009).

The influence of educator attitudes towards the implementation of e-learning is reinforced in the research of Petit dit Dariel et al. (2013). Enabler educators supported the development of open education resources as a means for nursing students to learn information technology skills for their professional work. They had trust in students to expand their knowledge through wider reading and through engagement with open education resources. The attitude of the other three categories of educator, however, impacted negatively on the adoption of e-learning resources for nursing.

Humanist educators avoided using e-learning because they valued human interaction and believed that e-learning causes the essence of nursing to be lost (Petit dit Dariel et al. 2013). Sceptic educators doubted that technology could improve learning outcomes. They believed that nursing students can only learn their profession through practical experiences and felt that pre-registration nursing students should not learn by finding things out for themselves. Pragmatic educators were positive about using technology in nursing education, but they used it as a bank of lecture notes rather than an opportunity to challenge traditional teaching practices (Petit dit Dariel et al. 2013). Like the humanist and sceptic educators, the pragmatist educators considered it their responsibility to cover all the programme content to ensure the development of safe and competent nurses. The attitudes of the humanist, sceptic and pragmatic educators display a position of maintaining control over the professional learning of their students, which serves as a barrier in implementing e-learning.

Elf et al's. (2015) research found that educators and nursing students relied on their own institution's open education resources because external resources that were not culturally sensitive created an attitude of distrust. Finally, technical access and issues create a barrier for engaging with open education resources. This barrier arises because of the level of technical skills of the students (Wharrad et al. 2005; Ebenezer 2015), their access to and investment in technology (Singleton et al. 2021) and stability of Internet (Blake 2009; Nguyen-Truong et al. 2019). Furthermore, the accessibility of the open education resources and glitches within the learning systems can create barriers to engagement (Blake 2009; Williams et al. 2015; Beckett 2020; Forde and Gallagher 2020; Thompson et al. 2020).

Learners' attitudes also impact on their use of open education resources. Some learners judged that open education resources would not meet their needs for knowledge and skills development (Knox et al. 2015; Beckett 2020). They preferred face-to-face human interaction that reflects the social nature of health-care practice. Ebenezer (2015) reported that their nurse participants had a marked preference for interactive and human sources of information over open education resources.

The theme barriers and challenges of open education resource use reflects a wide range of human and technical factors that impact on learners' engagement with open education resources for continuous professional development.

2.9: Discussion.

Nurses must undertake continuous professional development to remain on the professional register, not just in the United Kingdom but worldwide (National Council of State Boards of Nursing 2012; Nursing and Midwifery Council 2019b; Nursing and Midwifery Board of Australia 2020). The use of open education resources as continuous professional development is widely endorsed in the professional literature (Southernwood 2008; Kirkup 2015; Nursing and Midwifery Council 2015; Power and Coulson 2015; Davis et al. 2016; Swigart and Liang 2016; Brennan 2017; Glasper 2018; Nguyen-Truong et al. 2019; Berland et al. 2020). The main incentives for using open education resources for continuous professional development are that they make learning more accessible and individualised, and they are cost-free to the end user. This is important because of the pressures nurses encounter in completing continuous professional development in the face of the learning culture, leadership and workload issues (Coventry et al. 2015).

The use of e-learning as continuous professional development is reported to increase the reach of learning resources and to create opportunities for health care professionals who work or live in remote areas to develop their professional knowledge for practice. Nurses who live remote to a learning organisation, or who have little opportunity to meet with others for continuous professional development, can benefit from access to open education resources (Ramsden et al. 2022). There is little evidence to date about the extent to which nurses are using open education resources for continuous professional development. There is an overall sense however, that continuous professional development is being devalued due to the emphasis on cost-reduction, particularly for employers (Kyalo and Hopkins 2013). This sense of devaluing may impact on nurses' engagement with open education resources as continuous professional development. Berridge et al. (2007) suggest that incorporating discussion about individual continuous professional development activity within appraisals helps to demonstrate the value placed on it. This is an important factor if nurses are to feel encouraged to find and engage with open education resources as continuous professional development.

The transfer of responsibility for continuous professional development to individual nurses, particularly in the context of open education resources, bears both overt and covert costs. Overt costs reflect nurses' access to digital technology and reliable Internet infrastructure, and to their skills to use Internet-based learning. The United Nations Commission for Social Development (2021) highlights the disparities in digital

technology and Internet provision across the world. They warn how digital poverty disadvantages individuals in many ways, including learning.

Covert costs refer to individuals completing learning in their own time, whilst balancing work and other roles and responsibilities (Penz et al. 2007). This causes nurses to feel frustrated and dissatisfied, causing a negative impact on the way that they engage with open education resources (Coventry et al. 2015). Nurses' frustrations are compounded by the individual challenges of finding and accessing open education resources and critically appraising them before use. There is general low awareness of open education resource repositories in the general population (de los Arcos et al. 2014) and it is more usual for nurses to rely upon locally developed resources for professional learning (Blake 2009; Elf et al. 2015). Nurses feel reassured when accessing local resources as they are viewed as quality assured by virtue of their provenance.

Nurse educators and student nurses have expressed concerns about finding and accessing open education resources independently, and about critically evaluating their relevance for the local cultural and legal context of practice (Elf et al. 2015). There was no specific reference in any of the literature reviewed to participants' understanding and confidence in adapting open education resources for local use. The current model of decentralised continuous professional development is unlikely to change, so there is an imperative for nurse educators to help learners develop relevant knowledge and skills, including how to understand and apply Creative Commons licenses so that open education resources can be tailored for local use.

E-learning, as a standalone resource, has been poorly rated in terms of preparing undergraduate students for nursing as a socially based healthcare practice (Knox et al. 2015; Beckett 2020). There is a growing evidence base, however, that open education resources have a positive impact on nursing students' assessment performance (Windle et al. 2011). Science-based reusable learning objects replaced traditional chemistry lectures, and the evaluation compared assessment scores for student groups who had used the reusable learning objects, with those who had learnt through traditional lectures alone. Aside from quantifiable evidence around assessment performance the students rated the reusable learning objects positively because they afforded flexibility of access and control over engagement. Students also valued the fact that the reusable learning objects supported the self-assessment of knowledge within them.

Engagement with reusable learning objects as part of an undergraduate programme is proposed to support students to develop skills for self-managed learning post-registration (Windle et al. 2010b; Windle et al. 2011; Rolfe et al. 2012). Arguably, science-based reusable learning objects may be useful for continuous professional development in some situations, such as updating scientific knowledge for nurses moving clinical speciality. The emphasis of post-registration continuous professional development, however, is on broader learning, drawing on evidence-based practice, to provide the highest level of care and support to patients (Nursing and Midwifery Council 2018; 2019a; 2019b) The data in this scoping literature review highlighted the importance of learning being a social context, that enables nurses to discuss the application of the evidence in different contexts. To be meaningful and valuable, the learning resources must facilitate critical reflection through processes of real time feedback whilst learning (Padilha et al. 2019; Thompson et al. 2020; Singleton et al. 2021).

A blended approach of e-learning and human interaction is recommended to maximise learning potential (Glogowska et al. 2011; Lawn et al. 2017). The only exception where virtual reality resources might be used exclusively, is in simulation, provided that they offer a safe environment for active engagement and decision-making in the context of a clinical situation, with immediate feedback on the learners' actions and decisions (Singleton et al. 2021).

The scoping literature review highlights the key enablers, barriers, and challenges to using open education resources as continuous professional development. These factors are time, attitudes of educators and learners, technical issues impacting on access, and confidence in critically appraising the quality of the resources. There is clear disparity of opportunity for engaging with open education resources that arises from digital poverty. Employers, who require the continuous professional development to be completed, are key in ensuring that all employees have access to the technology required to engage with it. Building in plans for continuous professional development at appraisal can help to demonstrate that employers place value on the continuous professional development of their nurses. Educators have a key role to play in equipping nurses with the relevant knowledge, information technology and critical appraisal skills for meaningful engagement with open education resources to support their continuous professional development.

2.10: Conclusion.

The scoping literature review reveals that there is limited data available to evaluate the extent to which registered nurses are using open education resources as continuous professional development, or how they are using them. As such, it demonstrates a gap in the professional knowledge that this research will address.

The scoping literature review goes some way to understanding the factors that influence the use of open education resources. These are time investment, attitudes of educators and learners, and technical challenges including accessibility and access issues. Concerns about quality control in relation to the accuracy of open education resources is also highlighted as a significant factor that impacts on nurses' engagement with open education resources as continuous professional development.

The review highlighted that a focus on the realism, meaning and relevance of the learning resources to learners' practice is central to their use. The rapid development of digital technology offers opportunities for registered nurses to engage in increasingly interactive learning as continuous professional development. There are challenges to accessing Internet-based learning caused by digital poverty and information-technology skills for some individuals. Employers who require their staff to update using open education resources need to consider how they can facilitate access to technology and skills support for all staff.

Educators have a responsibility to prepare the nursing workforce for locating, critically appraising, adapting and completing learning using open education resources. This can be achieved by integrating open education resources within a taught curriculum as a starting point, where the relevant skills development can be supported. This is important to address as open education resources offer opportunities for nurses to access a wealth of learning content based on their individual needs or interest, whilst supporting the open movement and United Nations sustainability goal of quality education for all.

There is evidence that the use of open education resources in undergraduate nursing programmes has a positive impact on the development of science-based knowledge for practice. The focus of post-registration continuous professional development, however, is on the application of evidence from nursing research. The challenge for nurse educators is to develop relevant and meaningful open education resources in this context, which support social learning approaches and critical reflection. Educator

support is key to developing nurses' awareness of the use of open education resources as a means of completing post-registration continuous professional development.

Charmaz's (2014) approach to constructivist grounded theory supports an early literature review to situate the research. Adopting a systematic approach is contentious because it seeks a highly informed overview of the field. In respect of this research a comprehensive structured scoping literature review methodology was adopted, focusing on research and literature that is directly relevant to nursing continuous professional development. Research and literature focused on other health care professionals was purposefully excluded from the search. The scoping review has confirmed a gap in the scholarship of continuous professional development and open education resources. The memo below (see researcher notes 2) captures the researcher's early concerns about the potential impact of a comprehensive scoping literature review on the research design and data collection and analysis. It also explores the actual impact, as judged by the early data collection.

Researcher notes 2: Reflections on the risk of the scoping literature review leading data collection.

> *I have adopted a structured scoping review methodology to get a rapid appraisal of what literature is available in the field and to ensure that the proposed research will generate new knowledge. I am mindful that conducting an in-depth review of the literature prior to undertaking the research might impact on how I design the research and how I conduct the interviews.*
>
> *I feel confident about conducting a comprehensive scoping literature review because the initial broad literature search to confirm the search terms revealed a paucity of research in the field. I needed to have a clear understanding of current scholarship in the field to justify and situate the research for myself and for ethics approval.*
>
> ***Postscript reflection:***
>
> *I was worried about leading the interview because of undertaking a comprehensive scoping review prior to the research. The pilot interviews were helpful in focusing my attention on using a single question as far as*

possible, for generating data. The opening question asked participants to recount their individual experiences of using open education resources as continuous professional development. I did not mention any of the themes from the scoping literature review. The participants were open to discussing their experiences. Some of the challenges they raised themselves, without prompting, broadly reflect the findings of the scoping review. The reference to challenges identified in the scoping review were however, only briefly discussed in the research interviews. This helped me to have faith in asking the question and relying on the constructivist grounded theory framework for the inductive generation of knowledge.

2.11: Limitations of the scoping literature review.

The main limitation in this scoping literature review is the limited amount of research available, specifically focused on the use of open education resources as continuous professional development for nursing practice. Whilst all the research papers reviewed were rated as offering strong or moderate trust in the data presented, the response rate was noted to be generally poor, with three studies stated as having ≤60% response (Blake 2009; Ricks and ten Ham 2015; Padilha et al. 2019). Four studies were unclear about response rates (Goldberg et al. 2015; Knox et al. 2015; Riley and Carmack 2020; Padilha et al. 2021). Furthermore, where studies were undertaken with students engaging in open education resources as part of a taught programme of studies in the researcher's own organisation, there may be a potential for bias if the student and researcher are known to each other.

2.12: Key points.

- There is gap in the professional knowledge base about nurses' use of open education resources as continuous professional development, that the research will address.
- Open education resource use is influenced by time, attitudes of educators and learners, technical challenges, including accessibility and access issues, and quality control in relation to the accuracy of content.
- A focus on realism, meaning and relevance of open education resources to learners' practice is central to their use.
- Educators have a key role in preparing the nursing workforce for finding and using open education resources, so that they provide relevant and meaningful continuous professional development opportunities.

3: Methodology.

This chapter presents the rationale for adopting a social constructivist approach for the doctoral research. A brief analysis of quantitative and qualitative paradigms is offered, and the philosophical assumptions of social constructivism are discussed. The three approaches to grounded theory methodology are summarised and justification provided for locating the research in constructivist grounded theory.

Selection of the right, or best methodology to answer the research question is fundamental to success. Success is judged by the quality of research process and output, and its relevance to the group of people that it explores and serves (Warburton 2012). The selection of the methodology is driven by the researcher's ontological, epistemological, and axiological assumptions, in the context of the research question. Analysing these assumptions supports framing of the research question in a robust way, as described by Warburton (2012), this process being important for the research question to be answered effectively.

This chapter presents the research process, framed in the constructivist grounded theory methodology developed by (Charmaz 2014) and it outlines ethical issues relevant to the study.

3.1: Broad philosophical considerations.

3.1a: Ontology, epistemology, and axiology in the origins of knowledge.

Ontology refers to beliefs about the nature of knowledge and epistemology to beliefs about how people receive knowledge, or how we know the truth (Denzin and Lincoln 2018). Classical philosophy, developed in Greece in the sixth century BC, was positivist in its application. Philosophers of the time sought to develop scientific evidence of how nature, objects and entities in the world fitted together. Evidence was observable and repeated experimentation demonstrated consistency of results. As such, the ontological assumptions focus on a single reality and epistemological assumptions were based on measuring knowledge using reliable tools and techniques.

The nature of knowledge developed in this way is necessarily focused on the past, on observations that were undertaken. There was limited potential to develop

knowledge for the future, except in sciences such as astrology where future patterns of the solar system could be predicted from the past. In medicine, where links between lifestyle and environmental factors could be observed and measured, positivist research could be used to predict the later impact on health. Whilst contributing to the world body of knowledge, there has been criticism about classical philosophers creating high-level abstract positivist knowledge, or pure theory that has little bearing or relevance to ordinary people, and that is separated from the humanness of life.

In the positivist paradigm the axiological assumptions are of a researcher positioned outside of the research, maximising their separateness from it and minimising their influence on it in the interest of objectivity (Creswell and Poth 2018). In summary, the positivist paradigm values the pure application of objective measures, with no human interference, to know the singular truth about the phenomenon under study.

3.1b: Ontology, epistemology, and axiology in qualitative research.

Over the course of the 20th century an alternative philosophical view of knowledge developed. This view is founded on the beliefs that the world exists independent of human mind, but knowledge of the world itself is always a human and social construction (Berger and Luckmann 1991). The need to develop pragmatic and real-world knowledge that has value and utility for people in their lives and in their work resulted in the emergence of qualitative research approaches. Since human experience is variable and cannot be understood through observation alone, assumptions about the nature of knowledge altered. A belief that there are multiple realities or truths was accepted and alternative ways to understand the truths were established.

The social constructivist paradigm was developed in response to these changing views, its focus on developing understanding through social processes (Denzin and Lincoln 2018). The acknowledgement that knowledge includes multiple realities is a feature of social constructivism. In this paradigm learning is socially constructed and arises from human interactions. Mutual understanding is developed using verbal and non-verbal language to objectify individuals' experiences. These factors led qualitative researchers to begin gathering data through interviews (Denzin and Lincoln 2018).

Axiological assumptions also altered, in recognition of the fact that qualitative research is value laden. If it is assumed that researchers in the social constructivist paradigm need some understanding of the field under study, it must be acknowledged that they inevitably bring some bias to it by virtue of preexisting knowledge. To address this in the research process, it is proposed that researchers must openly discuss the values that shape the narrative and the analysis (Creswell and Poth 2018). In social constructivist research methodologies this is supported through the act of reflexivity and the sharing of memos developed throughout the research process. Reflexivity refers to the researcher's critical analysis of their influence on the research and memoing refers to the process of recording notes throughout the research process that support reflexivity.

3.2: Selection of the research approach.

The research is based in the real-world of registered nurses actively engaging in learning to meet their professional role requirements. It necessarily draws on the first-hand experiences of the participants in context and those experiences are likely to have some differences, resulting in multiple realities. The research seeks to understand experiences that cannot simply be measured or observed, therefore a positivist approach is inappropriate. A social constructivist approach will enable the collection of data to represent and understand the participants' multiple realities around the use of free online learning as continuous professional development (Denzin and Lincoln 2018; Creswell and Creswell 2023).

A narrative social engagement with the participants is essential if the data is to enable clear understanding of their perspectives (Charmaz 2014; Denzin and Lincoln 2018; Creswell and Creswell 2023). The area of research is clearly focused on specific activities for continuous professional development, in the context of a professional nursing role. A level of knowledge and understanding of the context is required, to enable interpretation of the meaning of data to be collected.

The researcher is a registered nurse, required to undertake independent continuous professional development for revalidation. As such, they necessarily bring their own knowledge and understanding of the phenomenon to the research. The researcher will purposefully position themself as an agent for data analysis in this context, as is appropriate in social constructivist research (Charmaz 2014; Yip 2024).

Accountability within the research process requires a demonstration of researcher influence on the co-constructed knowledge that this research will present. The researcher will engage in memoing throughout the research and excerpts of memos will be included throughout the thesis, to demonstrate transparency of decision making in the research process.

3.3: Philosophical base of social constructivism in the context of the study.

3.3a: The social constructivist approach.

The social constructivist approach was developed in the 1960s by Berger and Luckmann. It draws from the behavioural science school and synthesises aspects of the work of Dewey, Marx, Weber and Durkheim. Their work focuses on explaining the link between nature, objects or entities in the world and the behavioural responses of human beings. Berger and Luckmann (1991) propose that knowledge or understanding at an individual level can be developed in a single human being about observable aspects of the world. This stance reflects the position of early/classic positivist philosophy with solitary geniuses advancing science through observed phenomenon, establishing a baseline of scientific knowledge. It is, however, the social engagement with others, which enables the knowledge to develop in the context of every-day or real-world life (Berger and Luckmann 1991). Science is posited as a cooperative social process comprising of a highly diverse set of activities, which results in multiple meanings or truths (Dupré 2004).

3.3b: Social constructivism and human identity. The relevance of secondary socialisation for this research.

Social constructivism supports knowledge development about social institutions (Berger and Luckmann 1991). It crosses the spectrum from families or communities to professional institutions. The latter, nursing being an example, incorporates subdivisions of the workforce and/or institutional structure, as well as the whole organisation. Key to this is the development of identity as a human through primary socialisation as a child and secondary socialisation as an adult.

Secondary socialisation is of relevance to the research since registered nurses are socialised into their role and associated activities, including completing continuous professional development to meet continued registration requirements. The development of knowledge and understanding through social constructivism, supports individuals to assimilate aspects of their role through social interaction and the use of narrative (Berger and Luckmann 1991). It is common for institutions, in this case the profession of nursing, to impose mechanisms for control of its members. Revalidation requirements are an example in nursing.

Nurses who registered before 2015 have adapted to the decentralised model of continuous professional development practice over a period of time, through secondary socialisation. It is interesting that this model for continuous professional development is taken for granted by those nurses who registered after it came into place. Newly registered nurses accept the requirements, justifying it as the basis for safe and effective practice (Nursing and Midwifery Council 2018a). Berger and Luckmann (1991) propose that secondary socialisation is important, as it enables individuals to perform routinised behaviours in a pre-reflective way. This means that there is reduced stress around decision-making for individuals as they act, and they have space for deliberation and innovation when a problem occurs.

This has parallels to nursing as a professional practice where nurses learn a repertoire of skills as they progress from a novice to expert (Benner 1982; Benner 1984). The novice nurse, usually a new student, is limited and inflexible in their actions, relying on rules to practice and unable to predict outcomes of their actions reliably until they gain experience in practice. Nurses progress from novice, through advanced beginner, competent and proficient practitioner, until they reach the level of expert. At this stage they have an intuitive grasp of the whole situation. They can discern what is relevant in the moment and can respond flexibly, drawing on their extensive base of knowledge and experience (Benner 1984; Benner and Tanner 1987; Benner 1997). The researcher proposes that the process of secondary socialisation from novice to expert nurse extends beyond practice knowledge. It includes knowledge development through continuous professional development practice.

Taking all these factors into account, using a social constructivist approach for the research is relevant for exploring nurses' secondary socialisation in response to the problem of decentralisation of continuous professional development practice. Adapting to big structural changes, such as the decentralisation of continuous

professional development practice, often needs an innovative solution. In the social constructivist approach knowledge is constructed with others, in context, through analysis of the past and the present. This enables imagining of knowledge for the future (Berger and Luckmann 1991). As such, the skill of reflecting on experience is vital. The social constructivist approach will enable the exploitation of the research participants' reflective skills when considering their experiences of using open education resources as continuous professional development.

3.3c: Aligning the research with the philosophical focus of Higher Education.

The research aligns well with the current philosophical focus of Higher Education, of developing real world research, where the problem being studied originates in the world of the research participants (Robson and McCartan 2015; Denzin and Lincoln 2018). Crucially, theory in this real-world context is developed by stakeholders and researchers working together to create a solution to the problem. The research question is driven by the decentralisation of continuous professional development practice. The Nursing and Midwifery Council (2015) recommended the use of free online learning as one way for individual nurses to meet continuous professional development requirements. The scoping literature review undertaken prior to commencing the research reveals a lack of research to indicate if and how nurses are using free online learning as continuous professional development.

The scoping literature review findings suggest that accessing open education resources as continuous professional development can be challenging (Cooper 2005; Lymn et al. 2008; Blake 2009; Petit dit Dariel et al. 2013; Shaw et al. 2014; Ebenezer 2015; Ricks and ten Ham 2015; Beckett 2020). Difficulties include finding relevant open education resources, feeling assured of their quality, of using them and of recording the learning from them. The research will enable the development of understanding about nurses' continuous professional development practice. It will result in the development of a theoretical model that will support registered nurses to use free online learning, including open education resources for professional learning.

3.3d: Selecting a social constructivist methodology for the study.

It is impossible to understand the experiences of participants' use of open education resources simply by observing them. The research question clearly requires the gathering of narrative data in a social context (Charmaz 2014; Denzin and Lincoln 2018; Creswell and Creswell 2023). Using interviews for data collection facilitates the use of language to objectify participants' experiences in relation to their continuous professional development practices.

After reviewing the range of qualitative methodologies, a grounded theory approach was selected for the research. Grounded theory approaches support the understanding of multiple realities through active engagement in narrative, in this case with nurses who have experience of using free online learning as continuous professional development. Grounded theory approaches also acknowledge the position of a researcher with experience of the phenomenon under study (Creswell and Poth 2018; Denzin and Lincoln 2018; Creswell and Creswell 2023). Further, they offer a clear framework for the recognition of personal influence as researcher, through openness and reflexivity in the process of data analysis that will create a clear trail of decision-making.

3.4: Locating the research within the field of constructivist grounded theory.

Rieger (2019) reinforces the primacy of the fit between the type of theory to be generated and the methodological approach selected. The aim of the study is to develop theoretical understanding of a situated process. There is pragmatic intent to develop a theory for practice. As such, the research aligns well with a grounded theory methodology. A decision about the best fit grounded theory methodology was supported by analysis of the historical and philosophical perspectives, the role of the researcher, data and data analysis and the resultant grounded theory for the three prevailing approaches of grounded theory methodology (see table 2).

The three grounded theory approaches have evolved over time (Creswell and Poth 2018; Bryant 2019). All three approaches offer a clear framework for the research process, starting with development of a research question, focusing upon a phenomenon about which little is known. The research process begins with inductive logic, is characterised by theoretical sampling, with simultaneous data collection,

analysis, and theory construction through an iterative process of coding (Morse et al. 2021a). Data analysis is characterised by a process of constant comparison, supported with memo writing and reflexivity, leading to the generation of a grounded theory (Chun Tie et al. 2019; Rieger 2019). The immersive literature review is undertaken after data collection in the three grounded theory approaches (Morse et al. 2021a). Kenny and Fourie (2015) propose three main points of divergence, these being in the philosophical positions, in the coding procedures and in the use of literature. The three grounded theory approaches are tabulated below, with the points of divergence highlighted (see table 2), for the purpose of analysing the best fit grounded theory approach for this research.

3.5: Ontological and epistemological divergences of three prevailing approaches to grounded theory methodology: Justifying a constructivist grounded theory approach.

All three grounded theory approaches draw on symbolic interactionism and pragmatism. Beyond that, they demonstrate significant divergence in their ontological and epistemological assumptions (Levers 2013; Kenny and Fourie 2015). These are explored below. The analysis of the three approaches resulted in the purposeful selection of a constructivist grounded theory approach for the study (Charmaz 2014).

3.5a: Classic Glaserian Grounded Theory.

Classic Glaserian Grounded Theory was developed in the 1960s by the sociologists Barney Glaser and Anselm Strauss, after they researched the understanding of health status of people dying in a hospital setting (Levers 2013; Chun Tie et al. 2019). At that time positivism dominated research culture. Emerging qualitative research approaches were viewed as unscientific and lacking rigour. Classic Glaserian Grounded Theory is a post-positivist paradigm methodology, with a critical realist ontology and objectivist epistemology (Levers 2013; Kenny and Fourie 2015). Its aim is to explore unique phenomena through the unbiased *discovery* of new knowledge. There is a strong emphasis on separating the researcher's personal knowledge, experience and the existing literature from the research to reduce potential bias and to demonstrate objectivity (Rieger 2019).

Table 5: Summary of the three main grounded theory methodology approaches, developed from Levers (2013) and Kenny and Fourie (2015).

GROUNDED THEORY METHODOLOGY AND PARADIGM	Post-positivist paradigm Classic Glaserian Grounded Theory	Interpretivist paradigm Straussian Grounded Theory	Constructionist paradigm Constructivist Grounded Theory
Key proponents	Glaser and Strauss (1967)	Strauss and Corbin (1990)	Charmaz (2004)
Ontology	Critical realist	Relativist	Multiple realities
Epistemology	Objectivist – knowledge is universally applicable since the essence of the object does not change, regardless of who is studying it	Subjectivist – knowledge is relative/subject to circumstances (i.e., historical, temporal, cultural)	Relativist – knowledge is relative to circumstances and is always filtered through the lenses of language, gender, social class, race and ethnicity
Purpose of knowledge	To explain, predict and control – to capture objective reality	To develop understanding of the multiple representations of reality – the objective reality cannot be captured	Mutual knowledge creation through interaction between the interpreter and the interpreted. Knowledge of the observed is constructed rather than discovered
Data collection	Theoretical sampling	Theoretical sampling	Theoretical sampling
Data analysis/coding procedures	Iterative process of constant comparative analysis until data saturation Systematic substantive (open coding then selective coding) and theoretical coding, leading to the *discovery* of the *emergent* grounded theory from the data.	Iterative process of constant comparative analysis until data saturation Highly systematic and rigorous coding structure closely corresponding to the data. Open coding; axial coding; selective coding; conditional matrix, leading to the *creation* of a rigorous theory, from the data.	Iterative process of constant comparative analysis until data saturation Adaptable coding guidelines that support imaginative engagement with the data and *construction* of the theory as a conceptual *interpretation* Initial or open coding, then refocused coding, leading to provisional theoretical categories supported by memo writing, before theory development

The role of the researcher	The researcher should expend any pre-existing knowledge from personal/professional experience and/or the literature. The researcher works to remain objective and not introduce personal biases or interpretations, tracking this through reflexive journalling.	The researcher works in the early stages of analysis and coding, to dispel their prejudices and preconceptions. There is acceptance that the researcher inevitably influences the research. The researchers influence on data analysis is tracked using memos.	The researcher works in a flexible way to manage ambiguity and to *create* the theory, accepting that knowledge is co-constructed due to the researcher's underlying knowledge and experience in the research subject area. The researcher is accepted to be a co-creator of the knowledge and thus, the use of memos throughout the research is key to ensure transparency
Reflexivity	To prove objectivity	To give evidence of decision-making during data coding	To explain influence and decision making of the researcher on the research
Use of the literature	The literature should be used only after data collection at the stage of constant comparative analysis at the end of the study. Literature should be drawn from across disciplines	The researcher should use the literature appropriately* throughout the research with the aim of creating an open mind rather than an empty head. *except for a systematic review of the literature before undertaking the research Systematic literature review to be undertaken after data collection	Using the literature is appropriate throughout the research study and should be evident throughout the thesis but total immersion in the literature should be delayed until after data collection

Classic Glaserian Grounded Theory uses a clearly defined process for undertaking the research and analysing the data, focusing on inductive knowledge development (Glaser and Strauss 1999). The focus on proving objectivity and credibility throughout relies on the demonstration of logical reasoning. Evidence is presented to demonstrate how the data directly informs theory development. The focus is on an iterative process of constant comparative analysis of the data, with the researcher open to any emerging categories or concepts (Levers 2013). The researcher must demonstrate their objectivity by making reflexive notes to evidence their decision-making during data analysis and theory generation (Levers 2013). Data collection and analysis continues until the point of saturation, where no new data are forthcoming.

A full cross-discipline literature review is conducted after data analysis is complete, to situate the new theory within the wider body of knowledge. Ultimately, Classic Glaserian Grounded Theory results in the generation of a conceptual theory that accounts for a pattern of behaviours, that those who were participants may relate to (Chun Tie et al. 2019). It does not take account of individual contexts and experiences. Whilst the knowledge developed is considered to bring us closer to the truth, it is fallible (Levers 2013). The focus on researcher as objective outsider in the Classic Glaserian Grounded Theory approach does not fit well with the research question and researcher positionality for this study.

3.5b: Straussian Grounded Theory.

As grounded theory methodology became established Strauss and Glaser developed a difference in their philosophical beliefs about grounded theory methodology. Strauss integrated symbolic interactionism and pragmatism into his work. With one of his Doctoral students, he proposed a novel grounded theory approach underpinned by a relativist ontology and subjectivist epistemology (Strauss and Corbin 1990). A feature of Straussian Grounded Theory is the use of a highly systematic and robust coding procedure. This built on Classic Glaserian Grounded Theory coding steps but takes account of the need to *interpret* data to understand multiple representations of reality. The interpretation of data considers the context of people's historical, temporal and cultural circumstances (Levers 2013; Kenny and Fourie 2015).

Through a systematic process of axial coding the researcher relates categories to subcategories, specifying the properties and dimensions of a code (Strauss and

Corbin 1990; Corbin 2021). A critique of axial coding is that it is processual, so poses a threat of reducing analytic potential of the data. This is because the focus is on application and how codes link to each other, rather than on codes that emerge from the data, through a process of induction (Levers 2013; Charmaz 2021). Knowledge developed through Straussian Grounded Theory is not purely conceptual or abstract. It explains social phenomenon in context of the participants' experiences, understanding and actions.

In Straussian Grounded Theory there is acceptance that the researcher by nature of their humanness, previous experience and knowledge, will influence the data collection and analysis (Strauss and Corbin 1990; Corbin 2021). Coding procedures in Straussian Grounded Theory are designed to help novice researchers navigate the research process. They also enable researchers to demonstrate how they have dealt with dispelling their prejudices and pre-conceptions throughout the research (Kenny and Fourie 2015). Coding procedures support the systematic development of dense and precise data that can be mapped to its origin, however, they have been criticised for stifling imagination and creativity in the research process (Charmaz 2014). Whilst the coding framework might be helpful as a novice researcher, the strict coding procedures could limit the potential for theory development from the research.

Straussian Grounded Theory generates knowledge through an iterative process of constant comparative analysis of the data, in common with all three grounded theory approaches (Strauss and Corbin 1990). The researcher must be open to any emerging categories or concepts using deductive logic. The researcher's position is internal to the research and their bidirectional influence on the data is openly accepted, so there is particular emphasis placed on the primacy of reflexive memoing to evidence decision-making during data analysis. Levers (2013, p5) describes the emerging theory as an explanation of people's experiences about the social process under study, which is unhindered by external reality, as interpreted by the researcher.

Data collection and analysis continues until the point of saturation, where no new data are forthcoming. In contrast to Classic Glaserian Grounded Theory, familiarisation with the literature is considered relevant throughout the research except for a full literature review before embarking on the research (Strauss and Corbin 1990). Engagement with literature is considered to help researchers develop and work with an open mind (Levers 2013), as evidenced through reflexive memos. The full, immersive literature review must take place only after data collection and analysis is

complete to ensure that the data does not become contaminated. The immersive literature review serves to situate the new theory within the wider body of knowledge.

Whilst the strict process in Straussian Grounded Theory may prove helpful as a novice researcher, on balance it might limit the potential findings for this research, stifling the creativity required to imagine possibilities for the co-construction of theory.

3.5c: Constructivist Grounded Theory.

Constructivist Grounded Theory is the most recently developed grounded theory approach. Its proponent Cathy Charmaz was a student of Glaser and Strauss. Her approach (Charmaz 2014) builds on the work of Corbin and Strauss (1990) but incorporates aspects of Classic Glaserian Grounded Theory (Glaser and Strauss 1999). The ontological base of constructivist grounded theory is critical realism, and its epistemological base is relativism, reflecting a view that multiple truths exist. Each of these truths is relative to circumstances and is always filtered through the lenses of language, gender, social class, race and ethnicity (Glaser and Strauss 1999; Levers 2013). The emphasis is on co-construction of knowledge through social interaction (Berger and Luckmann 1991; Crotty 1998). Significantly in the case of this research, the experience and knowledge of the researcher are openly accepted and actively incorporated into the research process. The researcher has an open bi-directional relationship with the data and the *emergence* of the theory (Charmaz 2014).

In the context of this research, the researcher is external to those being studied and to the data, which comes solely from the participants reflecting their experiences of a world outside of her understanding. Yet, the researcher does have some experience and knowledge of the phenomenon under study. The way the data is presented influences how the researcher *constructs* the theory, therefore they become internal to its *emergence.* This specific positionality renders the use of reflexive and theoretical memos as crucial for demonstrating transparency as an aspect of rigour in the research process (Charmaz 2014).

Constructivist Grounded Theory generates real-world research, as reflected in the current philosophical focus of higher education research. The approach endorses the co-construction of knowledge as an interpretive depiction of participants' experiences,

through mutual interpretation of meaning between participants and the researcher (Kenny and Fourie 2015). Constructivist Grounded Theory uses an abductive logic approach to theory generation. This begins with an observation or set of observations, from which the simplest and most likely conclusion will be drawn. The analysis of data explains the social process under study. Constructivist Grounded Theory follows the common grounded theory rules of theoretical sampling. There is an iterative process of data collection and constant comparative analysis until data saturation, supported with the use of reflexive and theoretical memos (Charmaz 2014).

Charmaz (2021) proposed that the stringent coding procedures in the Classic Glaserian Grounded Theory and Straussian Grounded Theory approaches stifled imagination and creativity. She believed that they caused researchers to be at risk of forcing codes to fit the frameworks of discovered or emerging knowledge. She developed a similar, but more flexible two-stage (minimum) coding process. Initial or open coding and focused coding, preceding the *construction* of the grounded theory, are claimed to offer room for interpretation and intuition within the co-construction of knowledge (Charmaz 2014; Charmaz 2021). Some have criticised the output of Constructivist Grounded Theory as descriptive narrative (Kenny and Fourie 2015). Due attention however, to situating the developing grounded theory within the professional literature after data collection and analysis takes the theory further than simple description. This supports imagining of the future in the theory, such that the developed theory will be applied and useful in the real world (Morse et al. 2021a).

3.6: Justifying a Constructivist Grounded Theory approach.

Constructivist grounded theory has the strongest philosophical fit for the research question and aims. The research seeks to understand the multiple realities of nurses' experiences. Using constructivist grounded theory supports the collection of rich narrative data about nurses' secondary socialisation to respond to the decentralisation of continuous professional development practice (Charmaz 2014; Denzin and Lincoln 2018; Creswell and Creswell 2023). The researcher's own experience and knowledge of the phenomenon under study means that they will inevitably influence the data collection and analysis. Indeed, their bi-directional relationship with the data is key to data collection and analysis. Constructivist grounded theory offers a reassuring framework for the novice researcher, supporting the rigorous collection and analysis of data, with attention on recording evidence of

the researcher's decisions as the research progresses. Notably, it fully supports the pragmatic co-construction of knowledge and theory for real-world practice.

3.7: The research process for this study.

This section presents the research protocol (appendix 2) and explains the ethical considerations for the work. It justifies the process planned, from undertaking a comprehensive scoping literature review to situate the research, to recruit participants, to collect and analyse data and to develop the grounded theory.

Following the research protocol, a full immersive literature review will be undertaken after data collection is complete, to pursue the developing categories, to test the theory and to situate the findings in the wider body of professional knowledge as advocated by Charmaz (2021).

3.7a: Ethical considerations.

This research is necessarily underpinned by the Research Code of Ethics (Bournemouth University 2022) which applies to all stages of the research from development of the question to publication and dissemination of the findings. Before the research takes place, the researcher must ensure that it is "designed, reviewed and undertaken to ensure integrity, value and quality" (p4), whilst working towards the improvement of human knowledge and understanding. This research involves human participants as it draws on the experience of registered nurses who may work for the United Kingdom National Health Service. Since the nurse participants will be recruited using social media and not through National Health Service sites or employers, the requirement for Health Research Authority approval was assessed and confirmed as not required. The research was granted ethical approval (ref 37859) on 24/06/2021 by the Bournemouth University (BU) Ethics Committee.

The principles of beneficence or maximising benefits and minimising harm for all involved, and non-maleficence or doing no harm, underpin all research with human participants (Beauchamp and Childress 2019). These principles are inherent in the researcher's registered nurse status and requirement to work within the governance structures of The Code (Nursing and Midwifery Council 2018a). The responsibilities

of a conscientious researcher are to ensure respect for participants in terms of recruitment, informed consent to participate and right to withdraw from the research. They also include respect and care during data collection to ensure participants' safety and wellbeing, confidentiality, security of the data and publication of findings, as detailed in appendix 2. A data management plan and risk assessment were reviewed and approved as part of the ethical approval process.

Since this research draws on individuals' experiences of having already used open education resources as continuous professional development, the key impact of participating in the research for them is the time commitment required for participating in the interview. The recruitment strategy is designed to reach nurses beyond people who are local contacts. This is a pragmatic decision designed to avoid those that the researcher either works with or who they have an influential relationship with feeling pressurised to participate. Peers and contacts can respond to the recruitment advert if they meet the eligibility criteria.

The process of revalidation with the Nursing and Midwifery Council is completely distinct from the research, so participation does not have any influence or impact on that process. The researcher will provide clear information about the purpose of the research (see appendix 3) and the requirements from the participants so that they can give informed consent (Bournemouth University 2022). Confirmation of confidentiality and anonymity from the point of transcription of interview data and detail about the management of data are provided. Plans for publication and the storage of anonymised data in the BU research repository are outlined. Participants will be required to complete an online informed consent document (see appendix 4) that will be stored in line with the data management plan. There is no financial or other incentive for participating in the research.

Participants will be informed about their right to withdraw from the research at any time up to its completion. If they do withdraw then processes outlined in the ethics checklist will be followed (Bournemouth University 2022). Withdrawal from the research is initiated by participants informing me of their decision to withdraw. If they withdraw from the individual interviews for purposeful or theoretical data collection, they can request that their data is withdrawn. If participants take part in the validation focus group, it will not be possible to extract their data after the data collection has completed. The data would remain in the research, anonymised in the same way that all data will be anonymised from the point of transcription, as outlined in the information sheet for the validation focus group (see appendix 5).

The research is designed to focus on the process of registered nurses' engagement with and learning from free online learning resources. There is a chance that within the research interviews or documentary evidence participants may refer to learning in the context of an episode of patient care. There is a risk that participants may become distressed during the interviews when reflecting on their experiences in the context of continuous professional development practice. In this situation the researcher will assess and respond to the distress (pause and resume with permission, or stop the interview), signposting the participant to debriefing opportunities with the supervisory team (Bournemouth University 2022).

Following the institutional requirements for research practice (Bournemouth University 2024), the researcher has an ethical obligation to act in an accountable, conscientious and honest way throughout the research process. This will be evidenced through regular academic supervision. The completion of study milestones and systematic record keeping in relation to the research process will support transparency. The aspects of recruitment and consent, transcription and data analysis and the presentation of findings will be addressed throughout the thesis.

3.7b: Recruitment of participants.

The recruitment of human participants in research is guided by the Declaration of Helsinki as published by the World Medical Association in its sixth revision in 2008 (Dik and Doenges 2010). Individuals must decide for themselves if they want to participate, and the processes described above will support this. The research question, along with the methodology of constructivist grounded theory necessarily requires a theoretical sample of participants (Charmaz 2014). They must have experienced the phenomenon under study to contribute to the study. In this case, they must have used open education resources as continuous professional development. Recruitment is planned in three stages in accordance with Charmaz's (2014) constructivist grounded theory method (see table 6).

For the first stage of data collection and analysis participants will be recruited to a purposeful sample of ten to fifteen registered nurses. They will have been directed to use open education resources as continuous professional development to meet the eligibility criteria (see appendix 2). The data from the purposeful sample will enable

the generation of themes, to be developed further in the theoretical data collection and analysis.

Table 6: Recruitment to the research.

Recruitment stage	Sample size	Eligibility criteria
Purposeful data collection and analysis.	10-15	Registered nurses who have been directed to use free online learning as continuous professional development.
Theoretical data collection and analysis.	10-15	Registered nurses who can develop data on findings from the purposeful data collection and analysis.
Validation focus group event.	6-8	Participants from the purposeful and theoretical sample.

The second stage of recruitment is to the theoretical data collection and analysis (Charmaz 2014). This will require recruitment of ten to fifteen registered nurse participants who can specifically develop data on the most significant themes demonstrated in the purposeful data collection and analysis. Participants from the purposeful sample may be re-interviewed if they meet the inclusion criteria, and/or new participants who have had experience of the emerging themes will be recruited. Recruitment for the theoretical data collection and analysis is planned by invitation to participants in the purposeful sample, who give consent to be contacted for a second interview. Further recruitment is planned through the social media channel ‘X’, formally Twitter, to personal and professional networks, or by word of mouth for participants with experience of the emerging themes (see appendix 2).

The third stage of recruitment will be to a validation focus group, comprised of six to eight participants from the purposeful and theoretical sample, for the purpose of validating the categories and testing the theory.

3.7c: The interview process.

The management of the interview process is fundamental to the integrity of data collection and analysis in constructivist grounded theory. Since the intention of grounded theory approaches is to develop new knowledge, the interview schedule must be as open as possible to avoid the researcher shaping the responses or leading the data (Charmaz 2014; Creswell and Poth 2018; Denzin and Lincoln 2018). Readers' assessment of the interview process will be supported in ***chapters four and five*** of the thesis, through memo excerpts and using in vivo coding and direct quotes from the participants. Crucially, the validation focus group will enable member checking, which is the process of participants confirming that the theoretical categories are relatable to themselves (Charmaz 2014).

Interviews will not commence before informed consent is obtained. For the purposes of ethical approval, the researcher is required to provide a few sample questions to give the ethics committee a clear sense of what data the researcher seeks to gather (Bournemouth University 2022). The questions presented for ethics approval are in the interview schedule for purposeful data collection (see figure 3).

3.7d: Commencing the interview.

The single opening question for the research interview is "can you tell me about your experiences of finding and using open education resources for your continuous professional development?." Once the interview is underway, the researcher will focus on using the standard question "can you tell me more about that please?" as advocated by (Charmaz 2014). If required, the question prompts on the semi-structured interview schedule (see figure 3) will be used to develop discussion. Taking this approach to the interview will encourage participants to share their experiences, whilst provoking deeper reflection focusing on continuous professional development practices and specifically using free online learning resources.

The axiological position of the researcher, as an insider by virtue of their nursing registration is recognised as a factor in the data analysis in Charmaz's constructivist grounded theory approach (2014). Their influence in co-constructing the theory is validated in that context, but this does not grant them the right to lead the interview in the moment. The researcher must work to avoid leading, or misleading statements

such as “that is interesting” when conducting the interviews. Personal experience suggests that participating in qualitative research interviews can be quite daunting, because you can never be sure about what the researcher wants to know. You only know that you have experience in the area to offer, based on the eligibility criteria.

Exploring the open: the impact of open education on health professionals' continuous professional development

Semi-structured interview schedule.

Check consent first. https://forms.gle/JDeTyWiNdqFJZMxU6

Can I take some brief demographic details before we start?
Can you tell me your professional background and how long you have been qualified?
Are you happy to share what gender you identify with?
How would you rate your IT skills – beginner, competent or expert?

Opening question: Can you tell me about your experiences of finding and using open education resources for your continuous professional development?

Question prompts:

1. What do you understand the term open education resources to mean?
2. Can you tell me about how or why you were directed to use open education resources?
3. Can you tell me about your experiences of finding and/or accessing open education resources?
4. Can you tell me about your experiences of using open education resources as continuous professional development?
5. Can you tell me about what you learned because of using open education resources as continuous professional development?
6. Can you tell me about how you recorded the learning from open education resources for NMC revalidation?
7. Can you tell your experiences of using learning from open education resources in your professional practice?
8. Is there anything else that you wish to tell me about your experiences of using open education resources as continuous professional development?

Figure 3: Semi-structured interview schedule. Purposeful sample.

If the researcher is seen to take interest in specific responses, the participants may believe they need to focus on that area of their experience. The researcher’s aim is for participants to present a pure reflection on their experiences, as advocated by Charmaz (2014). The question prompts on the semi-structured interview schedule can feel limiting and have the potential to direct the interview, for example, toward the themes from the scoping literature review. They do however offer a reassuring broad

framework for conducting the interview if the researcher experiences difficulties in eliciting information from participants.

In the theoretical data collection, interviews will be with nurses who have direct experience in relation to the codes that develop from the purposeful data. The opening question will reflect the need to understand the participants' experiences of those developing codes (Charmaz 2014). The codes will be constructed as part of the iterative process of purposeful data analysis and as such, they cannot be predicted before theoretical data collection. Similarly, the validation focus group interview will necessarily focus on chasing down the theory through validation of the theoretical categories. The opening questions cannot be predicted before the research begins so ethics amendment will be sought at each stage of the data collection to adjust the interview schedule as required.

Two to three pilot interviews will be conducted to evaluate the purposeful interview schedule. This will give the researcher the opportunity to reflect on interviewing skills. The researcher will analyse the extent to which they successfully apply qualitative research interview skills and avoid expressing interest in specific points. They will analyse the use of the standard question throughout the interview of "can you tell me more about that"? These are vitally important strategies to help the researcher avoid leading or misleading the interview instead of focusing purely on participants' experiences.

Recorded interviews will take place using video-conferencing software. This supports participants' flexibility in terms of choice regarding their location for the interview. It also reduces potential burdens for them, including financial costs and time for travel to an interview site (Archibald et al. 2019; Wakelin et al. 2024). Agreement of a mutually convenient interview time is essential so that participants feel comfortable and relaxed to engage with the interview process.

There has long been an emphasis on audio-recording of interview data in grounded theory methodology (Charmaz 2014; Creswell and Poth 2018; Creswell and Creswell 2023). Audio-recorded data collection is proposed as valuable because the researcher can engage fully in the interview. They can observe non-verbal cues and facial expressions of participants, such as wry smiles that infer a nuanced delivery of a verbal response (Glaser and Strauss 1999; Charmaz and Belgrave 2014; Denzin and Lincoln 2018; Corbin 2021). Audio-recording means that the researcher does not lose narrative data when making notes about participants' contextual non-verbal cues

and how they feed into the data analysis. The personal experience of the researcher of face-to-face interviewing in a previous research study is that it is a challenging task to balance the delivery of questions, demonstrating active listening, observing for non-verbal cues and making meaningful notes. The advances in technology enable the researcher to exploit the use of videoconferencing software for data collection.

The developing use of videoconference interviews for research provides a viable alternative to face-to-face interviews for qualitative data collection. Tools such as Skype® have enabled researchers to exploit the benefits of expanded access to interview participants, reduced costs to researcher and participants and increased flexibility (Archibald et al. 2019; Wakelin et al. 2024). Videoconference systems, however, are fallible. Issues that have been reported in the literature include poor video quality and inconsistent or unstable connectivity (Deakin and Wakefield 2014). These factors pose a risk that the researcher will be unable to note observable nuances in the interview on a recording, these being a key aspect of the data analysis.

The use of videoconferencing requires as much focused attention from the researcher as face-to-face interviews do. The researcher must engage and pay attention in the same way to avoid missing data. The opportunity to review recordings offers some stretch however, so that the researcher can coordinate the notes and review specific points in detail. The pandemic built on the steady development of technology for learning and teaching over the twentieth century (Farooq et al. 2020). This resulted in an exponential growth in the use of videoconference software for teaching and learning across the world, in personal and professional contexts. Many nurses used videoconferencing in their work during the pandemic so it is likely that they will be psychologically comfortable to engage in the research interview in this way.

Videoconference interviews have been reported to be helpful for people who are neurodivergent or who have anxiety about personal interaction with others. They enable those individuals to contribute to research from a position where they feel safe and comfortable (Wakelin et al. 2024). This is proposed to be of benefit to the researcher, who might otherwise miss the perspectives of neurodivergent individuals.

Whilst many people have become familiar with videoconference technology during the pandemic, it should not be assumed that everybody has well developed knowledge and skills with respect to its use. A unique factor that may negatively influence individuals' feelings and readiness to participate in research using videoconferencing technology is 'Zoom fatigue', a phenomenon that was highlighted

during the pandemic lockdown (Jackson 2023). In addition to knowledge and skills, the successful use of videoconference software for research interviews relies on individuals having access to hardware and Internet infrastructure to support its use (Wakelin et al. 2024). Feelings of stress could arise for both the participants and the researcher if the technology fails, so it is helpful to use videoconferencing platforms that the participants are familiar with and favour (Jackson 2023).

The researcher must take action to mitigate against potential problems such as poor audio-visual quality, poor or ineffective connectivity, or failures in recording. They must ensure effective notetaking during the interview to minimise the risks of lost data. The use of videoconferencing technology increases the flexibility of data collection strategies for research but as illustrated by the points above, they increase the need for researchers to plan for resolving or working with difficulties that they may experience.

3.7e: Processes for processing and storing the data.

This research follows the Bournemouth University protocol for the processing and storage of research data and is fully detailed in the data management plan (see appendix 6). Participants will be provided with written information about the storage and use of their data prior to giving informed consent to participate, whether they complete the study or choose to withdraw. All hard copy and electronic data will be stored securely in line with Bournemouth University protocol. The data management plan focuses on adhering to general data protection regulation [GDPR] requirements, maintaining the confidentiality of personal data and preparing anonymised data for storage in the Bournemouth University Research Data Repository (BoRDAR) on completion of the study.

A fundamental role in processing data is the transcription of the audio/audio-visual recording. Transcription has been proposed as a mundane or technical task, notorious for its time it takes (Jenkins et al. 2021). From the researcher's axiological perspective and values base they consider it essential to undertake the transcribing themself. The process of transcribing the interviews will enable familiarisation with the data and ensure that the researcher's notes and non-verbal and paralinguistic behaviour from the interview are added in context. Charmaz (2014) posits that this first stage of the analysis, where skimming the data during transcription begins to

reveal open codes. During transcription of the interview the researcher will assign the participants a unique identifier, to ensure their anonymity. They will ensure that a sample of transcribed data is checked for accuracy against the corresponding recordings for to demonstrate quality assurance.

Organisation is an important skill for the researcher. The process of transcribing the interviews and data analysis, being iterative, means that the interviews must be transcribed in a timely way, so that the data from each feed into the next (Charmaz 2014). If there are pressures on time, the interviews may be transcribed by a third party, following Bournemouth University protocols for GDPR and anonymity of research data. In this case, reviewing the interview recordings and ensuring that that the emphases in the interview are noted accurately, along with the interview notes about non-verbal cues, will enable familiarisation with the data as the researcher prepares it for upload into NVivo Pro 20®.

3.7f: Data analysis using NVivo Pro 20®.

Prior to considering how data analysis would be achieved in the research, the focus was on methodological conscientiousness, developing a sound research question and establishing the right methodology to answer the question. The data analysis for the research will be facilitated using NVivo Pro 20®, a computer assisted qualitative data analysis system, NVivo® was developed in the 1990s to help social science researchers to manage large amounts of textual data (Wiedemann 2013). The use of computer assisted qualitative data analysis systems is now commonplace. It has been actively supported since 2001 by the Economic and Social Research Council as a key specialist skill that qualitative postgraduate researchers must develop (Economic and Social Research Council 2022).

There are three well established tools for computer assisted qualitative data analysis (Wiedemann 2013). The selection of NVivo Pro 20® is philosophical as well as pragmatic. It was specifically developed for the management of large amounts of narrative data and its use in grounded theory is widely accepted (Bringer et al. 2004; Jenkins et al. 2021). Importantly, Bournemouth University endorses NVivo Pro 20® and provides thorough training and ongoing access to support for postgraduate students using it, for the duration of the research study.

The benefits of NVivo Pro 20® are that it streamlines management of the data once transcribed and uploaded into the system. Bringer et al. (2004) extol its virtues for

organising the data efficiently whilst offering security through password protection. They commend it for coding and retrieving data with the facility of adding reflective and theoretical memos in the context of the data. The reduction in administrative time means that researchers can instead spend time focusing on the intellectual work of reading and re-reading transcripts to become familiar with them, of data analysis and theory generation. The organisational functionality of computer assisted qualitative data analysis software helps to demonstrate transparency in the process of data analysis and theory generation.

Despite NVivo Pro 20® being labelled as a computer assisted qualitative data analysis system, it is essentially a database system, so the role and perspective of the researcher is critical to its successful use. The software returns the answers to questions asked of it by the researcher. The data analysis is therefore undertaken by the researcher, not the software. NVivo Pro 20® has the potential to return abstract quantitative data, for example frequency counts of key words, but these do not naturally become codes or themes. As researcher, it is essential to work to use analytical skills that are true to the nuances of the narrative. This should reflect the researcher's positionality as co-constructor of knowledge when asking questions of the software. This will enable development of the theory in context. Methodological conscientiousness will be demonstrated and justified through record keeping processes, including reflexive memos, and discussions with academic supervisors.

In summary, computer assisted qualitative data analysis systems offer a useful data handling facility which streamlines the time-consuming administrative processes. This is significant as it enables the researcher to focus on the intellectual work. The database does not guarantee results, nor is it intended to provide objective evidence of the knowledge (Jenkins et al. 2021), but it does provide a transparent trail of the decisions and paths taken by the researcher during data analysis. Whilst the primacy of attention is the methodology and not the software, the development of specialist qualitative research skills using NVivo Pro 20® means that other researchers could retrace steps in the research process, to understand how the theory developed (Bringer et al. 2004).

3.7g: Memoing and reflexivity in data analysis and the development of the grounded theory.

The emphasis on the memos and reflexivity in the constructivist grounded theory approach concerns the influence of the researcher on data analysis as co-construction of knowledge (Charmaz 2014). Memos are a tool to push the thinking of the researcher, forcing them to develop abstract thoughts into more clearly thought-out ideas (Bringer et al. 2004). Charmaz (2021) posits that coding and memo writing are imaginative strategies for learning about the data. The level of value that memos offer to the research is dependent on the researcher's engagement with them, their honesty and their openness to explore and imagine the possibilities the data will offer.

At the outset of the research the process of memo writing feels daunting, perhaps because there is a degree of flexibility in the process. This is positive because it supports the use of different ways that people prefer to engage in reflection and analysis. Memos could be written informally or formally, short or long, presented as images, audio recordings or captured using online collaboration tools, like Padlet ® or Miro® (Engward and van Veggel 2024). All these methods support sharing with the supervisory team during the research process to demonstrate decision making. More importantly, selected excerpts of the memos, woven throughout the thesis, add richness and depth that support others to critically evaluate how the theory has been co-constructed (Charmaz 2014; Engward and van Veggel 2024).

Underpinning the research process with reflexivity is proposed to support rigour by helping the researcher avoid imposing their taken-for-granted values and beliefs onto the data (Charmaz 2014; Engward and Davis 2015; May and Perry 2017; Mruck and Mey 2019). Reflexivity and memoing enable the researcher to set out the interpretation of the data and the implications of the interpretations for themself, as well as for the research participants. Memos should illustrate how the researcher has developed the data from descriptive narrative (Engward and van Veggel 2024). This is an important step in the research process to "locate the participants' meanings and actions in larger social structures and discourses of which they be unaware" (Charmaz 2014, p240).

Memoing should begin from the moment of data collection, and continue throughout the coding procedures, development of the theoretical categories and the development of the co-constructed theory. Engward and van Veggel (2024) warn about the dangers of closing memoing too early as this can result in closure of an

analytical pathway. Consequently, there may be a loss of evidence about how the data analysis has progressed from one point to the next.

3.8: Coding data and generating the grounded theory.

The use of an established methodological framework provides the guidance for but does not guarantee the development of a theory for practice. Charmaz (2014) reports that often the research outcome is purely a rich description of the phenomenon under study. This is evidenced by the development of themes, or a list of “connected but under-analysed processes” (p245). She suggests that the researcher’s skill set impacts coding and theory development. If their research skills are not sufficiently developed, they may make errors in judgement about the data as they analyse it, limiting the possibilities of the research.

This observation relates predominantly to the inductive stage of knowledge development where there is a danger that researchers fail to assess for data saturation and move on too quickly (Charmaz 2014). This consequently leads to errors in theoretical sampling and an ultimate failure to progress the theory to its full potential. It also relates to the potential failure of researchers to apply reflexivity in a conscientious way. If researchers fail to consciously reflect, they may resort to imposing previously held values and referencing familiar extant theories (Charmaz 2014). In this sense, the process of reflexivity cannot be understated as it demonstrates how the researcher has worked to respond to these challenges.

Constructivist grounded theory methodology provides a sequence of steps for developing theoretical sensitivity (Charmaz 2014). Application of the sequenced steps (see figure 4) is proposed to lead the researcher to novel views and thus to theoretical possibilities. Following the sequenced steps supports the researcher to see possibilities from the initial data. Charmaz (2014) recommends starting data analysis with line-by-line coding. The use of in-vivo codes, which capture direct quotes from the participants and preserve the contextual meaning is also recommended. The open coding of the initial data focuses on the analysis of processes or actions rather than static topics. This serves to deter the researcher from developing broad themes that are not grounded in the data. Whilst there is a clear process for analysing the data, Charmaz (2014) notes that constructing theory is a playful rather than a mechanical process. Whilst a playful approach might be

considered unscientific, she proposes that it is fundamental to the researcher expanding understanding through wonder.

The analysis of actions leads the researcher to see sequences and establish connections in the data. They are guided to ask questions of the data from a position of openness to the unexpected, recording these processes in memos (Charmaz, p244). Constructivist grounded theory is underpinned by an iterative process of constant comparative analysis of similarities or discrepancies, where each piece of data is analysed prior to the collection of new data. Further, the initial data may be compared to latest data throughout the study as the researcher tests the developing codes. Memoing serves to demonstrate this process (Birks et al. 2008; Charmaz 2014; Engward and van Veggel 2024).

The analysis of the data from the purposeful sample leads to the generation of open codes and focused codes. These feed into subsequent interviews through iterative data analysis until data saturation is evident (see figure 4). This is the point when no new codes are forthcoming in the data (Charmaz 2014; Aldiabat and Le Navenec 2018). Focused coding demonstrates the relationships within the early data and guides the recruitment of the theoretical sample. Participants in the theoretical sample are required to have experience that is specific and relevant for developing analysis of the focused codes into theoretical codes, then subcategories and theoretical categories.

The theoretical codes are expected to be more abstract, but they should be telling codes that subsume the higher-level theoretical categories. The theoretical categories, grounded in the data, should demonstrate “theoretical reach, theoretical centrality, incisiveness, generic power and relation to other categories” (Charmaz 2014). Memoing should continue as the researcher interrogates the data through the immersive literature review, as the theory is generated and tested.

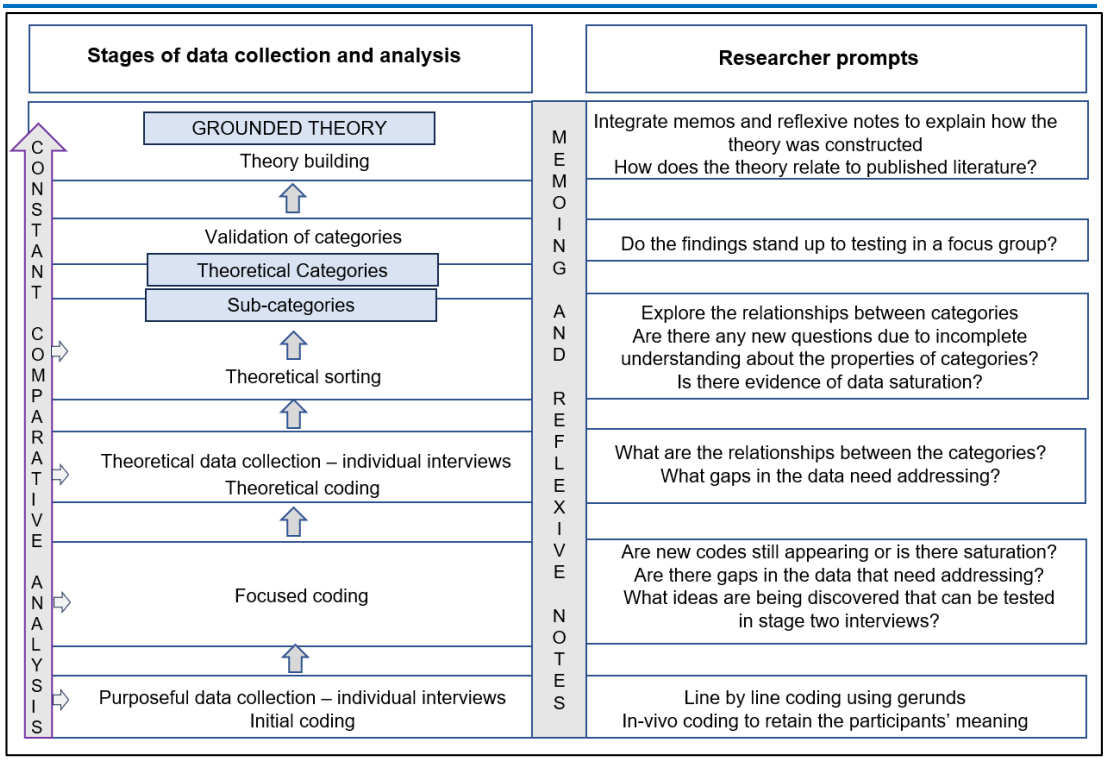


Figure 4: Stages of coding constructivist grounded theory data (adapted from Charmaz, 2014).

3.9: Demonstrating scientific rigour in grounded theory approaches.

Morse et al. (2021b) propose that the biggest threat to rigour in grounded theory research is the longstanding myth that the research is biased by virtue of the researcher's influence on the data collection and analysis. As qualitative research approaches became established, they were subject to the criticism because of the prevailing power of positivist research approaches. Positivistic measures for quantitative research proved a poor fit for qualitative research. This compounded the problems of demonstrating rigour in qualitative research (Robson and McCartan 2015; Creswell and Poth 2018).

The problem of demonstrating rigour led Glaser and Strauss (1999) to build strict data analysis and coding steps into their seminal grounded theory method. These steps are proposed to demonstrate objectivity in the research process but result in a detached and abstract theory (Levers 2013; Chun Tie et al. 2019). As grounded theory approaches have evolved, measures for assessing the rigour of the research process have developed, aligned with the ontological, epistemological, and axiological position of the researcher and the research question (Kenny and Fourie 2015; Bryant and Charmaz 2019). The values and knowledge of the researcher have

been recognised as integral to data analysis. The act of reflexive memoing addresses the problem of rigour by enabling the researcher to demonstrate their accountability throughout the research process (Charmaz 2014). Qualitative research is judged against the criteria of credibility, transferability, dependability and confirmability, all of which support the reader to make a judgement about the plausibility and trustworthiness of the findings (Bringer et al. 2004; Lindheim 2022).

The researcher is accountable to the academic institution, to the participants in this research and to the profession to provide a transparent account of the research process that will provide evidence on which to judge its rigour (Nursing and Midwifery Council 2018a; Bournemouth University 2022, 2024). Their accountability is inherent in supervision meetings and reporting on progress with the research. This is achieved through critical discussions about data saturation and diverse cases presented in the data. These discussions, alongside researcher memos indicate the thoroughness of data collection and analysis and reflect the credibility and dependability of the findings (Anderson et al. 2024). The researcher demonstrates accountability in the research through the discussion and the excerpts of memos in the ***data collection and analysis*** in chapter four***, findings*** in chapter five***, discussion*** in chapter six and ***conclusion*** in chapter seven of this thesis.

3.9a: Credibility.

Credibility refers to confidence in the truth of the findings. It is acknowledged that grounded theory research cannot be directly replicated with the same findings, even using the same researcher and participant sample. This is because their knowledge or understanding will have changed through the process of reflection as part of the original research. However, another researcher should be able to trace the steps taken and decisions made during the study to verify the credibility or plausibility of the findings (Creswell and Poth 2018; Charmaz and Belgrave 2019; Mruck and Mey 2019; Lindheim 2022).

The evidence for credibility must include rich description, which presents the direct voice of the participants. The participants' voices in the ***findings*** in chapter five will help the reader to assess the authenticity of the findings in relation to the raw data. The validation focus group will enable member checking of the findings by the participants (Charmaz 2014). Participants in the validation event will be presented

with in vivo quotes that will support their own assessment of the credibility of the findings. The combination of a clear narrative of decisions in the research process including memos interwoven into the thesis and the use of participant' quotes will corroborate the plausibility of the findings, giving the reader confidence in the truth of the theory.

The raw data from the research will be made available to others, as recommended by Robson and McCartan (2015), through the institution repository as outlined in the data management plan (appendix 6). The conscientious attention to the processes of memoing and reflexivity in this study, as well as provision of the raw (anonymised) data will enable others to review the decisions in the research process and to make a judgment about the transferability of the findings and theory to their own context.

3.9b: Transferability.

The transferability of the findings is an important quality measure in grounded theory research, since the theory developed should be able to be applied, useful and widely used (Morse et al. 2021a; Lindheim 2022). Whilst the findings are directly relevant to the specific context in which the research was undertaken, the development of the grounded theory requires a level of generalisation and abstraction. Consequently, the grounded theory should be transferable to other/similar contexts.

This research draws on the experiences of a small number of participants from the total number of nurses on the United Kingdom Nursing and Midwifery Council professional register. It cannot automatically be assumed to be transferable to all nurses. Robson and McCartan (2015) take the view that it is not the researcher's responsibility to demonstrate the transferability of the findings, however the researcher is well placed to propose how the research findings and grounded theory are transferable across different settings. In the case of this research the findings may be transferable not only to nurses in different settings, but also to other healthcare professions who are required to undertake independent continuous professional development.

A key aspect of data analysis in constructivist grounded theory is the engagement of the researcher in imagining the possibilities that the data afford, so that the research outcome extends beyond thematic analysis to theory development (Charmaz 2012,

2014; Charmaz and Thornberg 2021). The researcher's purposeful decision to extend recruitment beyond a single setting or organisation will strengthen the case for transferability of the findings. The research sample will be small, but this is appropriate for qualitative research. Data collection and analysis will continue until the point of data saturation. The development of a co-constructed theory from the data will strengthen the case for transferability of the research findings.

3.9c: Dependability.

The dependability of constructivist grounded theory research is judged by the readers' assessment of how well they can follow the steps and decisions of the researcher (Lindheim 2022). One fundamental decision that impacts on the dependability of the research is the recruitment of participants (Robson and McCartan 2015). The findings cannot be dependable unless the data is gathered by accessing participants who have had contextual experience of the phenomenon under study (Charmaz 2014).

The research will begin with the recruitment of a purposeful sample of registered nurses who have been directed to use open education resources as continuous professional development. This will guarantee as far as possible that participants can offer data that is grounded in their experience of the phenomenon under study. It is possible that the context of participants' experiences does not answer the research question directly and these cases should be presented in the thesis as diverse cases.

Outlining the decisions about recruitment is essential as the study progresses. If the researcher is true to the constructivist grounded theory process and genuinely open to the development of the grounded theory from the data, then the eligibility criteria for the theoretical sample cannot be predicted. The theoretical sample will be defined after the first set of initial and focused codes have been developed (see figure 7). The reader will be able to evaluate the dependability of subsequent data, through reviewing the decision-making, as presented in the ***data collection and analysis*** in chapter four.

3.9d: Confirmability.

The confirmability of the research findings and the co-constructed grounded theory is established through an audit of the research process (Creswell and Poth 2018). The focus is on the evidence of how the researcher has managed and recorded their influence on the research process. The statement of positionality at the start of the research in the ***introduction*** in chapter one, sets out the researcher's potential influence on the research design, data collection and analysis and theory development. Memos and in vivo quotes will be integrated throughout the thesis to illustrate this.

3.10: Key points.

The key points relate to two aspects of the research. The key points regarding the philosophy underpinning the research are that:

- The selection of the appropriate research methodology to address the research question is fundamental to the success of the research and precedes all other considerations.
- A constructivist/qualitative approach is relevant and appropriate for this study, reflecting the ontological, epistemological, and axiological assumptions about how this research question can be answered.

The key points regarding the process of the research are that:

- The research protocol provides a robust plan for how the research will be managed, setting out the processes for managing ethics, recruitment, informed consent, data collection and management.
- The use of the computer assisted qualitative data analysis system NVivo Pro 20® is an appropriate tool to support data management and analysis that will enable the development of higher-level postgraduate research skills as a post-graduate researcher.
- Conscientious and deliberate attention to record keeping, including the use of memos that will be added to the thesis, supports the evaluation of rigour in the research process.

4: Data collection and analysis.

This chapter presents a narrative of the processes of purposeful and theoretical recruitment, data collection and analysis for the research. Constructivist grounded theory uses an inductive approach to theory generation, through the collection and analysis of qualitative data. The data is borne out of the participants' personal experience of the phenomenon under study (Charmaz 2014; Creswell and Creswell 2023). It was therefore essential that recruitment strategies were targeted towards registered nurses who had used open education resources.

4.1: Recruitment strategy.

Ethical approval was granted both for online recruitment using the social media platform X and in-person recruitment to the research. Approval was given for data collection by video-conference interviews, which would be recorded with participants' consent. Study information was available through links to the researcher's organisational OneDrive account (see appendix 3). The approval included the use of an electronic consent form (see appendix 4). The semi-structured interview schedules for the purposeful and theoretical data collection were approved on commencement of the study and amended as the research progressed to ensure they reflected the developing findings.

4.1a: Theoretical context.

Social media has been actively used as a recruitment tool for research since the mid 2010's, exploiting developments in technology. Its use increased during the pandemic when the challenges of access to participants were compounded by lockdown restrictions (Roberts 2020; Darko et al. 2022). The benefits of social media recruitment are reported to be targeted and rapid recruitment, with reach extended to a broad audience, increased engagement and cost-reduction (Darko et al. 2022; Oudat and Bakas 2023). It is noted that most of the available literature focuses on these benefits of social media recruitment in the context of reaching diverse and hard-to-reach populations. Social media is used as a tool to engage individuals in health research that relies on data collection through engagement with it (Gelinas et al. 2017;

Bethel et al. 2021; Johnson et al. 2021; Darko et al. 2022; Oudat and Bakas 2023; Jones et al. 2024).

There are clear advantages to using social media as a recruitment tool, but it is not a panacea, since it attracts charges of privacy concerns, limited control and limited access (Oudat and Bakas 2023). These concerns relate to the use of social media to both recruit and collect data, where individuals may exercise agency in what they post and share online. Concerns about sampling bias have also been raised however, on the basis that recruitment can be limited to the researcher's social connections (Gelinas et al. 2017; Johnson et al. 2021; Spellecy and Nelson 2021). Sampling bias using social media alone for recruitment refers to the automatic exclusion of those individuals who do not have access to technology and Internet infrastructure (Oudat and Bakas 2023).

Informed planning for social media recruitment is crucial. It may result in rapid recruitment, but this is dependent on the researcher's understanding of the platform used and the specific demographics of its users (Stokes et al. 2019; Jones et al. 2024). Most of the literature around recruitment through social media focuses on use of FaceBook, with data collection through surveys and/or clinical research, and the use of paid adverts to support recruitment (Gelinas et al. 2017; Stokes et al. 2019; Chambers et al. 2020; Kühne and Zindel 2020; Jones et al. 2024). X, previously Twitter, is low on the list of social media platforms for research (Darko et al. 2022). This is attributed to the user demographics and the limited options for paid advertising.

The success of social media advertising is dependent on the researcher's profile as an established and trusted member of the community, which affords credibility (Jones et al. 2024). Researchers are encouraged to develop their professional networks on social media (Jackson 2023). Active and regular engagement on the platform, with prompt responses to notifications or real-time alerts results in the researcher being immediately accessible. This is proposed to support recruitment as it creates feelings of instant gratification for participants for helping and of having value for the research (Stokes et al. 2019). The researcher is a nurse educator who has developed a personal and professional network of nurses and educators on X prior to and during the research that will support recruitment.

Jones et al. (2024) note the importance of researchers taking a professional approach to advertising for recruitment on social media, warning them against blurring personal

and professional boundaries. Sharing a post or a link from a professional source supports a professional approach to advertising. Social media recruitment may be either passive, where the researcher posts the advert and waits for recruitment, or active, where platform users are approached directly, based on the researcher's knowledge of characteristics that would make them suitable for inclusion, or balanced (Gelinas et al. 2017). The approach adopted for the research was planned as passive because the researcher wanted to recruit participants beyond their immediate network.

Informed planning is crucial to maximise the reach of recruitment adverts through sharing by contacts within the researcher's personal network. The judicious use of hashtags on social media support sharing. Jackson (2023) recommends registering a study hashtag on a social media analytics site, such as Symplur. This supports analysis of the impact of the recruitment activity on social media. Some technological knowledge is required to develop adverts that are accessible to social media users (Darko et al. 2022). It is recommended that institutional review boards review and approve recruitment advertising materials as they constitute the start of the informed consent and subject selection process (Johnson et al. 2021). To maintain momentum for engagement, researchers should ensure single click access to study information and a contact form (Stokes et al. 2019; Jackson 2023; Oudat and Bakas 2023). These strategies were adopted for the research apart from registering the hashtag with a social media analytics site.

4.1b: The participant recruitment story.

Participants in the research were required to have used open education resources as continuous professional development, to support the development of a theory that is grounded in their experiences. Eligible participants may be based in education or clinical practice. Clinical nurses are considered a difficult population to recruit to research because of their workload, organisational structures and the need to secure ethical approval from the United Kingdom Health Research Authority (Chambers et al. 2020; Bethel et al. 2021).

The recruitment of nurses can be challenging, and it is not unusual to have low response rates from them in research studies, especially if there are no incentives for them to participate (Stokes et al. 2019; Chambers et al. 2020; Darko et al. 2022). It is

noted that using social media for recruitment excludes potential participants facing digital poverty or who are not using X. The researcher used X because those nurses using social media are likely to have the knowledge, skills and resources to access online learning.

The research design focused on the recruitment of participants from a diverse range of professional backgrounds and contexts across the United Kingdom. This uncoupling of nurses from their organisations (Jackson 2023) was a considered decision. It served to minimise the potential for bias arising out of targeting participants within an organisation that is developing their use of open education resources around the time of the research. There was no funding available to offer incentives for participation, so the researcher was relying on goodwill of other registered nurses to support data collection. Recruitment using social media was challenging and the low response rate meant that a blended approach of snowballing and direct invitation was required to achieve recruitment targets.

4.2: Online and social media recruitment strategy.

4.2a: Failed online recruitment (purposeful sample).

The pandemic impacted the research process significantly. Initially, it appeared to offer a rich opportunity to access clinical nurses via a gatekeeper at Health Education England because there was an influx of nurses returning to practice. All nurses returning to the temporary professional register were required to complete online learning on the e-Learning for Healthcare online portal hosted by Health Education England. The researcher was granted ethics approval to advertise for participants on e-Learning for Healthcare for six months to these potential participants. The timing of this opportunity resulted in the researcher primarily focusing on recruitment through e-Learning for Healthcare, rather than on X as originally planned.

Despite careful planning of the advert and provision of a one-click contact link, the researcher had no interest from potential participants. Subsequent discussion with other users of e-Learning for Healthcare and the stakeholder revealed that the advert appeared on the front page of e-Learning for Healthcare when the returning nurses registered for their training. They could not revisit that page, and the advert did not appear again anywhere else on the e-Learning for Healthcare site. They were unlikely

to express interest in the research before completing the learning and there was no facility for the researcher or Health Education England to share the recruitment advert after the learning was complete. This was a powerful lesson in understanding the system where the recruitment advert was housed. It led to refinement of the advert and sharing through the researcher's personal professional network on X.

4.2b: Revised recruitment strategy.

The experience of failed recruitment led to revision of the recruitment advert. Ethics amendment approval was given to advertise on X. The researcher posted an ethics committee approved advert with a summary of the study, a QR code to the full study information and a one-click link to a contact form (figure 5). They used hashtags relevant to the study in the post when the advert was shared on X. The advert was shared and contacts in the researcher's professional network were encouraged to share the post by 'reposting' it, to reach out to their contacts.

4.3: The research sample.

A total of eighteen participants were recruited through a blended approach. Seven participants contributed exclusively to purposeful data collection, and six to theoretical data collection. Five participants contributed to both purposeful and theoretical data collection (table 7). Social media recruitment had a low impact, resulting in three out of eighteen participants. The most productive recruitment was by direct invitation to personal and professional contacts who had used and had an interest in online learning. Word of mouth and snowballing approaches were the most effective for recruiting clinical-based nurses, whilst direct social media advertising attracted academic nurses.

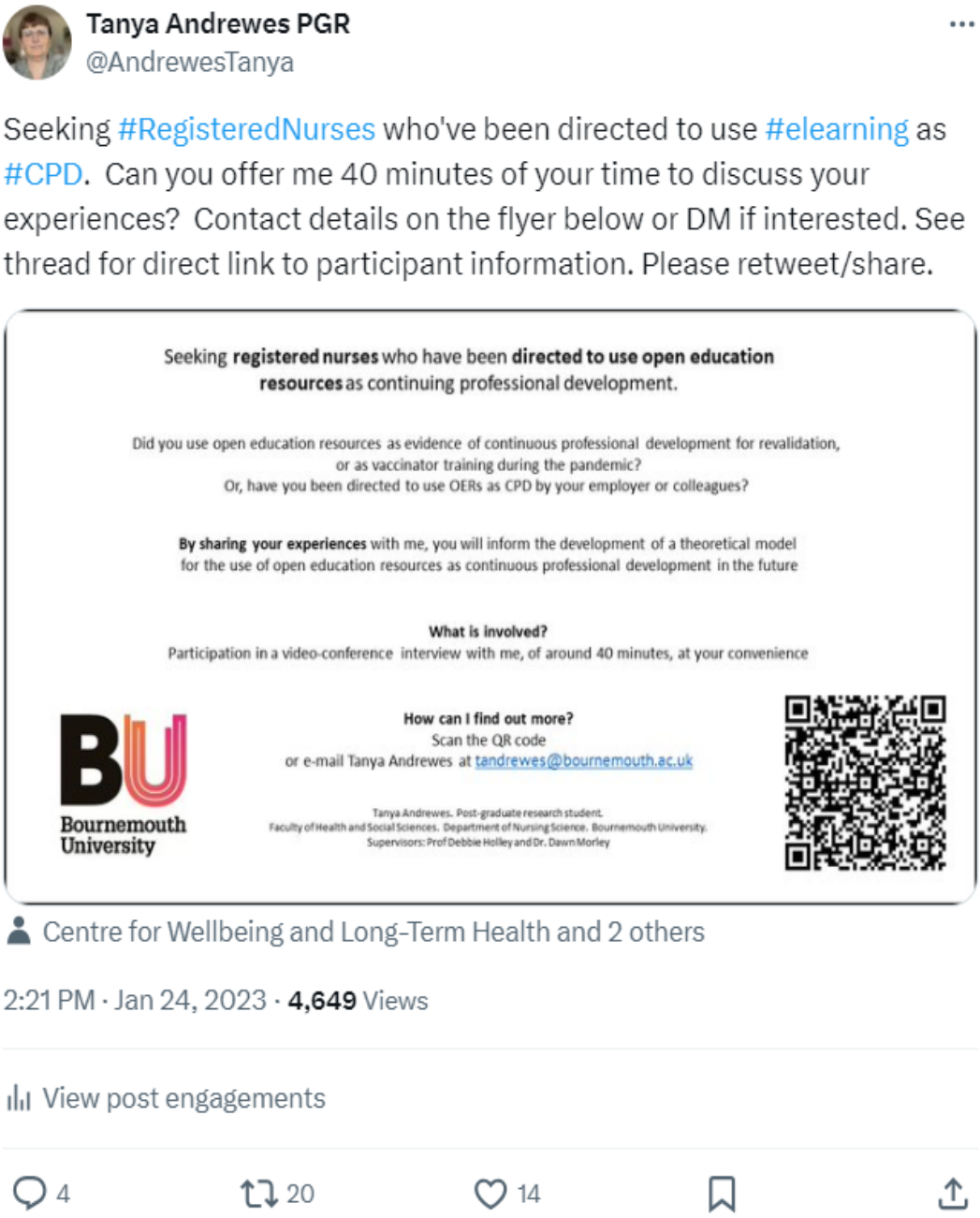


Figure 5: Approved advert for recruitment for purposeful data collection.

Table 7: Summary of participant by recruitment approach.

Purposeful sample		**Participants in both samples**	**Theoretical sample**	
Number of interviews	Source of recruitment	Number of interviews	Number of interviews	Source of recruitment
3 [pilot interviews] 9	Direct invite: 1 Social media: 1 Word of mouth: 1 Direct invite: 3 Word of mouth: 6	5	6	Direct invite: 2 Social Media: 2 Word of mouth: 2

The balance of participants was initially skewed to female nurses (n=10), all of whom had been qualified for more than 20 years. To develop breadth of representation targeted direct invitations were made to male and newly qualified nurses. The social media recruitment advert was also targeted towards male and newly qualified nurses by using hashtags (see figure 6). As the study progressed the researcher adapted the recruitment advert to include some examples of open education resources or online portals offering free online learning (see figure 6). This action was taken because the purposeful interviews revealed that most participants were not familiar with the term open education resources. This may have influenced their perception about their potential eligibility to participate, reducing opportunities for recruitment.

The research sample, although still heavily weighted towards female nurses who had been qualified a long time, represented a wider spread with respect to gender and length of time since qualification because of the targeted recruitment (see figure 7). Participants in the study were either adult nurses (n=16) or mental health nurses (n=2). Eleven nurses were based in practice, representing hospital-based, community and private sector organisations. Seven participants were registered nurses who were based in education (see figure 8). Of those based in practice, three had roles that had education delivery within them. The practice context for these participants is not specified in figure 8 as it could threaten their anonymity in the research.



Figure 6: Adapted recruitment post and advert.

Participants from the purposeful sample were invited to join the theoretical data collection if they met the new inclusion criteria of having used free online learning independently as continuous professional development. Five participants from the purposeful sample were eligible for inclusion in the theoretical sample and agreed to be interviewed again. The information sheet for the theoretical recruitment included examples of open education resources to help individuals discern if they had used these independently. One individual responded to the recruitment advert on social media, and one was recruited through word of mouth. The remaining participants were recruited through direct invitation from the researcher.

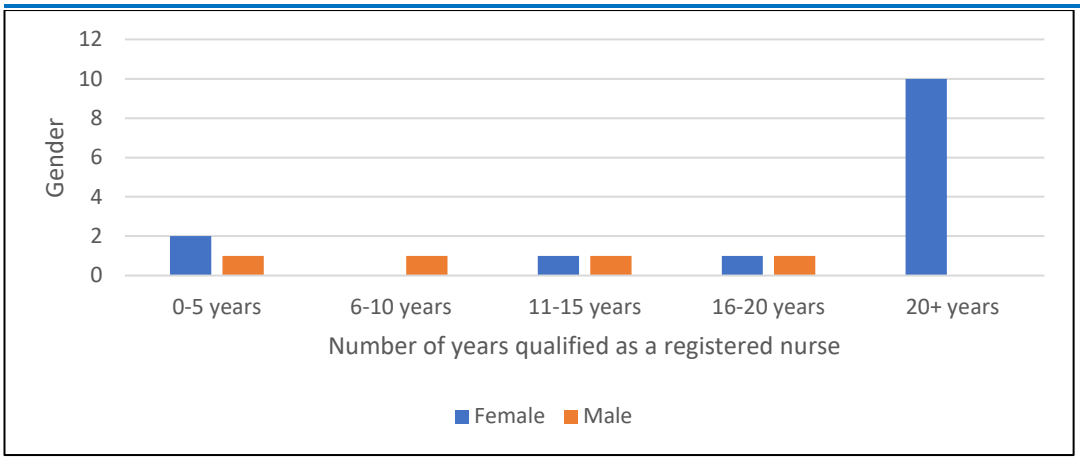


Figure 7: Summary of participant by gender and length of experience as a registered nurse.

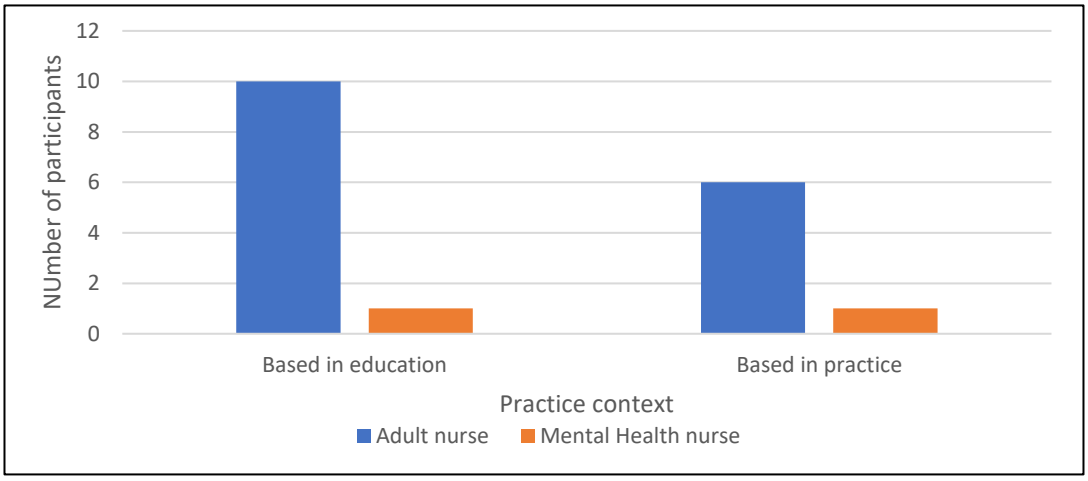


Figure 8: Summary of participant context of professional practice and clinical background.

4.4: Data collection and analysis.

Data was collected and analysed by Tanya Andrewes between December 2022 and July 2024, with validation of theoretical categories in September 2024 (see figure 9).

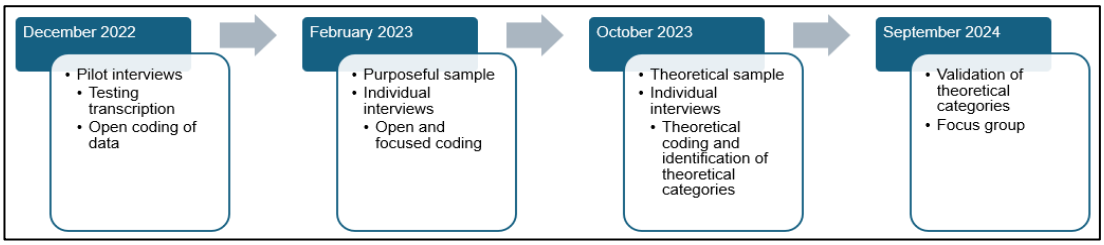


Figure 9: Timeline for data collection and analysis.

4.5: Data collection methods/procedures.

The use of audio recorded interviews for qualitative data collection is long-established (Charmaz 2014; Creswell and Poth 2018; Creswell and Creswell 2023). This practice provides a hard copy of the interview, which supports accuracy of transcription. Videoconference tools were used extensively during the pandemic in personal as well as professional contexts, enabling people to remain in contact with others during the lockdown (Jackson 2023).

Data was collected using either Zoom® or Microsoft Teams® videoconferencing software. Interviews lasting between thirty and forty minutes were recorded with the consent of participants. The online consent form was checked prior to each interview and consent was confirmed verbally before the interview commenced. Privacy settings were enabled for the videoconferencing platforms to ensure digital security for the interviews. All but one interview had full audiovisual recording. One participant was unable to use their camera because of technical difficulties. The use of the camera function helped to contribute to the establishment of rapport with the participants through eye contact and supported the review of non-verbal cues. The researcher made brief notes during the interviews, which helped to guide the interview, supported by the semi-structured interview schedule which is available in appendix 7.

The use of videoconference software enabled the researcher to concentrate on the interview questions. The researcher made brief notes about responses or areas to pursue in the interview. One participant was unable to connect to microphone and required support from their partner to enable participation. The researcher failed to record the start of one interview so made notes immediately after it ended to reflect the early interview content. When recording was underway for this interview the researcher incorporated questions that enabled the participant to confirm points they had made earlier. In one interview, the researcher had to respond in the moment to the participant taking a phone call. This led them to plan how to quickly mute a videocall and pause the recording to protect privacy, should this happen again. In subsequent interviews the researcher checked that the participants' phones were off before starting.

4.5a: Pilot interviews.

Three pilot interviews were conducted (see table 7) that enabled the researcher to evaluate their interviewing skills. They also supported the researcher to assess the connectivity, recording and transcription service in Zoom® and Teams®. Pilot interviews were transcribed and coded in NVivo Pro 20®. The pilot interviews confirmed that the semi-structured interview schedule would elicit data that would answer the research question. An analysis of the interview recordings and the data generated confirmed that the interview process was robust. Rich data that was well-focused on the research question was gathered in all three pilot interviews, so these were included in the research.

The pilot interviews enabled the researcher to consider the videoconference setting as a tool for data collection. They made a field note during a pilot interview about the impact of position and proximity of the camera on the interview and the associated impact of using eye contact (see researcher notes 3). The researcher noted that both factors had a potential impact on the feeling of safety and comfort for both them and the participants in the interview setting. This is important as the creation of a safe environment for the interviews is key to eliciting data from the participant (Wakelin et al. 2024).

Researcher notes 3: Field notes and reflection about the position and proximity to the camera in the video-conference interview.

> *Early in the interview I noticed that I felt uncomfortable with how close to the camera the participant was. Their face almost filled the screen, and they were directly looking at me the whole time. Videoconferencing creates a stronger intensity of eye contact, than when in the same physical space as a participant, because of the need to look into the camera to demonstrate listening and engagement. The combination of filling the space and maintaining eye contact made me feel pressurised and uncomfortable when asking questions and when making eye contact with the participant.*
>
> *My immediate response was to check my own position and although my image did not fill the screen, I moved my laptop back on the desk so that it filled about one third of the screen. I did not feel able to ask the*

participant to move back from their camera part way into the interview as it may have made them feel uncomfortable. It would have made me feel more comfortable if I had and would have meant I could see more of them on screen for observing non-verbal cues. To manage this in subsequent interviews I checked before starting whether I felt comfortable with the position of the participant and myself. I did not need to ask anybody else to move but would have done this before the interview commenced if it had been necessary.

This was important because it highlighted an unforeseen potential challenge to the data collection, and it impacted me as the researcher as well as participants. I did ensure in subsequent interviews my image filled about one third of the screen to reduce the impression for participants that I was 'in their face', which could create a power imbalance and stilt the flow of the interview.

4.5b: Transcription of interviews.

The interview transcript was created using the transcription facility in Microsoft Office365®. The automatically generated transcript does not accurately capture all details of the interview and does not capture the emphases on points that participants make during the interview, but it is a good starting point for editing. The researcher thoroughly checked and edited each transcript for accuracy against the video recording prior to entering it into NVivo Pro 20®. Data was anonymised at this point and each participant was given a number, reflecting the order of the interviews (see example transcript in appendix 8).

The researcher also anonymised detail within the interview relating to participants' clinical speciality or organisation. These steps were taken because the research sample is discrete and the data is based on narrative, so the participants may potentially be identified by a reader linking their work context and clinical speciality. The transcription was a helpful process as it enabled the researcher to become familiarised with the data quickly. The researcher undertook a purposeful second review of the recorded interviews to check that they had captured relevant nuances and non-verbal cues.

4.6: Purposeful data collection and analysis.

Anonymised data was added to NVivo Pro 20® where the data analysis was managed. The researcher began by open coding the first pilot interview as advocated by Charmaz (2014) (see figure 7). The researcher started coding the transcript line-by-line in NVivo Pro 20® but found themself creating broad themes that did not feel grounded in the data, a trap outlined by Charmaz (2014). They then started afresh, this time coding the first interview outside of NVivo Pro 20® using a hard copy of the transcript. This enabled them to focus solely on the content, focusing on gerunds and asking “what is happening here” as recommended by Charmaz and Belgrave (2014). Removing the technical process of coding in NVivo Pro 20® resulted in the codes feeling grounded in the data.

The researcher transferred the coding from the first interview into NVivo Pro 20®, then continued to code using the software. Open coding of the data took place in NVivo Pro 20® for the first five purposeful interviews. There was clear evidence of patterns developing in the open codes, so the researcher began focused coding. The coding of the first five interviews in the purposeful data resulted in two hundred and ninety-nine open codes that reflected the participants’ experiences of finding and using open education resources. The researcher returned to the data and the open codes and began to merge these into focused codes (see table 8), which were developed further with the analysis of subsequent interviews. In-vivo codes were used at all stages of data analysis to capture participants’ specific views in their own words.

Mert et al. (2023) propose that the recent developments in artificial intelligence have created a useful tool for data analysis. Artificial intelligence is being used to undertake thematic analysis of qualitative research data and is being developed as integral element of computer assisted qualitative data analysis systems. At the time of writing the NVivo Pro 20® does not support data analysis through inbuilt artificial intelligence tools. Artificial intelligence has not been used for the data analysis in this research. The participants would need have had to give informed consent for their data to be used in this way (Samuel and Wassenaar 2024). The researcher had not considered the use of artificial intelligence in data analysis because it was not significantly developed as a tool when the research was designed. They propose that it would not have been appropriate for this research since artificial intelligence cannot replicate their own knowledge and values that contribute to the co-constructed grounded theory.

The researcher wrote notes during coding to capture their decisions and actions (see researcher notes 4). These notes helped to give the researcher the permission and confidence to code using Charmaz's framework for inductive theory generation (Charmaz 2012; Charmaz and Belgrave 2019) after they identified that they had resorted to a familiar and comfortable process of axial coding.

Table 8: Focused codes arising from purposeful data sorting.

Focused coding (ordered by number of references within the interviews)
1. Being fit for purpose in role context
2. Recording evidence of achievement or completion of learning
3. Organising self for learning
4. Adapting to evolving learning systems and processes
5. Engaging with e-learning
6. Making judgements about e-learning quality or concerns
7. Resourcing your own continuous professional development
8. Feeling under pressure because of e-learning
9. Applying the learning
10. Having support for using the technology
11. Being self-motivated and autonomous

Researcher notes 4 refers to the researcher's developing depth of critical analysis over the course of the research process. This key research skill development has been supported by critically reflective supervisory discussions that challenged them to be ever more questioning during the research process.

Researcher notes 4: Developing confidence in coding and co-construction.

> *I was sorting coded purposeful data to reduce the number of codes, so that they were manageable in preparation for theoretical data collection. In using line by line coding, I had generated 299 codes. Some codes had a high number of references to them (i.e., 334 references in the code 'being an accountable professional'), but when analysed against the transcripts the actual relevance of the data in that code was not significant to nurses' experiences of using open education resources as continuous professional development.*

I felt overly occupied about generating hard evidence of coding. I recognised when reviewing the data that despite a stated intention to use Charmaz's (2014) coding framework for the research I had resorted to axial coding. This was a fall back to previous experience of conducting primary grounded theory research at a time when the emphasis was on producing objective evidence in a post-positivist research climate (Campbell 1999).

Systematic axial coding felt safe to me as a novice postgraduate researcher but using axial coding created a disconnect between the participant's stories and the findings so that they felt abstracted. This creates a threat to the relatability and credibility of the findings.

I observed that the number of references to codes does not necessarily indicate their level of importance or relevance for the research. Deep analysis is required to identify how the coding informs the development of the core research question. I recognised that I needed to move away from axial coding and follow Charmaz's coding steps (Charmaz 2014; Charmaz and Belgrave 2014; Charmaz 2015). This would ensure that I did not limit my vision and imagination for the theory development by focussing tightly on a process from a different approach to grounded theory generation (Timonen et al. 2018). I recognised a need to be more responsive to the data and to develop the confidence to be analytical and to be more creative in abstracting the categories from the data, with evidence through memoing.

I have been worried I have not been consistent enough with coding up to this point of sorting focused codes, but on balance I think the data collection and analysis so far has been descriptive or low-level analysis. I am seeing patterns now in the data that I wasn't at the beginning. I am confident that the patterns are clearly traceable in the coding. The difference is that now I am beginning to think about the data at a higher analytical level.

I need to check myself to ensure I am not focussing on just mapping evidence for coding in a positivist way. I need to develop further confidence in the data collection and analysis process to give me the freedom to be open to patterns emerging in the data and to visualise

possibilities in it. I need to use robust memoing to demonstrate the decisions about coding.

4.7: Purposeful data sorting.

Data sorting in constructivist grounded theory serves to clarify the central research question, and to move the research from the exploration of individual participants' experiences towards the development of a theory (Charmaz 2014). Traditionally this process often takes place in a physical space, where the researcher sorts codes into groups using paper-based resources. Technological advances have however resulted in the development of free Internet-based software such as Miro® to support data sorting. Miro® offers a collaborative space to work when data sorting, affording the researcher the flexibility to manage and sort large amounts of data into two-dimensional form. Data is sorted into multiple columns or workboards in an online space, with connectors to highlight relationships (Harden et al. 2022). Miro® supports sustainability by enabling the researcher to manage data electronically and to share it quickly and easily amongst a research project team, or research participants.

As the researcher began the process of data sorting from the focused codes, it became apparent that they needed to review the original coding, since they had coded the purposeful data to more than one node in NVivo 20® (see figure 10). Whilst this had initially helped them to consider all possibilities about what was happening in the data, the amount of data was overwhelming and impossible to sort in a coherent manner. The researcher reviewed the focused codes again and ensured that each piece of data was coded once only. This action helped to progress data sorting. The researcher used a mind map on a Miro® board to sort the data, grouping the codes into common themes (see figure 11). They numbered the eleven focused codes and tagged the relevant sticky notes in the mind map to give an overview of how the focused codes informed the data sorting (see figure 12).

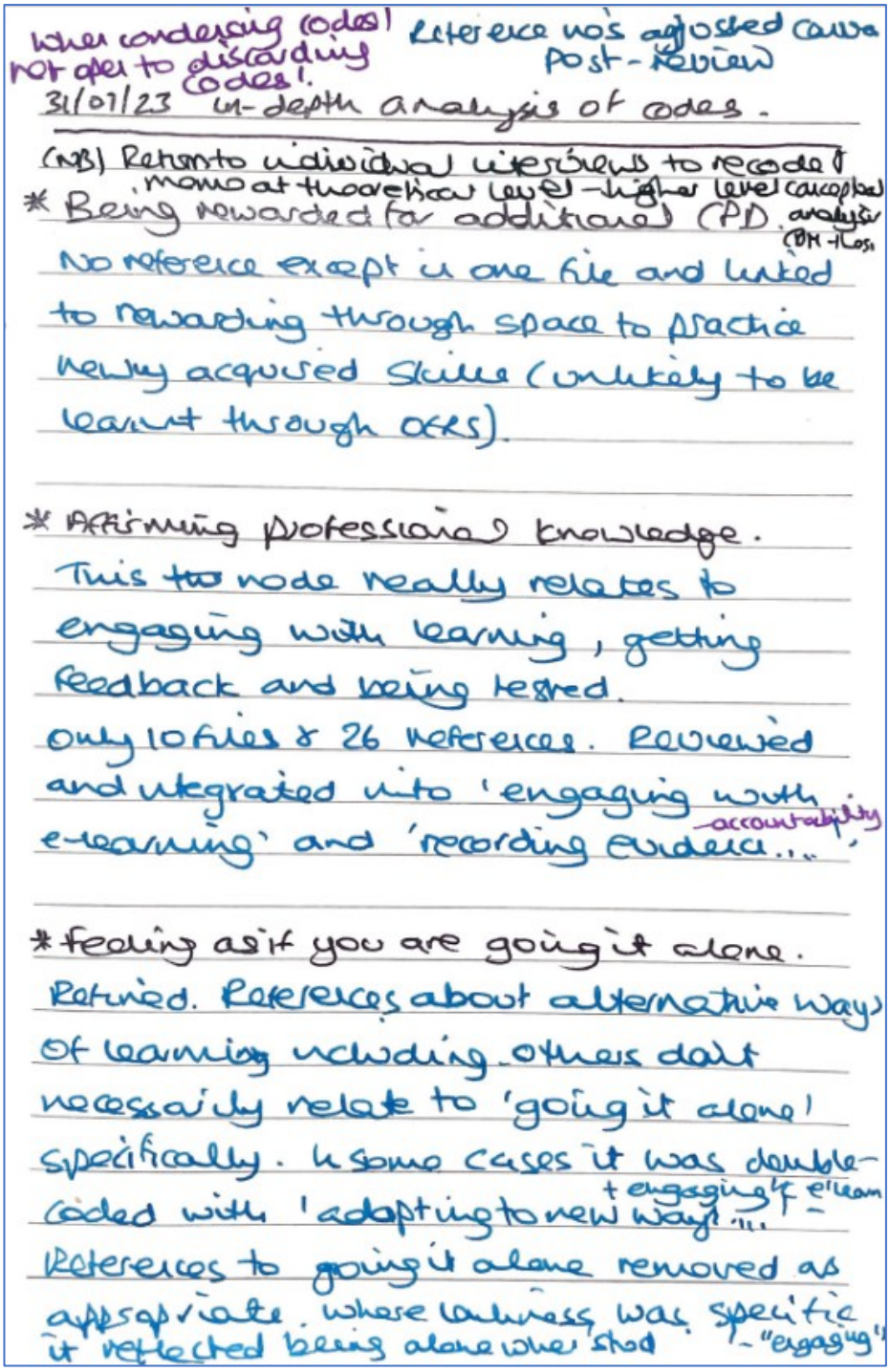


Figure 10: Handwritten memo. Condensing codes during purposeful data collection and analysis.



Figure 11: Sorting data from the purposeful sample on a Miro® mind map. Full access at https://miro.com/app/board/uXjVMlwxfNQ=/
(Andrewes 2023).

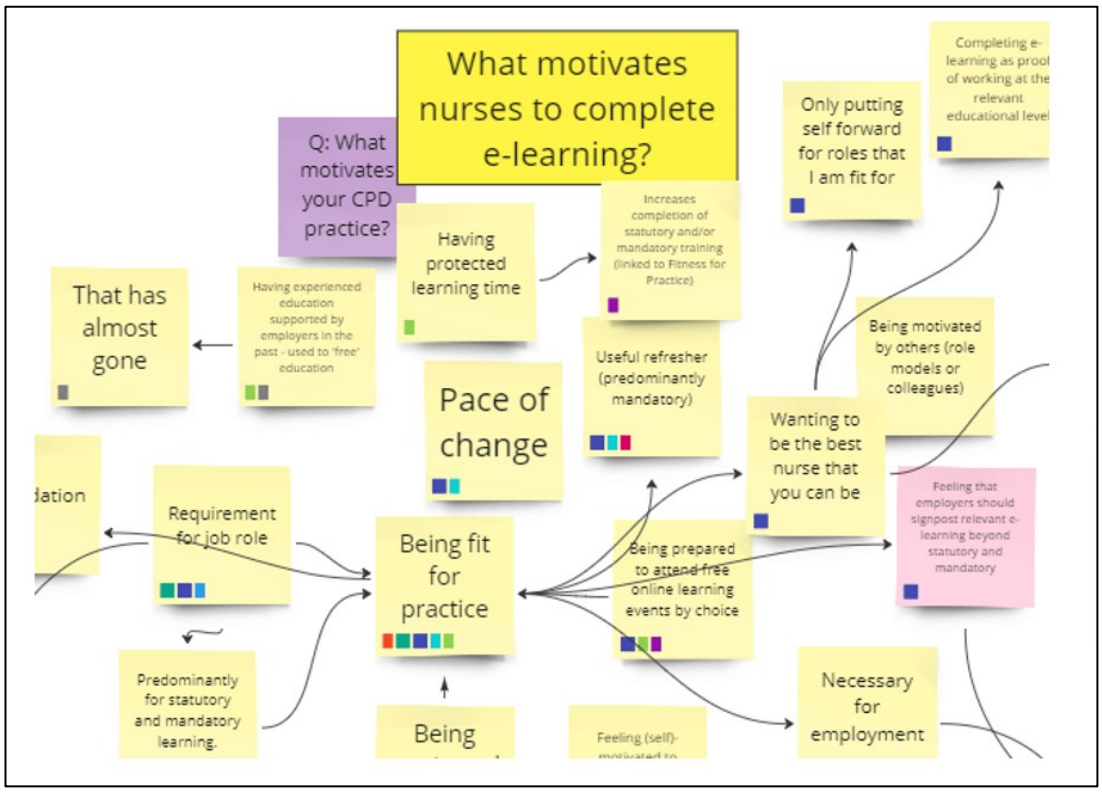


Figure 12: Full size extract from Miro® mind map.
(Andrewes 2023).

The themes in the mind map reflected a timeline of the process that registered nurses go through to find and use open education resources. Consequently, the researcher placed them into a textual storyboard (see figure 13). Storyboards have been used for gathering qualitative data in health research for some time and are increasingly considered to be an appropriate approach to visualising scientific data (Kisak and Conrad 2004; Mignone et al. 2019; Asgari and Hurtut 2024). Birks et al. (2009) assert that that the use of story is effective for developing and disseminating grounded theory so that it is contextualised, engaging and relevant. Further, it allows the data to support how the story develops. Presenting the themes as a textual storyboard enabled the researcher to define the central research question, which is “how can nurses be prepared for adapting to evolving technological systems in professional practice and specifically continuous professional development, post-registration”?



Figure 13: Storyboard to identify inclusion criteria and questions for the semi-structured interviews. (Andrewes 2023).

The storyboard enabled the researcher to identify the inclusion criteria for the theoretical sample and to develop the questions for the semi-structured interview schedule. Participants must have used free online learning for continuous professional development to be eligible to contribute to the theoretical data collection and analysis. They must have independently sought out free online learning resources and/or critically reviewed free online learning to use as continuous professional development.

4.8: Memoing and reflexivity.

The researcher developed research notes throughout the research process using audio, images and handwritten or word-processed text. The memos included descriptive field notes, analytical memos, audio memos and process memos. Engward and van Veggel (2024) highlight the importance of organising researcher notes effectively so that they can return to them for further analysis. The researcher entered all their notes into NVivo Pro 20® and labelled them with a prefix according to the activity they reflected of description [DES], analysis [ANA] and audio transcript [AUD], sequential number and a short title (see figure 14).

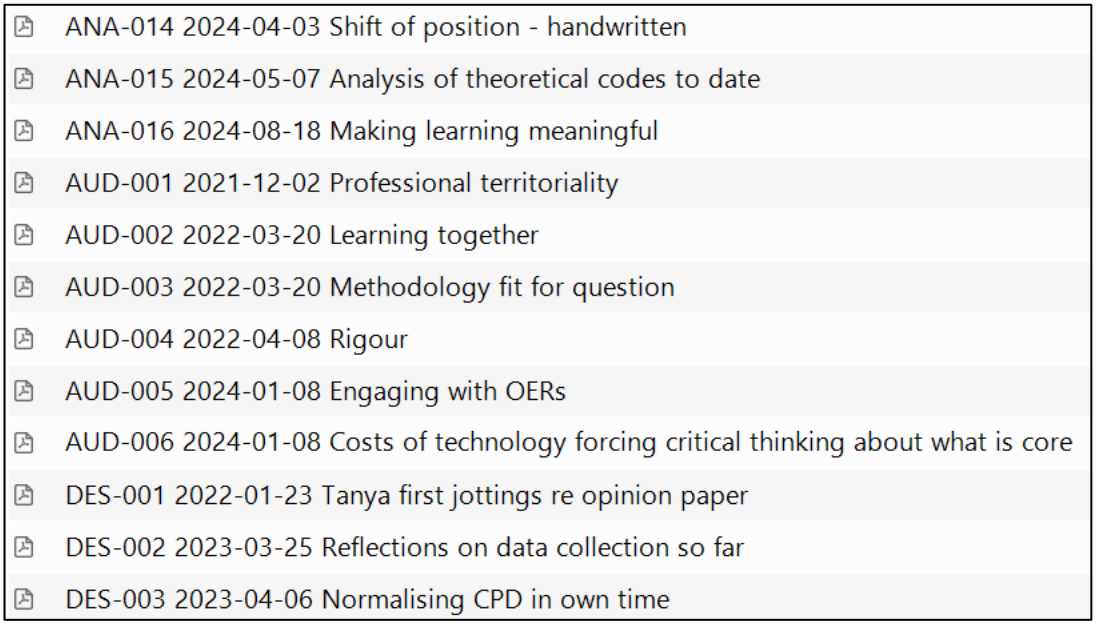


Figure 14: Example of organisation of researcher notes in NVivo Pro 20®.

Hand-written memos were used when the researcher was engaging in deep analysis of the data. The researcher began to develop the use of annotations and memos as they performed the analysis of purposeful data. Whilst familiarising themselves with NVivo Pro 20® they added descriptive annotations, for example, to explain where and why a piece of data was not coded as it was not relevant to the research question (see figure 15). They also developed field notes and memos about the research process, for example as a reflection on the use of a backdrop in the Audio-recording means that the research does not call and the impact on the interview (see figure 16).

In relation to co-creation of the data, the researcher developed a hand-drawn memo about the fluidity of researcher positionality (see figure 17) that was developed into a full written reflexive memo (see researcher notes 5). The researcher's notes are not required to be shared in the thesis in their entirety (Engward and van Veggel 2024), but they will be available as part of the raw data in to be housed in the institutional repository on completion of the research.

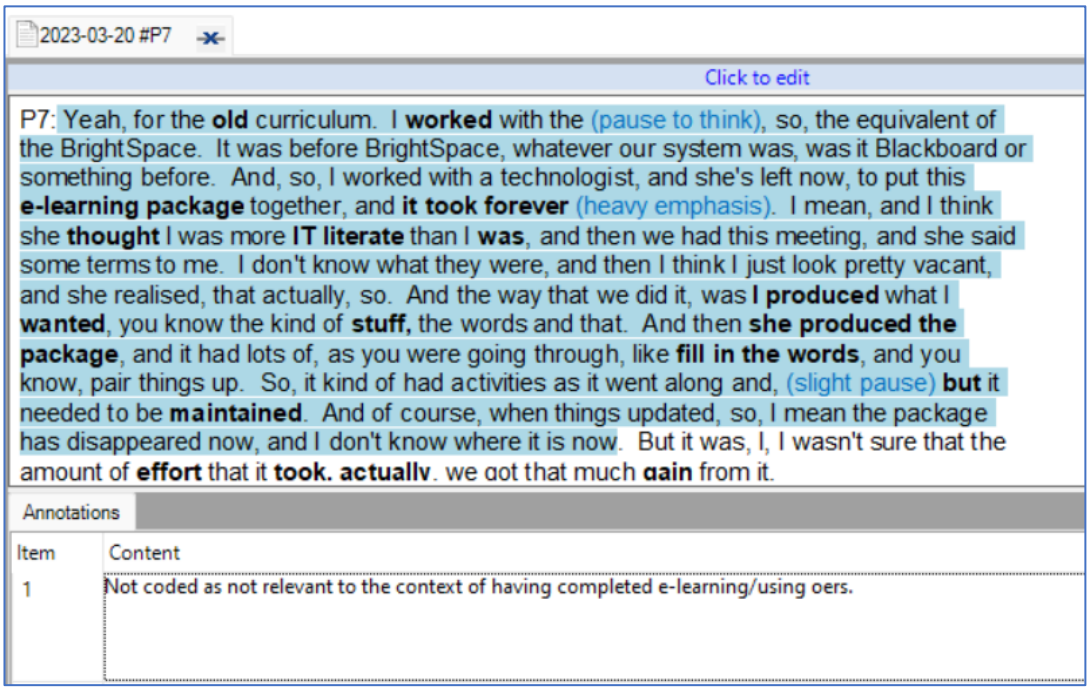


Figure 15: Annotation in NVivo Pro 20®: Interview in purposeful sample.

2023-10-09 #P13(#P7) ANA-007 2023-11-03 Leading th

Click to edit

P13: TED talks, yeah. I'm not a **massive fan** of TED talks. I would say there's a **couple** that I **really like**. Some of them, I think are too, you know, quite often the talk's not really what the talk's about, or what the learning's about, and it's a bit **too**. I need it to be a little bit more **obvious**. RCN resources. Yes, use them. Do you want me to go through these, which ones I know of?

TA: Well, you can do, if there's anything that sort of jumps out at you, that you've been aware of, but, I'm really interested in how you.

I have listed some oers on the room background as a trigger for remembering oers that may have been accessed. I did'nt intend them to be used as a list to work through specifically, but to try and raise awareness of the range of oers avauilable, that may have been accessed, or may not. This could potentially lead the interview (see above). I will review as I go along and keep if helpful, or ditch if not.

P13: noted that they liked the list on the screen and found it useul. I need to direct how it is used - perhaps a brief look at the beginning of the interview for context.

Figure 16: Researcher note on the use of a backdrop in the video call during theoretical data collection, in NVivo Pro 20®.

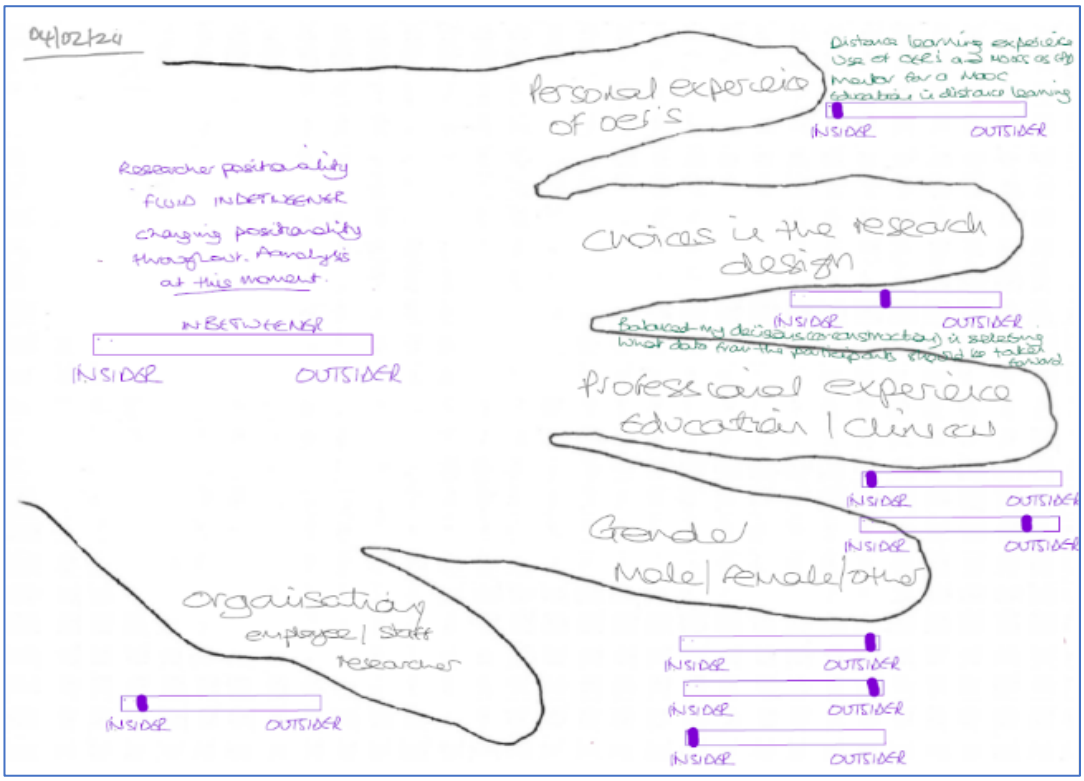


Figure 17: Fluidity of positionality as researcher in the study.

Charmaz (2006, cited in Birks et al. 2008) discusses early and advanced memoing, where memos become increasing reflexive and analytical as the research progresses. In constructivist grounded theory methodology, reflexivity supports the iterative analysis of data and development of knowledge (Dean 2017). Organising the researcher notes methodically helps to demonstrate the advancement of critical analysis skills, in relation to the research findings and to research practice.

Researcher notes 5: Paying attention to how personal experiences and values might lead data collection and analysis.

> *I was creating a Miro® flowchart to map the sorting of focused codes from the purposeful data collection and analysis. I felt surprised when the data had minimal reference to the COVID-19 pandemic. I had expected it to be prominent, and I thought that the participants would share much more about the free e-learning and continuous professional development opportunities during the pandemic. If it was mentioned, it was by participants who volunteered for pandemic roles so had to do mandatory training online.*
>
> *I expected to hear more about e-learning during the pandemic because it opened the door to a lot of free online learning resources being made available. I engaged in a wide range of learning opportunities during that time. I assumed that other nurses would have had similar experiences. Data collection began shortly after the pandemic. I made brief references to COVID training in the purposeful interviews, even though I had not specifically written that into the semi-structured interview schedule because I thought it would be a useful context for nurses to recall free online learning that they may have done in the recent past.*
>
> *I could reflect how as an educator, my position was different to that of other registered nurses at that time though, especially those working in clinical practice. I was working from home, delivering education online. Nurses in practice were working under extreme additional pressures, so they were doubly disadvantaged in a sense. From the data, it appears that doing extra continuous professional development, or any continuous*

professional development beyond specific learning for COVID was not on their radar.

Similarly, I have come to realise, from the research interviews, that my experience as an educator was different to other educators who participated in the research. This is because of my prior experience of preparing and delivering online learning. They were learning how to develop online teaching materials and delivering online synchronous learning. My prior experience and the flexibility of working from home meant that I had space and time to access additional learning.

This realisation brought attention to the shifting positionality in the research and the danger of not being open to reflexivity. It reinforced the importance of considering assumptions that might arise because of my experiences in the field of the research and my values and the potential for misleading the data. In this case I was able to illustrate that references to COVID-19 were diverse cases in essence (see figure 12).

The action point is to continue with reflexive analysis throughout the research process, to be able to recognise potential threats to the rigour of the research that the failure to notice would create.

Throughout the research, memoing has offered the benefit of explaining the position of the researcher and their decisions in developing the grounded theory, thus emphasising the co-constructed knowledge. Reflexive and theoretical memos afford the researcher the imagination to recreate the landscape of knowledge (Dean 2017). This means that whilst not everything is new, it may be reframed in a new context through reflexivity. Memoing supports “the researcher in [making] conceptual leaps from raw data to abstractions that explain research phenomena in the context in which it is examined” (Birks et al. 2008, p68). In the case of this research, memoing supports explanations of how the research data about nurses’ experiences of using free online learning as continuous professional development were abstracted to develop the grounded theory.

4.9: Theoretical data collection and analysis.

Data collection and analysis in the theoretical sample mirrored the processes in the purposeful sampling after eligibility for this sample was confirmed. The semi-structured interview schedule was shared with the participants before the interview, so they could assess whether they had relevant experience to answer the questions. The interview questions focused on the preparation of nurses to use open education resources and not their broad personal experiences of using them.

The developing criticality of the researcher about the research process as well as the findings is demonstrated in their notes. During theoretical data collection and analysis, they became conscious that they had asked a participant a question that had inadvertently created a shift in the power balance between them. This became the focus of a reflexive memo (see research notes 6 below) as they analysed how they managed the situation to restore balance and focus to avoid a negative impact on the data collection. This experience served as a call to attention for the researcher to ensure that they remained open to analysing their actions and capturing them in research notes.

Researcher notes 6: Positionality and power.

> *During a research interview there were two occasions when I asked a question about whether the participant had heard of platforms beyond e-Learning for Healthcare, where free online learning is available (LinkedIn Learning and NHS Professionals) and Creative Commons licences for free open education resources. They replied 'no, should I have?'.*
>
> *I felt uncomfortable because I sensed a shift of power. Participants knew that I did have experience with open education resource use. I sensed they felt as if I was testing their knowledge when the intention had been to prompt memories of any free online learning platform that might have been accessed in the past but not recalled for the research. I felt a need to act in the moment to reassure the participant and to refocus the interview, to avoid potential loss of data because of my assumed power about open education resources.*
>
> *In the context of the theoretical stage of the data collection and analysis the information about participants' understanding is relevant to how nurses are prepared to use open education resources. The focus isn't on*

their knowledge of free online learning platforms. I realised that I needed to reassure the participant that it wasn't a test. I shouldn't have been surprised that participants are not aware of Creative Commons licences since nobody in the purposeful data collection and analysis had heard of open education resources. I want to focus on the data that the participants can offer and if they feel they are not knowledgeable in an area it might close their answers. I need to take care about this.

My discomfort was at least partially due to me causing a feeling of a power imbalance in the interview, because I was familiar with the platforms and the participant wasn't. My apparent 'insiderness' gave an impression of power. This conflicts with my professional standards as a registered nurse and an educator, and the ethical standards for research (Nursing and Midwifery Council 2018a; Bournemouth University 2022). It is also in conflict with my professional knowledge or espoused theories that I convey to students through the facilitation of an academic unit focusing on communication skills. I had not explicitly considered this aspect of interviewing resulting in a mismatch between the intended actions and the expected outcome.

I hope that this experience will increase my sensitivity to the impact of my actions in the research. I need to review the interview schedule for theoretical data collection and analysis and ensure that I don't detract from it. I need to maintain reflective analysis through researcher notes as I work to gather data, to avoid similar issues around power imbalance arising, and to respond to them in the moment and move on with data collection.

Following Charmaz's coding framework (2014), the researcher used open coding for the first five interviews in the theoretical sample, then focused coding until data collection and analysis was complete. Consistent with the focus on iterative constant comparative analysis in grounded theory approaches, the researcher returned to the purposeful data to confirm emerging codes and to check for diverse cases. This process served to confirm data saturation in the theoretical sample.

The theoretical data analysis resulted in the development of eighteen theoretical codes. Figure 18 illustrates the codes after sorting in the purposeful and theoretical

stages of data collection. It provides a visual representation of the progression of the findings from the focused codes to the theoretical codes, then the theoretical categories and sub-categories. The process of identifying the theoretical categories is discussed in full at 4.10 on page 116.

The management of data in NVivo Pro 20® was crucial to providing a trail of decisions and actions when coding that led to the development of sub-categories and theoretical categories in figure 18. It was not always as useful as expected when exporting images and charts, as detailed in researcher notes.

Researcher notes 7: Limitations of NVivo Pro 20®.

> *NVivo Pro 20® was proposed as an excellent data management system for the research. It was quite intuitive to use and was flexible in terms of different ways to code and review data. It was limited at times, however. I was frustrated that I was not able to create relationships in the data, connecting a code and sentiments for example. The support from QDA Training was excellent and I was able to ask about this but discovered it was not possible. The software is highly rated for exporting data, charts and mind maps but I found these complicated and time-consuming. I worked around this by using some screenshots (see figure 16 on page 109). I was unable to create a report as an image that captured participants' length of time qualified and their practice setting in one place. I resorted to using Microsoft Excel® instead, as this is familiar, easy to use and more accessible as I could enlarge the screen to visualise it better (see figures 7 and 8 on page 95). It was complicated to make mind maps directly in NVivo Pro 20®, so I used Miro® when analysing the data. Using the NVivo Pro 20® software for the research has developed my skills in database management but I was pushing the boundaries of it at times. It was a beneficial learning experience in terms of being open to all possibilities and being prepared to combine different strategies for presenting the research data.*

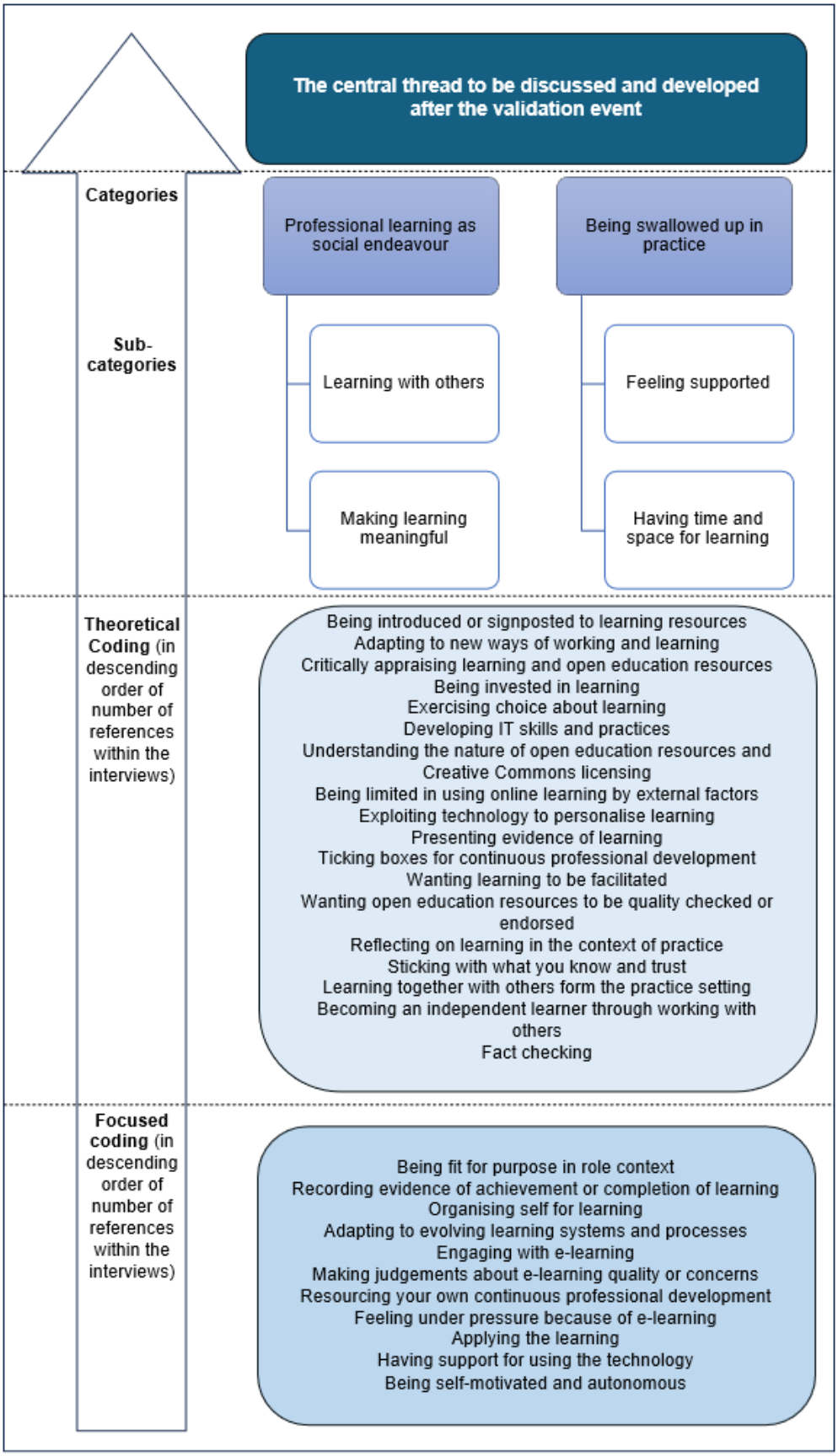


Figure 18: The development of sub-categories and theoretical categories from the focused coding, through theoretical data collection and analysis.

4.10: Development of theoretical categories.

The researcher used Miro® to sort the theoretical codes into sub-categories and categories and to identify the core concept. They used Miro® in a more advanced way than they had for purposeful data sorting, where they had moved elements around a single Miro® mind map board. For theoretical data sorting the researcher developed several Miro® boards, testing how the theoretical codes fitted together, or could be merged. Memoing during the process of data sorting supported them to analyse the influence or relevance of diverse cases on the fit of the data into the theoretical categories and subcategories. Two theoretical categories were identified. These were professional learning as social endeavour and being swallowed up in practice (see figure 19).

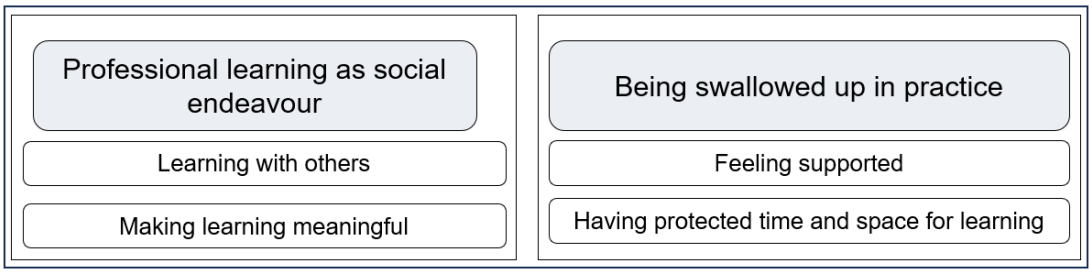


Figure 19: The development of the theoretical categories.

4.11: Validation of theoretical categories.

Trustworthiness in qualitative research is concerned with the level of trust that can be placed by the participants and readers in the way that the researcher conducted the research. It is a judgement about whether the researcher did “everything possible to ensure that data was appropriately and ethically collected, analysed and reported” (Carlson 2010, p1103). Participant validation, or member checking, is a key aspect of establishing the trustworthiness of the findings. It enables the researcher to be transparent about how the participants are represented and allows the correction of misunderstandings. The researcher presents the data from the preliminary analysis to the research participants, for them to validate and assess the researcher’s interpretation of it. Engagement in validation activities enables participants to express whether they can relate to the findings as credible and dependable (Lindheim 2022). In turn, this enables a critical judgement to be made regarding the transferability of the findings.

Lindheim (2022) presents three ways to achieve validation. The first two methods involve the researcher sharing transcripts and preliminary analysis with individual participants and seeking oral or written feedback from them. This results in a superficial verification that the researcher has captured the sense of the data in the way that the participant intended. In terms of the validation process these methods of getting feedback from individual participants are viewed as raising potential ethical concerns. Specifically, a power imbalance can arise, especially if the researcher shares a synthesised summary of emerging themes, so is asking individual participants to validate something that is beyond the original interview.

The third approach to validation brings participants together in a focus group setting (Lindheim, 2022). This presents a new set of ethical concerns, as the researcher needs to consider the impact of participants' loss of anonymity in the context of the validation focus group. Røthing (2002, cited in Lindheim, 2022) notes the need for the researcher to balance ethical responsibility and analytical freedom, questioning whether participants' responses should be accepted at face value and incorporated directly as new data or whether their reactions could be interpreted as potential justifications and defence mechanisms.

The benefits of participant validation through focus groups are that the presentation of a synthesised summary of preliminary findings leads to active discussion, enabling participants to make corrections or add information to the preliminary findings (Lindheim 2022). The depth of the data gathered in the validation focus group may be dependent to some extent on the presentation and facilitation skills of the researcher. The focused discussion that follows the presentation of theoretical categories actively supports the co-creation of understandings and interpretations between the researcher and the participants. Lindheim (2022) offers compelling evidence of how the richness of participant validation through focus groups in their work complemented the researcher's first draft of their findings. Their validation focus group supported adjustment of the analysis and refinement of the use of theoretical concepts.

A validation focus group was purposefully built into this research design. The researcher wanted participants to do more than verify that the transcript of the interview was accurate, or that they could relate to the preliminary findings on an individual level. They wanted to hear from participants' perspective, examples of how the findings made sense or not. They wanted to ensure that the validation focus group

sample was representative of participants across clinical and education practice settings and across gender, reflective of the overall sample for the research.

The selection of participants for the validation focus group was pragmatic. Fifteen of the eighteen participants who had taken part in the purposeful or theoretical interviews were invited to the validation focus group. Three participants were excluded, one who had not consented to be approached for the validation event and two who were lost to contact having moved on from their organisation.

The researcher set up a poll to gather participants' preferences for an online or face-to-face event. An online event was the preferred means of meeting. This may be because the individual interviews were conducted online or because they were not local to the researcher. Holding the validation focus group online was beneficial as it meant that participants from clinical practice were able to engage. They could not have attended an in-person event due to their workload. The meeting was scheduled when the most participants were available to join.

Five participants engaged with the validation event in September 2024, four in the focus group and one in an individual interview (see table 9). Participant characteristics are excluded from the table to overcome the risk of identifying participants in view of the small numbers. One of five expected participants did not attend the validation focus group and was lost to contact following the event. Whilst a rich range of perspectives was presented and integrated into the findings from the validation focus group, the researcher wanted to extend the validation to a wider audience of participants.

Validation event – focus group		Validation event – one-to-one	
Number of participants	Gender identity	Background	Length of time qualified
5	Female n=5	1	Male n=1

Table 9: Participant characteristics of validation event.

Twelve participants had initially agreed to take part in a validation focus group however were not available at the scheduled meeting time because of work commitments. The researcher re-checked availability of the remaining eight participants who had expressed interest, with a view to conducting a second

validation focus group. This remained impossible due to scheduling challenges but following this contact one participant consented to provide one-to-one feedback on the theoretical categories by individual interview. This interview was conducted, transcribed and analysed alongside the validation focus group transcript, with the entirety of the validation feedback integrated into the ***findings*** in chapter five.

4.12: Key points.

The key points relate to two aspects of the research. The key points regarding the use of a constructivist grounded theory methodology are that:

- Charmaz's (2014) framework offers a structured and supportive guide for the novice researcher in undertaking a grounded theory study.
- A clear and well thought out recruitment strategy is vital to enable the collection of data that will answer the research question. The inductive nature of data collection and analysis means that the researcher needs to be open to developing the recruitment strategy as the study progresses.

The key points regarding the use of video-conferencing software are that:

- It offers a useful and practical alternative to face-to-face interviews, reducing the associated costs for participants and researchers in terms of travel and time, and affording them flexibility for interview arrangements.
- It affords the advantage of audio-visual recording that enables the researcher to review the video when transcribing, to observe for participants' nuanced cues and body language during the interview.
- It is fallible and the researcher should be prepared for technical failures, ensuring that they use established good practices for grounded theory interviewing. This requires note-taking during the interview and allowing time directly after it to record reflections and thoughts, to help to mitigate against potential loss of data.

5: Findings.

This chapter presents the research findings, grounded in the stories of the participants. The participants discussed their experiences of using free online learning resources with the researcher however, it quickly became apparent that they were not familiar with the term open education resources. The language in this findings chapter reflects the participants' own references to Internet-based training or free online learning.

5.1: General context.

Nurses in the purposeful sample predominantly reported using Internet-based learning materials for core or mandatory training for their organisation. Most participants, across both purposeful and theoretical samples, reported using signposted, established and trusted online learning portals or repositories. They were used to accessing e-Learning for Healthcare and NHS Professionals for example, rather than seeking out free online resources, including open education resources, independently. The learning materials in e-Learning for Healthcare and NHS Professionals are cost-free for nurses who register with them, but the contents are subject to copyright so they can only be used in their original form. One participant reported that they had accessed open education resources with Creative Commons licenses, whilst the remainder had accessed free but copyrighted online learning materials.

Five nurses in the purposeful sample had sourced and engaged with online learning independently to extend their professional knowledge. They were consequently eligible to take part in the theoretical data collection and analysis. They were invited for interview and subsequently participated in the theoretical data collection. Of the eighteen participants, three reported using their evidence from free online learning for revalidation with the Nursing and Midwifery Council. Two participants had been qualified for less than three years, so had not yet presented evidence to the Nursing and Midwifery Council for revalidation. The remaining participants had used learning from practice and formal education programmes as evidence for revalidation.

5.2: The categories.

Data analysis resulted in the identification of two clear categories, ‘professional learning as social endeavour’ and ‘being swallowed up in practice’ (see figure 19). The categories are discussed in full below.

5.2a: Professional learning as social endeavour.

The category professional learning as social endeavour comprises two subcategories. These reflect the participants’ views and feelings about the importance of ‘learning with others’ when developing professional knowledge for practice, and about the importance of ‘making learning meaningful’ to the individual nurses’ context of practice.

5.2a.i: Learning with others.

The subcategory learning with others was threaded throughout all the interviews, as a preferred way of learning for professional practice. This may appear to be counter-intuitive to the subcategory heading because online learning is an isolated and isolating activity. Participant 8 highlighted how doing free online learning means *“being stuck at a computer screen doing your all your training, which just more and more isolating”.* Participants raised concerns about relying on free online learning as continuous professional development because nursing practice is a social endeavour. They stated that they valued face-to-face learning with peers where they benefit from reflective discussion and the sharing of practice experiences. Participant 8 described how,

> *“I crave that interaction. It's peer support, and knowing that the problems I've had, someone else has had, and they've got an idea for it, or I can help them”.*

Learning with others supports nurses to ask questions, especially when they are interacting with peers who have knowledge from similar experiences or work contexts to share.

Free online learning resources are typically completed in isolation however participants gave examples of how they still sought support from other people in relation to the learning. Timely access to others following the learning was presented as important, whether through colleague or educator support or a synchronous discussion. This was because the nurses' momentum for learning was lost if they were unable to ask a question or clarify a point about the learning in the moment before progressing with it.

One example of learning with others alongside using free online resources is fact-checking with colleagues. For example, participant 19 described how,

> *"We have specialist nurses for most conditions, so if I had any questions, I could go to them".*

The importance of learning with others was linked to concerns about the accuracy and currency of free online learning materials. Participant 5 explained that,

> *"What I've worried about, especially someone that's newer to the field, thinking that perhaps that what they've seen, or what they practice is wrong".*

This fear related to concerns about either the accuracy or inaccuracy of what had been read, and whether the learner may have misunderstood the facts or information. Discussion about learning with others was highlighted as crucial to consolidation of knowledge.

Participants acknowledged and accepted that online learning is here to stay having become more prominent because of the pandemic and associated lockdown. They proposed that nurses need educational support for managing developing technologies and for using free online learning materials effectively. Participant 23 reflected that not everybody is proficient in working with technology and even if they are *"they don't always work well, with online study".* Developing their point further, participant 23 proposed that being able to adapt to different ways of learning is crucial.

> *"If you want to learn, you have to seek this out, and it might not be the way you would wish to do it, but times are going to change, and I think they already are, right, with the NMC".*

Participants referred to learning from educators in terms of developing practical skills for using information technology and problem-solving when issues arise in accessing free online learning.

The research participants highlighted the need to develop independent learners through working with and learning from others whilst undergraduate students. Participant 18 placed the educator role as central in facilitating discussion that supports the development of critical analysis skills that will enable nurses to learn independently. They explained that,

> *"We need to create independent learners using practical actions, and through time and exposure to other learners. To foster critical analysis, we need to develop students who are challenging and double check the information so that they can defend their ideas. They should use Internet-based learning to find the evidence to support the most right answer".*

The participants could see theoretical potential for their practice team working through free online learning together however noted that it is not logistically feasible. A whole team cannot be released from practice together because of service demands. The participants proposed that to overcome this, individual nurses could share their free online learning with peers. This was presented as a positive way to enable critical discussion and thus support nurses to learn with others, from their individual continuous professional development. One example for sharing learning was making time in practice. For example, participant 20 proposed that *"ten minutes in the handover"* could provide the opportunity to discuss online learning with others. The participants explained how the facilitation of opportunities to share learning created a feeling that it was valued.

5.2a.ii Summary of the subcategory learning with others.

The subcategory learning with others reflects the social nature of learning for professional practice. It specifically highlights the importance attributed by participants to working and learning with others. The emphasis in learning with others is on fact-checking of information and discussion of examples about the application of the new professional knowledge in practice. Undergraduate students learn together through reflective discussions in university and these discussions help to prepare them to think critically when learning independently as a registered nurse. The use of free online learning can feel isolating, but if the sharing and discussion of learning between colleagues is actively encouraged then peer to peer learning is enabled and participants attribute more value to the activity.

5.2a.iii: Making learning meaningful.

The subcategory making learning meaningful refers to participants' need for continuous professional development activity to have relevance in the context of their professional role. Participants shared examples of completing free online learning in four different contexts, core or mandatory training, accessing information needed in the moment for professional practice, learning for revalidation purposes and learning for personal or professional interest. Participant 13 proposed that,

> *"Some nurses do the CPD because they have to do the CPD, and it's not, something that they will, particularly enjoy, or navigate to".*

Their feelings were shared by other participants, who explained how these nurses were more likely to seek out online information in the moment, in response to a need in practice, rather than as purposeful continuous professional development learning.

The research participants reported that they did not feel invested in core or mandatory learning, despite its perceived value for ensuring currency of knowledge and skills. They did not feel the learning was meaningful because it often represented general training, which was not always relevant to their specific role. Participant 12 explained how in four to five years of training in the NHS there was no e-learning that they had enjoyed or found useful. They stated that *"it's just something I have to tolerate, in my job".* They expressed that they had no choice in their learning, and they felt like they were simply ticking boxes for their employers' benefit. Similarly, completing learning for revalidation could feel like a tick box exercise. Participant 4 described how they were *"just producing certificates … for CPD hours".*

Participants described core and mandatory online training as boring and repetitive. They did not feel motivated to engage with it, finally completing it close to the deadline in response to e-mail reminders from managers. This learning did not feel meaningful to them in their role context, so they manipulated the online resources to maximise time efficiency. Participant 3 described how,

> *"The quickest way of getting the mandatory training done, is just by skipping to the end, just going to the main bits that I need to know and then going to the questions at the end ".*

Other participants described turning audio volume down and reading the transcript as this was quicker than listening to the commentary. Some reported saving the learning so they could complete the quiz to tick the boxes for updating mandatory training and

come back to the materials later. Others referred to beating or cheating the system by having the answers to the possible questions available as they completed the quiz, or by sharing answers with others. The participants described how achieving the maximum grade was important to them. They felt cross when quiz answers were ambiguous, resulting in a score less than 100%.

By contrast, when participants sought out free online learning independently for personal or professional interest, they attributed meaning to it. They described themselves as being driven to learn in the interest of becoming the best nurse that they could be. Participant 10 explained how they were "*constantly doing extra studying to top up [knowledge]".* This led to them seeking out free online learning and investing themselves in engaging with it. Participant 9 described how,

> *"Because it's a speciality you have to know in more depth, so definitely I would go out and seek those e-learning resources, because I don't want to look daft".*

Participant 4 reflected a similar justification and intention for their professional learning using free online learning resources. They explained how other nurses challenged them about their engagement in extra learning.

> *"People go 'well, why are you doing that', and it's because I owe it to my patients. I'm certainly never going to blag anything, so I need to make sure that I've got my facts right".*

The research participants described seeking free online learning in preparation for a promotion or new practice role. Where they undertook learning that they felt was out of the scope of their existing role they indicated that they felt happy to do that independently and in their own time. Participant 10 explained how "*there wasn't an expectation, that was a personal choice to do that".* Participants informed employers about completing mandatory training, but did not necessarily share additional independent learning they had done unless their employer asked them or showed interest in their professional development.

5.2a.iv: Summary of the subcategory 'making meaning meaningful'.

The subcategory making learning meaningful highlights that nurses engage with free online learning differently when it is self-led and intentional, as opposed to imposed, tick-box mandatory training. Participants felt that employers are in most cases only

interested in their completion of mandatory learning, so do not share additional learning that they have completed with them. Not all nurses are intrinsically driven to undertake independent continuous professional development. They are most likely to access learning when they require specific information to support patient care, or to meet the requirements of their employment contract or revalidation with the Nursing and Midwifery Council. Learning felt more meaningful when it was signposted or recommended by managers in the context of professional development for their specific role. In cases where participants had undertaken continuous professional development on their own initiative and in the context of their role, they were open to investing time and money in it.

5.2b Being swallowed up in practice.

The category being swallowed up in practice comprises two subcategories. These reflect the participants 'need for support', including 'time and space for learning' in the context of feeling too overwhelmed by the incessant practice workload to independently seek out and use free online learning as continuous professional development.

5.2b.i: Feeling supported.

The subcategory of feeling supported reflects the participants feelings that learning in nursing is best achieved through working others, whether peers or educators. They highlighted that support for the development of information technology skills is crucial. Even when the data was collected in 2024, when it is assumed that most people have and use smartphones, it was revealed that some people have limited access or experience with using technological devices. Participant 15 explained how,

> *"I'm of a generation where these things came along, and I just had to navigate them and figure them out. Suddenly they were there, and then you start to understand".*

Participants described how even if they described themselves as being proficient in using information technology, access to technical support is crucial at the time they are accessing free online learning. If a technical issue presented itself when they were

trying to access online learning and support wasn't available immediately then they would stop trying to engage with it and the learning opportunity was lost. Research participants explained that the support does not have to be from individuals in a formal support role at work. Informal support from contacts including family and friends outside of work hours can result in faster resolution that can make a difference when formal technical support is not available in the moment.

Research participants emphasised that they need educational support as well as technical support, to make the best use of free online learning resources. They specifically highlighted the importance of support from professional educators to develop higher-level cognitive skills. Participants proposed that critical analysis skills support the use of free online learning as continuous professional development because they enable nurses to make an informed judgement about the quality and relevance of the free online learning resource for their practice context.

The research participants proposed that the critical analysis skills undergraduate students develop in university are transferable to the evaluation of free online learning resources. They proposed however that further support is needed for all registered nurses on the basis that judging the quality of online learning materials requires deeper analysis than when assessing the quality of published research papers. The reason for this is because some baseline measures such as peer review may be absent because anybody with Internet access could upload learning materials. Participant 14 suggested it would be easy for educators to integrate *"even a half an hour's session on the wrongs and the rights about doing online training"* into the undergraduate curriculum. Responding with support in the face of the speed of changes in learning practice is challenging. Participant 13 reflected that,

> *"We probably need to catch up at the university, because we're still looking at guiding [students] on articles. We've got a responsibility to direct them to things that they're going to engage in".*

The research participants acknowledged that nurses need to possess strong critical analysis skills to use free online learning effectively as continuous professional development. They identified a tension between decentralisation causing nurses to seek resources individually and nurse educators' feelings of responsibility for signposting endorsed and quality assured free online learning. Participant 13 discussed their concerns, explaining that,

> *"You've got to be wary of directing students to the right sources. I would only recommend an oer to them, that I had used myself, and not vetted it, but you know".*

Participant 14 explained how,

> *"I would probably encourage that they use tried and tested areas, that they have previously, or that have been recommended to them, rather than just random wild searches".*

The participants in clinical practice wanted to receive support from nurse educators. The research participants who were educators expressed however, that they wanted support with using free online learning or open education resources themselves. They wanted support to develop their skills in sourcing, critically assessing and using open education resources. They particularly wanted support to understand the Creative Commons licenses, so that they could feel confident about downloading and using free online learning materials, regardless of whether they might choose to make adaptations to them or not. The research participants who were educators reported that they were not using open education resources sufficiently themselves, to be able to share information about licensing and reuse with the students they worked with.

The research participants who were educators were concerned about the accuracy of learning resources in both a global and a local context. They expressed that they wanted to be signposted to good quality learning resources, rather than to search for them themselves. They reported that they would be happy to share these signposted or endorsed resources with students, and they felt that this would increase the use of open education resources. The research participants who had sourced and engaged with free online learning independently described themselves as intrinsically driven, their inquisitiveness and eagerness to learn leading them to look for more learning resources.

Participants expressed that the amount of free online learning resources available is overwhelming. Discerning the relevant learning to engage with is time consuming. Frustration and disengagement occur when they find part-way through that the content is irrelevant in their practice context. Going straight to resources endorsed by others, including for educators, saved participants' time. This was especially important when they did not receive support to complete learning at work, in work time. Participant 13 described signing up with an education portal for nurses which meant that they were regularly informed about education opportunities. Whilst initially useful, after a time they felt *"just bombarded with stuff, [so that] often I will just delete*

it". They recognised that this could lead them to overlook useful learning opportunities from the professional bodies. Being swallowed up by practice was implicated in the example because there is a lack of time to review suggested free online learning opportunities in depth.

The research participants across practice and education contexts highlighted their belief that that it is the application of critical analysis skills and fact-checking that enables learning to take place when using free online learning. Critical analysis skills were proposed as vital because of the fast pace of professional and practice knowledge development and the fact that it is unrealistic to expect an online learning resource to be 100% correct. Participant 17 noted that in most free online learning, *"there is no way to get feedback on your learning, which isn't great".* For this reason, learning through critical discussion and reflection with peers was considered vital, helping nurses to verify and consolidate knowledge, specific to their practice context.

In terms of support, signposting nurses to relevant free online learning was proposed as a desirable role of their managers, or of educators in practice. Participant 16 shared examples of how managers can influence both learning content and opportunities to feedback from that learning, factors that gave a sense that personal professional learning is valued.

> *"If you say, "I want to direct you to this, and I want you to bring it back", then they have to do it. They should go out and look for things for themselves, but they also need to bring it back. And they shouldn't be a maverick and go off and do their own thing because the NHS is a team. The time that a nurse has can be quite limited and it's really important to try and get them to focus on training opportunities and development that is going to be suitable for them".*

Research participants who had managerial roles in clinical practice described how signposting learning resources to staff saves them significant time spent searching for them themselves. They proposed that directing the learning of staff helps to focus attention on relevant continuous professional development for the individual and their practice setting. The research participants expressed how direction with learning was helpful. Participant 19 explained how *"I was set with what I needed to do. I completed it and found it very useful".*

The importance of drawing on recent students' experience was highlighted, presented as a symbiotic relationship. Clinical managers described a process of cascading knowledge and skills through the workforce, and junior members of the clinical team and students sharing resources with them and with educators in practice. Participant 19, who was newly qualified, described how they shared online learning resources in their practice setting. They explained that,

> *"I talk about it on the ward. I have a good relationship with my practice educator, so I tell her some really good ones. When she speaks to others, it's Chinese whispers effect, in a positive way".*

Participant 16 proposed that using online learning is easier for the younger generation, being "*second nature"* because of their everyday use of personal technology and apps. Participant 13 highlighted that educators need to develop information technology skills and practices to make learning easier, exploiting the ways that young people are using technology and apps for the quick delivery of bite-sized learning.

> *"When you look at how children are learning, it's that bite size, really quick videos and lots of TikTok. That is going to be the way forward. You know most people have got a smartphone, you know, lots of these things you can access really quickly".*

The research participants referred to the need to feel supported in the context of developing information technology skills for the use of free online learning. They also referred to the need for support to develop skills for learning how to manage the constantly evolving technological systems and new ways of working in practice. Participant 13 identified how professional knowledge is developing so quickly that "*people aren't going to retain it all or keep up to date with how fast paced things are moving".* They emphasised that the focus of attention should not be on learning new knowledge. Rather, it should be placed on supporting the development of nurses' practical skills for using information technology, and on their skills for critical analysis. Developing these skills means they can find relevant sources of learning or information for the safe and effective delivery of care.

The research participants shared examples from their own experience about the need for support with information technology skills. They reinforced the importance of not assuming every nurse has basic technology skills, or that they own devices to support online learning, therefore that should be the starting point for the development of skills. Participant 1 highlighted that,

> *"One is the technical aspect, by which I mean getting into it, and actually using it so that it logs yours learning etc. I found that really frustrating. If you didn't press the right button in the right order, it didn't save it, and then you'd have a whole mess to manage because you have to show that you've done certain things in order to move on to the next thing".*

Participants described needing to develop information technology skills further, even when they described themselves as competent in this area. They explained that this is because it is a continuous process of development as the technology changes so fast.

Research participants who were educators expressed their need to develop specific knowledge and understanding about open education resources and Creative Commons licences. This would enable them to consider adapting open education resource materials they accessed for teaching purposes, if permitted under the licence. Whilst familiar with using copyright free images in teaching, they described how they resisted using open education resources because they were anxious about copyright regulations. Participant 13 explained that,

> *"I haven't linked open educational resources into teaching that I've done. It's a bit like when you source photos, you've got to go to use Shutterstock or whatever it's called, so they're not copyrighted. I just get panicked when they go on about copyrighting".*

Participants expressed concern about developing free online learning resources themselves because they were unsure about Creative Commons licensing. They were concerned about losing control over how individuals might alter the resources they developed, which could result in inaccuracy. They expressed a feeling of being unsure about how to address potential inaccuracies. Participant 13 explained that,

> *"You'd hate it to be altered and altered and then it's either wrong, or I don't know, if somebody does something malicious to it or whatever, and for people to think that if it's got your name on it, that it's originated from me".*

Research participants who were educators reported that they lack the technical and production skills, time and financial support to create high quality learning resources to share online. In preference they value having free access to corporately developed, high quality resources for teaching. They accessed these from trusted online portals and repositories. Where high quality free online resources were available, participants were pragmatic about sharing those, rather than trying to develop fresh teaching

materials. Participant 13 expressed a feeling that educators should be using high quality free online learning and open education resources that are available on the Internet when teaching, rather than trying to recreate their own version. They explained that,

> *"There was a video, about how the NHS is structured. We could try and explain that in class, but we'd never produce something as good as that. So, definitely share it".*

Educators and practice-based nurses wanted to be supported through the signposting of trusted and endorsed online resources for teaching and personal continuous professional development.

5.2b.ii: Summary of the subcategory feeling supported.

The subcategory feeling supported reflects a stated need from nurses for both practical and cognitive support. Technical support in the moment is desirable to help individuals troubleshoot problems with Internet connection or technical failure that would otherwise result in disengagement with learning. Cognitive support reflects nurses' desire to understand how to effectively search for free online learning resources and how to assess their relevance and accuracy. Participants reported prioritising practice work over continuing professional development.

Participants highlighted that the availability and scope of free online learning materials is overwhelming. They described being too busy with clinical or education work to seek them out and engage with them. Educators and practice-based nurses wanted to be signposted to trusted and endorsed online learning resources, saving themselves time on searching and thus maximising their time to engage with the learning activity. Support from managers, peers and educators was highlighted as useful to both tailor the learning experience to the individual nurses' context, and to discuss the learning. Discussion with others provides opportunities for critical analysis about the application of the knowledge in practice, as well as feedback on the learning that is not available within the online learning resource.

5.2b.iii: Having protected time and space for learning.

Time was presented by all participants as a key factor that impacts on their opportunities to complete their continuous professional development. The examples they shared demonstrated that practice work is all consuming, leaving them no scope to pursue learning beyond mandatory training. They could not even guarantee completing their mandatory training in work time and space. Participant 20 described how *"people get swallowed in practice, they have become disempowered by the slog, as opposed to the thinking".* The reality of balancing work and personal lives means that nurses do not have time to source free online learning independently. Those who felt intrinsically driven to learn undertook learning for continuing professional development in their own time and space.

Using technology was linked to having time and space for learning. Participants described how factors like poor Internet infrastructure in home spaces caused time consuming delays and glitches. Participant 1 reflected how they had moved into a small village with "*pretty rubbish Internet*" which meant that web pages would not load or would were very slow loading and *"that was frustrating and annoying".* Sometimes this resulted in the loss of learning that had been completed, meaning it needed to be repeated. This compounded the frustrations of completing learning in their own time. Personal access to technology with Internet access for learning was only highlighted by participants in the purposeful data. In the theoretical data, participants did note that having personal technology available affords easier and effective signposting to free online learning for nurses. Active engagement on social media or in professional forums and networks increased their awareness of free online learning opportunities.

Time management and time as a resource featured throughout both purposeful and theoretical data collection and analysis. Participants reported how being forced to complete continuous professional development in their own time and their own home, using their own resources, creates the impression that employers do not value their professional learning. Participants felt that the employers rely on their goodwill to complete their continuing professional development learning without support with time and space because they know the nurses are obliged as individuals to fulfil the validation requirements. Participant 4 reflected that,

> *"Work should be a work thing, and home should be a home thing. I shouldn't be expected to sit on my sofa and do all these modules. I think there is a resentment to that because I think those are hours*

> *that are unpaid, and because nurses genuinely do care about what they're providing".*

This view was shared by others, with participant 3 presenting a strong feeling that *"home is time for me to unwind, to relax, spend time with my family".* Participants did not like having to do training at home but reported that they would, to fulfil employment or revalidation requirements.

Participants 4 and 8 explained that their employers provided protected learning time. This focused on mandatory training rather than continuing professional development activities specifically. Participant 8 explained that this time was still valued. It meant that they did not feel added pressure caused by their workload, that the only way was to complete the learning "*in [their] own time, which is precious, and in fact, there's not a lot of it!".* Their frustrations increased when the learning could only be undertaken on site due to technological security restrictions preventing external access to the organisational learning system. This meant they had to stay behind after work to complete the learning in their own time. Participant 4 expressed a strong feeling that employers have a *"massive obligation to train people for the job they're expecting them to do".* Beyond ensuring that nurses have paid time for training participants felt employers should ensure access to relevant resources or facilities, such as computers with Internet access, to complete learning that was required as part of the job role.

The lack of attention by employers about the time support they could offer to nurses with additional learning needs to engage with and process their online learning caused the participants to feel concerned. Participant 18 expressed the difficulties of negotiating additional time with their manager, for the purpose of continuous professional development learning. They said,

> *"How can you go to your employer and say 'actually, I might need a little bit of extra time, to make that learning mine, to allow it to sink in. They don't have that reasonable adjustment or understanding that you may have an invisible disability".*

This was linked to broader concerns about the accessibility of free online learning resources to meet the preferences or needs of all learners, but especially those who were neuro-divergent or who had additional learning requirements. Participants valued learning materials where the authors had clearly considered this in developing the resources. They proposed that employers could offer support with time and space

by ensuring the availability of assistive technology that supports individualisation of the learning experience.

5.2b.iv: Summary of the subcategory having protected time and space for learning.

The subcategory having protected time and space for learning concerns the need for time and space for learning. This is in the context of nurses working in a practice setting where service needs are necessarily prioritised. Except where employers provide protected learning time, continuing professional development and sometimes even mandatory training is often undertaken in personal time. Nurses in both practice and education settings described not having the time to independently research free online learning resources. In many cases their learning is motivated by a need-to-know response to a clinical issue, for personal development towards or following promotion, or for revalidation with the Nursing and Midwifery Council. A strong infrastructure with access to technology and Internet, time and space and educator support through signposting of learning and time to complete it gives the sense that learning is valued.

5.3: Validation of the categories.

The available literature centres on the use of focus groups to collect primary research data, rather than as a means of validating findings (Cyr 2024). Planning is essential when collecting primary research data through focus groups to achieve representation of participants. Ethical considerations must be applied in respect of confidentiality and research questions should be designed to facilitate effective data collection. These principles apply for the use of a focus group for validation of findings (Cyr 2024). The unique aspect of validation focus groups is that participants are presented with the findings and respond to questions about them, as opposed to being asked to share broader examples of their experiences.

In the absence of specific guidance, the researcher shared a preview of the presentation with participants, outlining the findings that they would be discussing before the validation focus group. They included some in-vivo quotes to illustrate how the categories were grounded in the interview data and how they had informed them.

The researcher ensured that the in-vivo quotes reflected the whole research sample but possible identifying details, for example about clinical speciality, were removed (see figure 20).

Sharing the preview slides served two purposes for the researcher. The main purpose was to give participants a clear sense of what to expect within the validation focus group. This served to allay potential worries about was required of them. Secondly, it enabled participants to review the categories, subcategories and in-vivo quotes beforehand so they could begin to think about their own examples that either validated or challenged the findings before the event. This maximised the time within the validation event as the researcher could focus on presenting the categories and asking the questions, rather than recounting the quotes.

As the focus group approached, the researcher did consider how participation would threaten the anonymity of those who had contributed to the research. This is a concern in focus group research methods (Carlson 2010; Cyr 2024). The researcher felt that the nature of the research question and proposed discussion about free online learning was unlikely to create ethical dilemmas with respect to confidentiality in the validation event. As participants joined the meeting it became apparent that two separate pairs of participants knew each other, but did not know that each other had been involved in the research. This may have helped them to feel at ease in the meeting. It is possible that there was a power imbalance between clinical practice based and education-based participants, illustrated by a reference to how one of the educators was eloquent and summarised points well. All participants however, presented a calm and relaxed demeanour when responding to the questions.

Figure 20: Sample of presentation slides shared with validation focus group participants.

Professional learning as social endeavour

Learning with others

- Reflects the social nature of learning for professional practice
- Specifically highlights the importance attributed by participants, to working and learning with others for fact-checking of information and discussion of examples where professional knowledge is applied in practice.
- Students learn together through reflective discussions, and these discussions help to prepare them to think critically when learning independently, including when using free online learning.
- Whilst there is potential for team-based learning activities using free online learning resources, service demands mean this is not a realistic or achievable endeavour in the practice setting.
- The use of free online learning can itself feel isolating, but if the sharing and discussion of learning between colleagues is actively encouraged, then it feels more valuable.
- Sharing and discussion of learning was evident in some practice settings, supporting peer to peer learning.

Professional learning as social endeavour

Learning with others

- *"I crave that interaction, … it's peer support, and knowing that the problems I've had, someone else has had, and they've got an idea for it, or I can help them, that kind of thing is" (P8).*
- *"I think the, then being stuck at a computer screen, doing your all your training is, it is just more and more isolating" (P8).*
- *"And then what I've worried about is, especially someone that's perhaps newer to the field, thinking that perhaps that what they've seen, or what they practice is wrong, because what they've then been told in their training" (P5).*
- "*And then it also using the group potential, but then it comes down to as well, like how do you organise that? Because how can you organise group learning where you need to ensure that the shift is covered?" (P18).*
- *"Or, it could be that if you've done it independently, you could, you know, you could say to your team lead, would it be alright if I had ten minutes in the handover, just to talk through some things that I've covered over recent, you know, covered recently?" (P20).*
- *"We need to create independent learners, through the use of practical actions, and through time and exposure to other learners. To foster critical analysis, we need to develop students who are challenging and double check the information so that they can defend their ideas," (P18).*

The discussion in the validation focus group was directed by the researcher, in that the same two questions were asked for each category or subcategory. Cyr (2024) notes that the use of open questions is vital to gather emic data. The researcher's questions focused on how meaningful or relevant the participants felt the category either was or was not, and what examples they could share to illustrate this. The researcher exercised some control as facilitator by setting up a system of rotating who answered the question first, to get individual responses whilst ensuring that every participant had a chance to contribute to every question.

Cyr (2024) proposes that the power of the focus group lies in the social discussion between participants. In the validation focus group participants reacted to examples and points shared by others, building depth of discussion about the categories and subcategories. The sharing of individual stories by the participants in a social setting offered a tangible sense of authenticity as they responded to each other and discussed the meaning and relevance of the findings together. Although the two pairs of participants knew each other, all the examples shared in the focus group were unique to each individual and there was no reference to specific shared experiences. Participants indicated that they found examples shared by others meaningful in their own context.

The validation focus group event was a pivotal moment in the research process. The presentation of the research findings created dialogue between the participants, actively involving them in data analysis and in the co-creation of the theory. Participants explicitly confirmed that they could see themselves in the data, whether that was through what they said themselves, or what others said that made sense to them from their own experience. Validation participant 1 stated that,

> *"Yes, definitely I feel that what you've found relates strongly to perhaps some of the things that I myself said, but even if I didn't say them, when I see them here, it makes a lot of sense to me from my practical experience. I can relate it to specific examples".*

By offering individual examples and comparing examples of experiences with each other, participants were able to challenge the theoretical categories by considering their transferability to other contexts. The examples offered provide a compelling story of participants' attitudes towards free online learning. They specifically demonstrated the way that free online learning resources are, or are not used, as continuous professional development. This reflects a strong focus on the doctoral research question. As a direct result of the validation event discussion, arguments and

interpretations about the categories emerged that would have not been possible if an alternative, individual validation process had been used. The data from the validation is presented below.

5.4a: Professional learning as a social endeavour.

The category professional learning as a social endeavour is comprised of two subcategories, learning with others and making learning meaningful, both of which are presented individually below. The two subcategories offer independent data about the preference of participants to learn with others and to discuss their learning with others. It illustrates their desire for learning to be meaningful, more than a tick-box exercise for the benefit of employers. The subcategories fit together to provide an overarching illustration of how participants' learning is meaningful when it is relevant to their practice context and when they can engage in reflective discussion with others about it. These factors support participants to explore the application of the learning in practice.

5.4a.i: Subcategory: Learning with others.

When first asked about the relevance and meaning of this subcategory at the validation event some participants challenged it, because in their experience using free online learning is synonymous with working in isolation. Validation participant 5 explained that,

> *"Professional learning as social endeavour and like working with others. I'm not sure how much I can relate to that because, if I consider the typical online learning, where it's videos. You know even if it is interactive, it's you interacting with the machine, so I can't interact with other people, unless it's an actual workshop".*

Although opportunities for engagement with other learners may be purposefully built into a free online learning resource, peer engagement was considered a choice. It was proposed by validation participant 3 that,

> *"it's quite possible to just go through the online learning and not bother relating to anybody… it's not necessarily a given that you will engage with others".*

The examples shared by participants depicted their own struggles to engage with free online learning resources while working in isolation. This was compared with their previous experiences of learning with others on a course or workshop, to develop professional knowledge.

Although the number of participants at the validation event was small, all strongly agreed that learning with others was key to developing a depth and breadth of knowledge that could be applied in the context of practice, because the theory is different from what happens in real life. Validation participant 2 described how,

> *"The outcome is greater than the sum of the parts. If you learn together with other people, it's not just that information, it's how you process it and reflect on it, with other people, with other people's ideas and views".*

Critical discussion about the learning with other people and sharing experiences supports the nuanced application of knowledge across different settings and situations.

This is in stark contrast to the participants' descriptions of brief recall of facts after engagement with free online learning resources. They described the outcome as surface learning, which could not be applied until they were in practice. The process of discussing the learning with others was transformational in developing deep learning after using free online learning as continuous professional development. The isolated engagement with free online learning was highlighted as the antithesis of a priori ways of working and learning through teamwork, alongside peers and other professionals. Validation participant 5 participant stated that "*you seek that kind of [teamworking] experience to be reflected in your learning as well".* As such their preference would always be for collaborative learning and solution finding, in preference to online learning.

5.4a.ii Subcategory: Making learning meaningful.

The examples offered by participants at the validation event focused mostly on mandatory training and not on continuous professional development specifically, even when the researcher repeatedly referred to the latter in the questions. This is relevant because their negative experiences of completing imposed mandatory training online had a significant influence on their feelings and attitudes towards non-

mandatory online learning. Participants emphasised that mandatory training was a tick-box exercise to meet employment requirements that resulted in low engagement with it. Validation participant 2 described the challenge of engaging with the training,

> *"Locking yourself in a room on your own, with a headset on, just clicking through. Where I'm told to do them and I'm not so interested in [them], they are really hard to do. It goes in one ear and out the other because I just needed to do the certificate at the end".*

Participants felt frustrated that the mandatory training required learning of information which might not often be required in practice and could easily be accessed as needed. An example was training about what mops should be used in practice areas. This was not considered to be meaningful learning.

Mandatory training created negative emotions for participants, causing them to feel cross and frustrated. This was attributed to its burden as additional work that was often conducted in their own time. Mandatory training was completed as quickly as possible, with superficial engagement that was sufficient to pass the test at the end and to gain certification of completion. Validation participant 1 reflected how,

> *"it's hard to find it meaningful when you're being forced to do it in quite an unnatural situation of just sitting in front of a computer scrolling through pages and pages of questions".*

Even though mandatory training has become more interactive in recent years, participants described expecting all online learning to be dreary and tedious. This was the result of their previous experiences of online training as a repetitive and low value endeavour, focused on reading information off of slides. These feelings suggest that nurses had to make an extra effort to meaningfully engage with free online learning as continuing professional development.

When participants felt intrinsically motivated to access free online learning resources for professional and personal interest their experience of engagement with learning materials was different, and positive. Validation participant 4 explained that,

> "*I certainly approach it differently. I'm much more curious. I enjoy it. Whatever points I gain, it's adding new knowledge to me, as a person".*

This learning felt meaningful in the context of professional practice, supporting them to be the best nurse that they could be. The attribution of meaning created a willingness for personal investment in that learning, whether in terms of time, or finance. Further, it was linked to sharing of learning through discussions with

colleagues and signposting of free online learning resources, and the discussions increased the sense of how meaningful the learning felt.

5.4a.iii: Summary of the category professional learning as a social endeavour.

Participants' preferred ways of learning reflect the social nature of practice and team-working, characterised by first seeking advice or knowledge from a trusted colleague. They would not choose to access free online learning unless they did not have a colleague to ask. Participants did not feel motivated to engage with online mandatory training without a specific purpose such as promotion or revalidation. Participants felt that it would be more productive to access information as required in the moment, in response to a practice problem or event. This would make the learning feel meaningful, especially if it associated with learning with others from the practice setting.

Throughout the validation event there was significant reference to the burden of completing mandatory training and its subsequent impact on using free online learning. Despite participants' recognition that some free online learning is extremely high quality and can support meaningful knowledge development, they were put off engaging with it because of their association of it as a mechanistic activity. Participants described how having strong intrinsic motivation meant that they could overcome these emotional barriers. This meant that they could recognise the value of free online learning as meaningful and worthwhile learning towards a specific goal.

5.4b: Being swallowed up in practice.

The category being swallowed up in practice is comprised of two subcategories. These are being supported and having time and space for learning, both of which are presented in full below. The two subcategories offer independent data about the real-world challenges that participants face, that they need to overcome to meaningfully engage with free online learning. These factors are overwhelming workload and competing demands of prioritising clinical or education work and mandatory training. The challenges make it difficult for nurses to find the motivation or energy to pursue independent learning for continuous professional development through free online learning.

5.4b.i: Subcategory: Being supported.

All participants in the validation focus group agreed that being supported has a direct impact on whether they can achieve successful or meaningful engagement with free online learning. Their examples reflected the need for technical support and cognitive support, especially the immediacy of practical technical support to manage problems in accessing the learning system or materials. If this is not available, the learning opportunity is lost.

Support for neurodiversity was highlighted as a specific issue in respect of free online learning resources. Multiple participants who have dyslexia expressed frustration about learning resources not being designed for accessibility. They expressed that learning materials should be actively designed with accessibility in mind. This relates to effective use of colour and font used in the materials, blended with the application of pedagogical knowledge about the different ways that people learn.

Validation participant 4 explained how,

> "*Being dyslexic, I find that some of the ways that the information is presented, or the questions that are asked, are really taxing for me to understand and then answer, in the correct way".*

Validation participant 5 described how they became disengaged when the information in the learning resource is not delivered in a way that they can read and process it. They described how when the learning platform is inaccessible *"it's actually pain for the brain. It's actually painful".* Negative experiences caused by poorly designed free online learning resources, due to their accessibility issues, discouraged participants from visiting that site again.

Free online learning takes place in a context of working in isolation. Consequently, it is almost impossible to seek support from other people in the moment. Participants recounted experiencing frustration when questions used for assessment in the learning resource are ambiguous, and when answers are marked by the computer system as incorrect without an explanation. This lack of inbuilt accessibility support creates barriers to participants using free online learning resources as continuing professional development.

A new perspective on being supported, that surfaced in the validation event, was that free online learning resources themselves, housed in trusted professional portals such as e-Learning for Healthcare, NHS Professionals and RCNi, offer support for

nurses wishing to access information or learning in the moment. Validation participant 1 reflected on how online resources offer,

> "*Really good evidence based, structured learning, which you can get quickly, when you need to, and that can make you feel very supported".*

Offering a different perspective, validation participant 4 referred to free online learning resources offering a valuable source of individual support for critical reflection on memorable events in practice. They described how,

> *"When it's explored, points come up on the online learning, then I am able to untangle whatever it was that was in practice, that made it memorable".*

Both examples illustrated how free online learning offers a source of support to nurses.

5.4b.ii: Subcategory: Having protected time and space for learning.

The validation event participants were unanimous in their understanding that finding the protected time and space for any learning is a significant challenge. Even when protected time for learning is allocated and space is provided, participants always prioritised the needs of patients or the service above learning. The learning space in this context is often in the setting where service delivery takes place. Consequently, participants found themselves interrupted by colleagues who distracted them from the learning, meaning that it took longer to complete. Validation participant 4 proposed that one and perhaps the only solution was "*to be somewhere away from the practice setting to undertake this online learning, otherwise I get pulled away*". Validation participant 1 stated that they valued learning where they had protected time to attend in person and where they could learn with others. This overcame the challenge of prioritising other work as "*you are physically removed"* from the practice setting.

Participants reflected on how prioritisation of work can be driven by colleagues, who do not take notice of the fact you are engaged in online learning. Validation participant 2 described how despite being "*locked into a computer, clearly in the middle of some training"*, they were interrupted regardless because their colleague's question concerned patient care delivery. Some validation event participants acknowledged that they were guilty of interrupting colleagues themselves for the same reason. The participants' stories reflect their commitment to the service in line with their

professional responsibility under the Nursing and Midwifery Code however, they also portray an organisational culture or attitude that does not value time and space for continuing professional development, despite it being a professional responsibility under The Code (Nursing and Midwifery Council 2018a).

This theme was played out in the participants' examples, where the limitations on time available for learning balanced with service needs meant that they completed the bare minimum content in the learning resource. They reflected how they felt guilty for not engaging more deeply with mandatory learning. They also felt guilty that they did not spend time clicking on links in the resource to read relevant and important policies or standards included as extra learning. Validation participant 4 described how *"you might look at one, but no more because you're ever conscious that you're needed elsewhere".* Validation participant 1 described how accessing extra learning that you don't have to do is not a good use of time, and spending extra time contributes to the feelings of guilt *"because you should be going back to practice".*

The provision of links to additional reading was, however, also proposed as a strength of free online learning. It was proposed that this facility plays to individuals' needs and interests because they might choose to access the learning resources, or extras, at another time, even if this is likely to be in their own time. Validation participant 5 reflected that if they are expected to do learning in contracted work hours, they

> *"Only actively have the time to do the mandatory ones, which change your complete experience of the online learning".*

These examples from the validation event illustrate how time pressures impact on the way that participants engage with free online learning. They explain how time pressures combined with the focus on mandatory training create a negative view towards using free online learning as continuous professional development.

Finally, participants presented examples of their experiences around the need for extra time to process learning when they are neurodivergent. Although this leads to adaptations for individuals undertaking formal learning at university it does not feature when time is given for learning in the practice setting. It was highlighted that extra time to use strategies such as note-taking and discussing learning with others is essential to support consolidation of deep learning, rendering it meaningful for the individual. Having time for the consolidation of learning is the difference between superficial and deep learning. Validation participant 5 described how,

> *"If you give me a quiz at the end of the session, I might be able to pass the quiz, but ultimately that information is going to stay there for the following two minutes. By talking to other people, you would open up some ideas, and it will bond them into longer memory".*

These points demonstrate how being given the time and space for learning creates a feeling that it is a valued activity.

Participants described how when they were driven to learn out of professional or personal interest, they would find ways and time to do it, even if that were in their own time. Validation participant 3 reflected how,

> *"it's not just about being swallowed up in practice because if you found some education that was really pertinent to what it is that you do, and what you want to do, then you're really going to be motivated to do it anyway".*

A feeling that was highlighted throughout the validation event was that there is too much mandatory training. Validation participant 3 explained how the amount of mandatory training,

> *"Will squeeze out maybe, that other type of education that people want to engage in, that is much more individual to them and their role".*

The participants attributed their own drive to engage with free online learning being underpinned by strong beliefs that the learning was extremely important to them in the context of their role.

5.4b.iii: Summary of the category being swallowed up in practice.

The category of being swallowed up in practice reflects the real-world challenges that participants face of accessing technical or cognitive support and securing protected time and space for learning. Participants, by nature of their professional role prioritise patient care and service delivery over learning, completing it only as the deadlines approach. Having learning imposed and having limited time for completing it impacted on the way that participants engaged with the online materials. In relation to mandatory training, maximising learning time meant doing the bare minimum and resulted in surface learning, which was characterised by participants having brief recall of information to pass the test. This was the case even when free online learning was viewed as a valuable resource for knowledge and skills development. The limited time for learning combined with the experiences of being interrupted when working

through online learning materials creates an impression that the learning is not valued.

Timely technical support is presented as key to engaging with free online learning to resolve access issues. Without immediate resolution of technical difficulties learning opportunities are lost. Being supported to use free online learning includes attention by learning developers in collaboration with educators to building accessibility into learning materials. This means that individuals who are neurodivergent can engage with the materials effectively and process their learning. Participants reflected that they would like additional time to read or listen to materials, to take notes and discuss their learning with others. This is acknowledged and facilitated in academic settings but not in clinical practice. If learning materials do not offer support through built in accessibility, they create a barrier to participants using learning from the same provider in the future.

Online learning resources were highlighted as a valuable support mechanism for nurses. They enable them to access up to date evidenced-based information from trusted portals in the moment and in the context of their practice setting. However, negative experiences of completing mandatory training in response to employers' demands created a barrier to seeking out free online resources for continuous professional development.

5.5: Developing the theory from the validation event data.

After analysing the purposeful and theoretical data in the individual interviews the researcher had come to the validation event with the understanding that the way nurses consider using free online as continuous professional development needs to change (see researcher notes 8). The discussion and examples shared by participants in the validation event added data to the research that defined the direction of the co-constructed grounded theory.

Researcher notes 8: Thinking about how nurses manage continuous professional development using free online learning.

> *There is clear evidence in the data about how nurses have become socialised into a single way to use free online resources as continuous*

professional development. The data indicates that this is linked to their experiences of completing mandatory training online. Their practice is characterised by taking steps to complete the learning as quickly as possible. The key question is how we can consider using free online learning in a different way. The overwhelming burden of mandatory training cannot be ignored as it has a huge influence in the development of nurses' attitudes towards free online learning as a resource. This might be described as e-learning fatigue, which results in lost opportunities for individual and organisational learning. How do we overcome this fatigue and exploit the social aspect of learning? How can we support and facilitate the use of free online learning as continuous professional development? I'm not sure of the answers yet, but it must be more than the application of tools or forms to capture learning that perpetuate the feeling of 'ticking boxes' for assessment/evidence of completion.

A defining moment in the validation event was the sharing of one participant's reflections on the challenges of having protected time and space for learning. Even when time and space has nominally been set aside for mandatory training activity, interruptions are commonly experienced. In the process of recounting and reflecting on their example, validation participant 2 had an aha, or threshold concept moment (Land et al. 2014) as they recognised that a frustrating interruption from a colleague led to meaningful learning for themselves and their peer, as summarised below.

"I started going through my online learning modules, then a newly qualified colleague came through and asked me a question.

Something came up in conversation about a vaccine and it turned into quite a long-winded session.

I was able to quickly access the information online.

Also, we get vaccine updates, so I could then forward the e-mail to them.

I did quite a lot of online education, learning, training and revision, because it was right there in front of me, and I could.

From "I've got to do my e-learning", I could go online, find the information I needed in seconds, to learn and educate, and all at same time".

This authentic account from the participant constituted a real-world example, which others in the validation event including the researcher felt was a credible and dependable example. It was revelatory in the sense that it led to a threshold concept for the researcher, as well as the research participant. For the researcher, the threshold concept was a revelation about practical ways to illustrate how nurses can use and apply free online learning differently. The practice-based learning example demonstrated how free online learning could be used in a focused way to support meaningful continuous professional development, in the context of team-working for practice development and supported by educators.

5.5a: Situating the research findings in extant literature.

The central thread, woven throughout the data, was the research participants' strong feeling that registered nurses are being set up to fail in respect of autonomously driven learning for continuous professional development (see figure 21). They presented how their professional learning feels like a tick-box exercise, at three different levels. First, as a student, learning for professional practice is controlled by the University, under the auspices of the Nursing and Midwifery Council who validate the undergraduate programme. Ticking the boxes in relation to passing academic and practice assessments proves the students' fitness for practice as a registered nurse (Nursing and Midwifery Council 2018b). The research participants who were based in education highlighted how these external controls can inhibit them from supporting nurses to develop skills for sourcing and engaging with independent continuous professional development for revalidation.

Within the research data, a second level at which registered nurses feel their professional learning is a tick-box exercise, controlled by others, focuses on mandatory training. The research participants consistently reported being subject to the seemingly ad hoc imposition of mandatory training by their managers. The attention that managers placed on nurses ticking the boxes to confirm completion of the mandatory training, even when it was not directly relevant to their role, was contrasted with their apparent disinterest in the nurses' individualised learning for continuous professional development. The consequence of this is that professional learning beyond mandatory training feels devalued. Furthermore, the workload challenges, along with the systems and processes in the workplace reduce opportunities for professional learning in a social context.

The third level at which the research participants feel their professional learning for continuous professional development is a tick-box exercise is focused on the process of revalidation for the Nursing and Midwifery Council. Whilst the professional discussion with another nurse registrant is considered to be valuable because it offers an opportunity for high-level reflection in a social context, the submission of evidence is perceived as a tick-box exercise that is controlled by others. The research participants highlighted how the tick-box style revalidation process is often completed close to the deadline, rather than reflecting a genuine endeavour to learn across the three-year period based on the application of evidence to enhance service delivery.

The control placed on the learning of post-registration nurses face when working in practice is juxtaposed to the aim of graduate nursing programmes. The drive to develop autonomous, critically thinking graduate nurses, who are intrinsically motivated and engaged in research should support the application of theory in practice to ensure the safe delivery of care (Nursing and Midwifery Council 2018a; 2018b). In practice, nurses' learning is under the strict control of their employing organisations, as a means for the employer to ensure safety from prosecution in the event of an adverse incident or poor practice.

The workload burden and systems of work within their employing organisation, that results in nurses feeling swallowed up in practice, reduces their opportunities for social learning and reflection on practice. The research participants highlighted the dangers this poses for nurses. When exposed to the real world of practice, nurses are socialised to adapt their working practices to deliver the most effective care possible within the resources available. There is a potential danger that nurses may become complacent and fail to question, or to challenge established practices, despite their academic preparation, this being a driver for public inquiries into service delivery, such as the Francis Report (2013).

Whilst there is a growing body of nursing scholarship for practice, nursing research is predominantly developed through postgraduate programmes of study. The research findings present a picture of missed opportunities for nurses to undertake real-world research in practice, in partnership with members of the interprofessional team, at the point of service delivery. This is a direct result of their learning for practice being outside of their control and subject to the impact of organisational systems and structures. As such, with respect to the development of the constructivist grounded theory, the research findings are clearly aligned with extant literature around organisational learning theory. Learning new ways to use free online learning, in the

context of facilitated service-improvement, exploits opportunities to integrate continuous professional development activities into organisational learning (see figure 21).

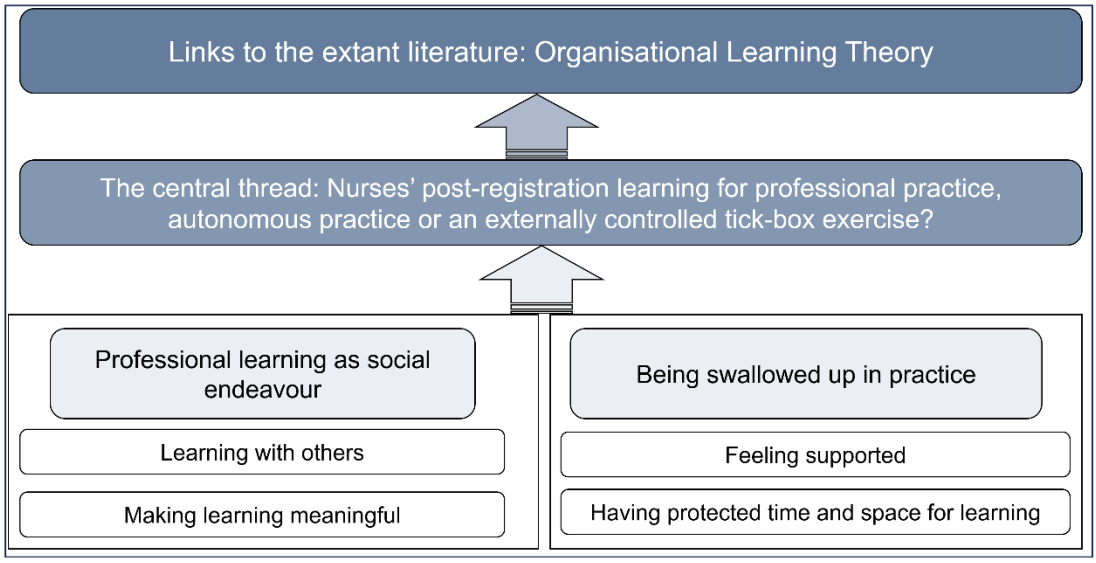


Figure 21: Identifying the grounded theory.

The next step in the research is to chase down the co-constructed theory by analysing the findings in the context of the extant literature about organisational learning theory. The discussion in ***chapter 6*** presents the immersive literature review for this purpose.

5.6: Key points.

The findings reveal that:

- The overwhelming burden of mandatory training has resulted in nurses' secondary socialisation that is demonstrated as theories-in-use when undertaking continuous professional development using free online learning.
- Nurses experience dissonance between their espoused theories for professional learning and their theories-in-use, as an artefact of the controls imposed on their learning, by employing organisations.
- When free online learning is sourced and completed as an individual endeavour there are missed opportunities for developing it into team and organisational learning.
- It is important for registered nurses to consider new ways to learn as technology develops and workplace learning practices change.

6: Discussion of research findings.

This chapter analyses and integrates the research findings in the context of the extant theory, in keeping with the principles and process of constructivist grounded theory (Charmaz 2014). The purpose and place of the literature review, specifically the immersive literature review in constructivist grounded theory will be discussed. The justification for analysing the research findings in the context of organisational learning theory (Argyris and Schön 1974; Argyris and Schön 1999) and Benner's (1982; 1984) Novice to Expert model will be presented.

The discussion will demonstrate the inductive emergence of the theory, grounded in the data. It will demonstrate how the research findings extend the scholarship of organisational learning theory in the specific context of using free online learning as continuous professional development. The extant literature is presented in the context of the theoretical categories and subcategories. Finally, the implications for continuous professional development practice arising from the research will be presented.

6.1: Purpose and process of the literature review in constructivist grounded theory.

Charmaz's (2014) iteration of constructivist grounded theory supports a literature review at all stages of the research. This affords the researcher freedom to be flexible. As a novice researcher, adopting the pragmatic position of undertaking the comprehensive scoping review (see ***chapter 2***) prior to data collection and analysis offered a sense of security. It highlighted what literature was available around open education resources as continuous professional development, confirming that the research question focused on the generation of new knowledge. It enabled the research to be situated in the scholarship of learning for professional practice. Finally, it supported the informed development of the semi-structured interview schedule for the purposeful data collection and analysis (figure 6).

This chapter presents the immersive literature review. Its purpose is to support the synthesis of the research findings with the extant literature. The immersive literature review was undertaken after data collection and analysis was complete. Waiting until the findings were developed to engage deeply with the literature avoided the risk of

the researcher being led in the wrong direction during data collection and analysis. Following the research process provides a sense of security for the novice researcher about maintaining the integrity of the research. Charmaz's (2014) placement of the immersive literature review is about more than leading the data. She deems it is important to wait until data collection and analysis is complete to avoid the risks of losing imaginative possibilities in data analysis. This is a more abstract aspect of constructivist grounded theory research that relies on the researchers' openness to see and hear what the data is saying.

At the outset of the research, the researcher was concerned that imagining the possibilities in the data was an elusive aim, which was out of reach and not guaranteed. The constructivist grounded theory method however naturally guided that activity. The inductive and iterative process of data collection and analysis forced deep engagement with the data as the researcher worked with them. A defining factor in imagining the possibilities in the data, which is not explicit in Charmaz's (2014) research process is the power of critical discussions with others. The high-level critical discussions in supervisory sessions supported the researcher to notice possibilities in the data as they presented it to the research supervisors. The combination of iterative data collection and analysis and critical discussions supported analysis of the emerging theoretical categories, imagination of the possibilities in the data, and development of the theory grounded in the data.

6.2: Developments in the literature since the scoping literature review.

The researcher returned to the comprehensive scoping literature review and re-ran the search to check for any new literature in the field, alongside the immersive literature review. The justification for this was to check for new research around nurses' use of open education resources for free online learning as continuous professional development. The search, using the original search terms revealed two new papers in the area, focused on nurses' post-registration learning. Ramsden et al. (2022) and Martiniuk et al. (2022) undertook scoping reviews to explore the potential of digital learning for professional development for nurses in rural areas of Australia. Both recommend further research in the area. There were no new publications about reusable learning objects in the context of continuous professional development learning.

6.3: Aligning the research with extant theory.

The research findings focus on social learning through critical reflection and the influence of the organisational learning culture on participants' continuous professional development practices. The decentralisation of continuous professional development, combined with being swallowed up in practice, reduced social learning opportunities for research participants. Consequently, there are fewer opportunities for *critical reflection* with others. There are also reduced opportunities for expert nurses to share their wisdom, which was proposed by the research participants as a key factor in developing relevant professional knowledge for their nuanced context of the practice setting. The research findings are closely aligned to organisational learning theory, particularly Argyris and Schön's (1974; 1999) socio-psychological approach, and to Benner's (1982;1984) Novice to Expert model.

Organisational learning theory is concerned with how organisations and the individuals working within them improve their product or service outcomes over time. Improvements in service outcomes support the organisation and its members to increase their capacity to respond to changing internal and external factors (Coghlan 2019). The emphasis of action in organisational learning theory is on creating processes for change that empower individuals to learn by actively involving them in the identification and resolution of problems (French et al. 2004; Rushmer et al. 2004).

The socio-psychological approach to organisational learning theory aligns well with the research findings because of its emphasis on how employees adapt their practice to be more efficient (Argyris and Schön 1974; Argyris 1990). This takes account of defences against learning that result from organisational structures and systems. Further, the socio-psychological approach to organisational learning theory is concerned with double-loop or triple-loop learning that extends beyond individual learning to support service improvement. Finally, organisational learning theory focuses on learning with others through critical reflection. The theoretical categories in this research focus on professional learning as a social endeavour and the need to be supported with continuous professional development activity.

6.4: Synthesis of the findings with the extant literature.

6.4a: Professional learning as a social endeavour.

The research findings focus directly on the primacy of learning with others, so that continuous professional development activity is meaningful for individual nurses' practice context. Critical reflective discussions with others were identified as the single most crucial factor in consolidating learning in any context. Validation participant 1 stated that:

> *"You need to have opportunity to discuss that, critically, with other people, to learn from each other, and to think about it in real life context, not just what is being taught to you, because what's taught to you is not the same as what happens in real life, when you have to deal with situations".*

The research participants highlighted that the absence of social learning in free online resources has a negative impact on the development of their professional knowledge and practice. Feelings of isolation were manifest when using free online learning as continuous professional development. Research participants were able to analyse how they had developed strategies to complete online learning in a time-efficient way. They expressed feelings of dissonance because the resulting learning was superficial and did not reflect their need to approach it in the professional way their code of practice requires (Nursing and Midwifery Council 2018a).

6.4a.i: The development of theories-in-use for continuous professional development practice.

The research participants emphasised how the time pressures that they face in practice had a negative impact on their continuous professional development practices. The overwhelming burden of mandatory training, which was not considered immediately meaningful for practice, was directly implicated in the development of strategies to manage it. Despite mandatory training being an employment requirement, some participants reported having to complete it in their own time and with their own resources. The research participants explained how the training rarely changed over the years that they repeated it. Further, they identified how the content is focused on fact sharing, so the presentation style is text-focused and dreary. The combination of these factors led them to develop strategies to manage it in a time-efficient way.

The research participants explained how the data analytic tools within online mandatory training meant they had to engage with all the content, from start to finish. They could influence the time taken to complete the learning by reading the transcript instead of watching a video, or they could speed the video up. Where they were presented with information they had met before they described how they would click, click, click through the required screens to speed up the process. If required because the test pass grade was not met, they returned to specific screens in the training to revise information or they saved the content and referred to it when repeating the test.

Organisational learning theory explains how employees make efficiency-focused adaptations, referring to these as theories-in-use. Theories-in-use are defined as the observable actions of practitioners, which indicate a gap between theoretical knowledge and practice knowledge (Argyris and Schön 1974; Argyris and Schön 1999). Theoretical knowledge, or espoused theories, are learned in the university. Theories-in-use are developed through immersion in practice alongside expert nurses, in the context of the practice setting. The development of theories-in-use support nurses to work more quickly and more efficiently to reach the objectives or intended outcomes of actions.

Benner's seminal work about nurses' development from novice to expert (1982; 1984; 1987) provides further insight about how nurses develop theories-in-use for practice. It is relevant in the context of the research findings because the research participants referred to Benner's work directly when reflecting on the impact of individualised continuous professional development at the computer on their practice work. Benner (1982; 1984; 1987) proposes that social learning with and from expert nurses and educators is fundamental to the development of practice expertise. Observing expert nurses' practice and engaging in critical discussion with them helps to place the learning in the nuanced context of the practice setting. This social learning helps nurses to develop practice knowledge that is informed by theory. The research participants explained how the opportunities for this rich learning towards expert nursing practice are lost when working alone at a computer, without the opportunity to ask questions that support critical analysis and consolidation of learning.

The research findings demonstrate that the development of theories-in-use extends beyond the practical application of knowledge and skills in nursing practice. It also applies to nurses' learning practices, specifically their continuous professional development practices using free online learning. The participants had been socialised into taking one approach to online learning. They worked through it

systematically from start to end but used strategies to speed up the process that included skipping material. This led to dissonance because they felt that their theories-in-use were at odds with their professional standards, which they felt require authentic and whole-hearted engagement in professional development (Nursing and Midwifery Council 2018a).

6.4a.ii: Critical reflection.

Research participants described how they had benefitted from learning with others through critical reflection during their training programme and after it. This was the case up until the point of the decentralisation of continuous professional development practice. The participants were united in their feeling that decentralisation has caused lost opportunities for social learning. The consequence of this is that there are reduced opportunities for collaborative critical reflection with others.

Critical reflection is defined as “a rigorous, disciplined approach for noticing, attending to, and inquiring into aspects of practice” (Trelfa 2021, p299). The use of reflection as a tool for learning is well established in nursing, following its introduction by Donald Schön when researching whether there is intellectual rigour in professional practice (1983; 1987). The socio-psychological approach to organisational learning theory posits that critical reflection is key to organisational learning (Argyris and Schön 1974; Argyris and Schön 1999). This is because learning can only take place when individuals are open to noticing errors in their practice and taking action to improve outcomes in the future.

It is unsurprising that critical reflection with others was raised by the participants as a key part of learning professional practice knowledge. Critical reflection has been established in nursing since the 1980’s as a tool to capture the artistry of professional practice (Trelfa 2021). The research participants had not known an alternative approach to developing professional knowledge for practice. Benner’s seminal work (1982; 1984; Benner and Tanner 1987), drawing on Dreyfus et al’s (1986) model of skills acquisition, places critical reflection with others, specifically with expert nurses, as fundamental to the development of practice knowledge.

Benner’s seminal work introduced the novice to expert model (1982; 1984) before nursing became a graduate profession and prior to the development of evidence-

based medicine (Sackett and Rosenberg 1995; Sackett et al. 1996). Her model was initially welcomed for its explanation of how nurses developed practice expertise from being a novice. Later, however, it was subject to criticism because of the blurred boundaries between the skill levels. Notably, the model was also criticised because of the use of the term intuition to explain how nurses knew how to act. Intuition, defined as a quality of "understanding without rationale" (Benner and Tanner 1987, p23) is proposed as an unscientific notion due to its lack of measurability (English 1993; Cash 1995). The implementation of graduate programmes for the preparation of nurses and the focus on evidence-based medicine have driven the development of a body of nursing specific research, to overcome criticisms such as this.

Benner's attention on critical reflection continues to underpin nursing practice and has gathered momentum with the addition of formal models for critical reflection for nursing practice (Schön 1983; Gibbs 1988; Rolfe et al. 2001). The research participants referred to Benner's seminal work in the data collection, particularly the generation and sharing of practice wisdom through critical reflection. They emphasised how the decentralised approach to continuous professional development has removed organised social learning opportunities for learning from nurse experts. This primarily relates to lost opportunities for learning through collaborative critical reflection on formal continuous professional development courses since these are no longer commissioned. It also relates to changes in nursing practice around staff handovers so that it is unusual for the whole team to gather together. Organisational learning theory helps to explain how systems and processes in the organisational setting influence learning opportunities.

The research participants explained how staff handovers used to offer an opportunity for sharing professional knowledge. Their experiences are supported by Greenwood (1993) and Cowley (1995), who proposed that clinical briefings provide an opportunity to identify meaningful learning for the practice team. The developing use of technology and flexible shift patterns in the health service have resulted in different techniques for handing over, such as the use of a structured electronic handover form on the organisational Intranet, to reduce the workload of repeated handovers (National Institute for Health and Care Excellence 2017). These systems help to support patients' safety through open communication between all members of the healthcare team (Delardes et al. 2020) but reduce opportunities for meaningful social learning.

Organisational learning theory helps to explain this in terms of the impact of structures and systems on learning (Argyris and Schön 1974; Argyris 1990; Argyris and Schön 1999). These can either support and encourage organisational learning or become established as organisational defences against learning. The use of technology for staff handovers increases the time efficiency of the organisation and supports flexible working. The research participants reported how their asynchronous nature means that the opportunity for the team to get together and discuss practice is significantly reduced. The loss of this regular social learning opportunity reduces the potential for the team members to discuss and act on a meaningful teachable moment that could initiate organisational learning. This example illustrates the complexity of finding the best balance for service delivery and for learning.

The research participants expressed a dissonance in that their established social learning practices for the development of professional knowledge is at odds with the decentralised model for continuous professional development. The latter results in isolated and individualised learning, which was not always presented as being meaningful. The dissonance is indicative of the participants noticing an error. Argyris and Schön (1974; 1990) explain how an error is the recognition by an individual that their intended action or interaction fails to result in the desired outcome. The research participants explained how they addressed the error by continuing to seek learning from nurse experts in relation to their own continuous professional development. This was achieved by approaching them directly for advice, support, or critical reflection. It was their first line strategy for learning, before resorting to free online resources. This is interesting because it illustrates how they manipulated the systems to access the social learning through critical reflection with nurse experts because they value learning in that way.

Social learning opportunities supported the participants to learn professional knowledge. It also helped them to learn how to learn with and from others. That reflection can take place alone or with others, in the moment or after it, is accepted by the participants. They emphasised however, that it is collaborative critical reflection that specifically renders the learning as deep and meaningful. This is because discussion and questioning with others prompts deeper analysis than can be achieved by reflecting alone. Typically, individual reflection is conducted as a paper exercise, using an established framework or model (Schön 1983; Gibbs 1988; Rolfe et al. 2001). Research participants were used to using an established reflective model to structure their individual reflection about a practice incident. One recent critique of

critical reflection is that it has been exploited by education providers as an assessment tool.

Arguably, using critical reflection for assessment has led to the development of theories-in-use that are removed from the genuine and transformative process of learning from practice that were outlined by Argyris and Schön (1974) and Schön (1983). Rather than actively reflecting for learning, nurses focus on what they need to write to pass the assessment (Berta et al. 2015; Miraglia and Asselin 2015; Trelfa 2021). They have learnt to treat reflection as an exercise for producing evidence of learning. This could also apply to reflective episodes for the purposes of assessment by a peer, within the process of revalidation.

Trelfa (2021) discovered that educator responses to students were found to inhibit genuine reflection, weakening the potential for learning. This could be viewed as an organisational defence to learning. If critical reflection is not genuine, then even individual single-loop learning is threatened. Argyris and Schön (1974;1999) define single-loop learning as learning that benefits only the individual. Double-loop or organisational learning is defined as learning that is fed back into the organisation through critical reflection. Double-loop learning results when critical reflection is combined with purposeful action towards changes to improve service delivery.

Purposeful and genuine reflection for individual and organisational development's sake, is proposed as crucial for developing artistry in professional practice following registration (Mortimore et al. 2021). The research participants described the revalidation process itself as a checklist exercise. One of the five reflections submitted for review is required to be discussed in depth in the context of individual learning. The primary emphasis in revalidation, however, is on critical reflection as an assessment process rather than a genuine learning process. There is a missed opportunity to exploit the critical reflection in revalidation as a trigger for organisational learning.

Argyris and Schön (1974; 1999) emphasise the primacy of collaborative critical reflection for organisational learning. This was demonstrated within the research. Research participants reported that they had been encouraged to think deeply about their continuous professional development practices as a direct result of their engagement in the research. The transformative potential of learning through critical reflection was actively demonstrated in the validation event. The research participants

experienced a threshold concept moment about different ways to use free online learning resources for individual team-based learning.

The research participants reported a stark contrast between the isolated learning experience using free online resources and social learning with nurse experts. They were unanimous in their feelings that free online learning resources are ineffective at stimulating reflection. Even where reflective activities are built in, participants reported omitting them so they could complete the learning as fast as possible. This was because the built-in activities guided participants to reflect alone and because there was no genuine or responsive feedback mechanism in online learning. Consequently, the research participants felt no incentive to stop, think deeply and record their reflections about the learning content. The reflective activities had no meaning for them, so their theories-in-use reflected an automatic response of skipping them. Organisational learning theory explains how this constitutes a systems *defence* against learning, because there is a mismatch between intended actions of the completing the learning resource and the outcomes (Argyris and Schön 1974; Argyris 1990; Argyris and Schön 1999).

6.4a.iii: Organisational defences.

Organisational defences are defined as formal and informal management structures, control systems and processes, and interpersonal relationships that impact on the organisational learning culture (Argyris and Schön 1999; Argyris and Crossan 2003). The organisational learning culture relates to nurses' feelings of safety within the practice environment to report errors, to identify learning needs and to initiate or engage in collaborative team-working for service improvement (Argyris and Schön 1974; Argyris 1990; Lyman et al. 2021; Lyman et al. 2022a). Organisational defences have a negative impact on the learning culture, impeding or blocking learning.

The research findings portray how the top-down imposition of organisational systems and processes stifle opportunities for social learning and critical reflection for registered nurses. The participants explained how the decentralisation of continuous professional development practice has resulted in them needing to source and complete their learning independently. This has created a feeling that they are learning in a silo, without the support of their employer. These feelings are compounded by the challenges of increased workload pressures caused by an overall

decline in the numbers of registered nurses and an increased workload caused by a backlog of service demands following the pandemic. The challenges of organisational learning culture, leadership and workload have been reported by Coventry et al (2015) as significant factors in nurses' completion of post-registration continuous professional development.

The research participants explained how the decentralisation of continuous professional development has disempowered them with respect to accessing social learning opportunities, especially with others from different organisations. This caused them to feel frustrated and angry. They feel that the responsibility for continuous professional development has been placed on them without thought about how that will impact on their work life and their personal life. The research participants proposed that employers, by contrast, have benefitted from reduced costs for formal education and for staffing to cover nurses attending post-registration courses.

The socio-psychological approach to organisational learning theory explains how this imposed change has created a systems-based defence against organisational learning (Argyris and Schön 1974; Argyris 1990; Lyman et al. 2021; Lyman et al. 2022a). The research participants felt disempowered and devalued as a direct consequence of the decentralisation of continuous professional development practice. Their managers' focus on mandatory training was also reported as devaluing the activity of professional learning. They proposed that their employers should be supporting their continuous professional development learning since it is a requirement for their role. The feeling of disconnect between practice and continuous professional development constitutes an organisational defence against learning. It is a significant defence because it impacts on the way that individuals work together and learn in a meaningful way.

The research participants shared how the meta-level system defences against organisational learning, including the decentralisation of continuous professional development, create an insurmountable barrier to change. The feeling that systems in the organisation are unchangeable can be reassuring but can lead to inaction or no-learning (Ramage 2017; Mathieson et al. 2019). The imposed changes in continuous professional development practice feel too huge for individual nurses to make an impact on. Organisational learning theory explains the importance of staff feeling that they and their work are valued as this contributes to their feeling of safety at work. This is important because nurses at the frontline of service delivery must

report errors and initiate learning within the practice team (Argyris 1990; Cowley 1995; Argyris 2006; Bauer and Mulder 2007; Ramage 2017; Lyman et al. 2021).

The findings revealed a need to change the way that mandatory training is allocated and managed so that nurses have space, motivation and capacity for developing professional knowledge and expertise. The government has made a commitment to supporting all clinicians to innovate in practice, to improve healthcare services. They recognise the accountability of all professionals, at all levels of the organisation to learn, to improve the effectiveness and experience of care (Department of Health 2010). Innovation is dependent on nurses having opportunities for social learning through critical reflection, supported with time, space and facilitation by nurse experts or educators.

The portrayal of the participants' real-world of practice, with overwhelming workload pressures, reduced opportunities for social learning and the decentralisation of continuous professional development practice appears to set nurses up to fail in meeting revalidation requirements. This phenomenon is reported by Coventry et al (2015) in the context of face-to-face continuous professional development. Organisational learning theory offers helpful explanations about organisational defences but is limited in empowering nurses to address the externally imposed systems and meta-level processes defences they experience. It has been criticised for its superficial and limited application in this context at the micro-level systems of the organisation (Lipshitz 2000; Rushmer et al. 2004a; Clark et al. 2015; Visser and Togt 2016; Basten and Haamann 2018; Mathieson et al. 2019; Auqui-Caceres and Furlan 2023).

Applying organisational learning theory at the micro-level systems is proposed as essential for creating a positive learning culture that takes account of the nuanced practice setting (Lipshitz 2000; Basten and Haamann 2018; Auqui-Caceres and Furlan 2023). The research participants expressed the challenges they faced of initiating learning in the context of service improvement, because of the burden of their workload and of mandatory training. They referred to the attitude and action of their managers as a key factor in developing a positive learning culture at a local level. This is supported by previous research proposing a clear link between managers listening to their staff and showing interest in their continuous professional development learning, and the development of a positive learning environment (Cowley 1995; Rushmer et al 2004c; Jackson et al. 2015).

6.4a.iv: Making learning meaningful in the context of the practice setting.

The research findings highlight how the decentralisation of continuous professional development practice has resulted in a feeling of disconnect between participants' practice and their post-registration learning. Most of them reported how their professional learning is driven by their practice experience and the clinical specialty where they work, which is to be expected. The disconnect is evident after the individual learning has been completed, meaning that it may not be shared back to the practice setting. It arises if the manager in the setting does not demonstrate interest in the participants' individual continuous professional development. This can be explained as an element of the learning culture in the organisation, including at department or service level (Argyris 1990; Argyris 2006; Petit dit Dariel et al 2010; Jackson et al 2015; Manley et. al 2018; Lyman et al. 2021).

Organisational learning theory helps individuals to understand factors in the environment, including the learning culture, that impact on learning (Argyris and Schön 1974; Argyris 1990; Argyris and Schön 1999; Manley and Jackson 2018). The research participants reported that the learning culture of the health service impacts on their professional learning. The National Health Service is a large complex and bureaucratic organisation. Service delivery takes place over multiple sites and there are variations in practice across the country because of local demographics. Unlike the business organisations that Argyris and Schön studied (1974) the health service is subject to additional governance that extends beyond the management of a single hospital Trust. England's central government is responsible for undertaking public inquiries in the case of a serious breach of public safety. The inquiry outcomes commonly include recommendations for organisational learning (Lord Laming 2003; Francis 2013).

In these cases, organisational learning is mandated at a central government level, from outside of the organisation. The research participants understood the additional mandatory training as potentially useful, but they explained that it is not necessarily immediately transferable to practice. Consequently, the learning is not meaningful in the same way that learning triggered by the nurses' experiences in practice is, a view that is reflected in the rapid review findings of Jackson and Manley (2022). The imposition of externally driven mandatory training is significant for the research findings because this constitutes an organisational defence against learning. It adds to the mandatory training burden and this impacts on the learning culture because managers' focus on it detracts from individual continuous professional development.

Organisational learning theory explains that this defence is created to protect nurses in the organisation from the embarrassment of making errors that result in failings in care and that trigger a public inquiry (Basten and Haamann 2018). The research findings challenge this as a simplistic explanation. This is because the externally driven mandatory training increases nurses' learning workload. It specifically increases the amount of isolated online learning that must be completed. Rather than supporting meaningful professional learning, it puts further pressure on nurses' time, energy and motivation for independent professional development. It could be considered anti-learning, because the theories-in-use the participants developed for engaging with online mandatory training had a negative impact on their attitudes towards future continuous professional development using free online learning.

Organisational learning theory is effective for assessing the learning culture and organisational defences at meta-level systems and processes. It has been criticised however for its limitations in assessing the learning culture at micro-level systems, or department level (Lipshitz 2000; Mulholland et al. 2001). It explains how the additional mandatory training constitutes an organisational defence. Research participants expressed frustration and anger about the ad-hoc addition of increasing amounts of mandatory training from their managers. They felt that little of the mandatory training was directly meaningful and relevant for their specific practice context. They proposed that the advancing technology and the use of online learning made it too easy to just add more units of learning. Further, they felt that the managers had not really considered the relevance of the training for them, or the workload implications of the additional training for individual nurses. These points reflect meta-level systems and processes that were disempowering.

Focusing on micro-level systems, the research participants felt angry and frustrated that their managers could or would not try to influence the mandatory training burden. If they challenged their line managers about this and asked for a review of mandatory training, they were told that "this is the way it is." This situation can give the impression that managers are working to a different agenda and that can have a negative impact on the learning culture (Coghlan 2019a). The research participants acknowledged the difficulties for their line managers in challenging the imposition of mandatory training from outside of their organisation. This reflects micro-level systems and processes (Lipshitz 2000; Mulholland et al. 2001). The managers may have felt disempowered to act, in the same way that the participants did when they raised it as an issue. The research participants were left feeling unsupported and frustrated because they did

not feel they had a voice in tailoring mandatory training that was relevant and meaningful to their practice context.

Part of the problem of making learning meaningful is that the decentralisation of continuous professional development practice has removed employers' influence on learning for service improvement. Employers no longer commission formal post-registration education for the nurses in their team. The research participants who had experienced this type of post-registration professional education reported having felt invested in it. This was because they knew would have a positive impact on their work in practice. Their formal continuous professional development learning was integrated into their work and there was reciprocal benefit of the learning for the individual nurse and for the organisation. Professional literature around continuous professional development supports the research findings there is a direct relationship between learning and enhancing patient care experiences (Petit dit Dariel 2010; Parker 2015; Manley et al. 2018; King et al. 2021).

The loss of employer influence is proposed to be an unintended consequence of the decentralisation of continuous professional development. Organisational learning theory explains this after the event, with hindsight born out of experience (Argyris 1990; Argyris and Schön 1999). There is no published evidence that the actions taken to decentralise continuous professional development practice were informed by organisational learning theory. If it had been applied before decentralisation, in the proactive way that Rushmer et al. (2004a) advocate, then the resulting product of isolated and fragmented learning may have been predicted. Steps could have been put in place to avoid the loss of organisational influence on nurses' professional development.

This is relevant to the research since the intersection between nurses' practice and continuous professional development is the point where opportunities for service improvement through learning are manifest. The decentralisation of continuous professional development practice means that the natural opportunity for organisations to support their nurses' learning has been lost. Nurse managers no longer have the structural support for influencing learning practices for service improvement. Furthermore, these challenges mean that the managers themselves need to invest more energy in creating a positive learning culture where nurses in the department feel that they are supported with meaningful professional learning.

6.4a.v: Being intrinsically driven learners.

The context of using free online learning for continuous professional development was for participants' revalidation, to follow up after an incident in practice, or in preparation for a promotion. They described how they sourced and engaged with free online learning because they were intrinsically driven to be the best nurse that they could. Self-motivation is proposed to be an important factor that drives nurses' continuous professional development practice (King et al. 2021).

The incidents in practice that trigger learning are defined as errors in organisational learning theory (Argyris and Schön 1974; Argyris 1990). The term error refers to individuals noticing that their intended action fails to result in the desired outcome. It does not necessarily mean that there has been a mistake that has implications for public protection, although this could be the case. The error may be observable and measurable, or it could be an emotional response to a situation that could have gone better. This stimulates reflection-in-action and modification of the action in the moment, or after it (Argyris 1990).

The difference for participants, between completing mandatory training and independent continuous professional development was that they selected the learning. This meant that it was meaningful to them in the context of their professional practice. Consequently, their intrinsic drive to learn influenced their willingness and motivation to engage authentically with free online learning resources. Participants were willing to complete the free online learning in their own time and space, using their own resources. Schön (1983) refers to this as a dilemma of relevance. The negative consequence was that they did not share their independent professional learning with their managers. They attributed this to the burden of mandatory training and predominant focus of managers which created a negative impression of the value of continuous professional development. This phenomenon, which constitutes an organisational defence is borne out in the research of Mulholland et al. (2001).

When the research participants purposefully self-selected free online learning to develop their knowledge following a critical incident in practice it was aimed at enhancing the experience of the service users that they encountered. That they did not share that learning formally with their managers does not mean that it did not influence their own practice in the organisation. The research focused specifically on how they shared their learning from free online resources. It did not specifically explore how they had applied the learning themselves. However, Argyris and Schön

(1974; 1999) posit that collaborative critical reflection is a defining factor in shifting from individual or single-loop learning to organisational double-loop learning. If line managers exploit the intrinsic motivation of their staff to learn and take interest in their learning, then potential opportunities for meaningful organisational learning for service improvement can be supported through critical discussions.

6.4a.vi: Education and practice partnerships.

The participants described how the nursing leadership of the organisation, or a specific department or service within it, makes a tangible difference to their professional learning practices. They reflected on their experiences of different clinical settings to identify the traits of nurse leaders who successfully developed a positive learning culture. They referred to managers and to educators in practice who embody the value of learning in their day-to-day practice by modelling reflection in and on action. These managers are interested in and supportive of their nurses' development as individual team members. They make opportunities for social learning, after a critical incident for example and they signpost learning that will benefit the individual and the organisation. The traits of leaders identified by the research participants are supported by evidence-based recommendations for leadership for organisational learning (Rushmer et al. 2004c; Manley et. al 2018; Petit dit Dariel et. al 2010; Lyman et al. 2021).

The research participants emphasised the importance of having access to educators in partnership with practice settings to support learning in practice. Exploiting education and practice partnerships and working towards a shared goal of service improvement and increased effectiveness is a key facet of the socio-psychological approach to organisational learning theory (Argyris and Schön 1974; Screening Organisations 2011; Langlois et al. 2014; Manley et. al 2018). The research participants reported seeking out educators and expert nurses to engage in critical reflection with. They highlighted how visible educator practitioner partnerships were a sign that learning was valued in the setting. Having access to an educator in practice was considered as key to the process of individual and organisational learning in three ways.

The first was to support clinical teams by role-modelling and facilitating critical reflection. Organisational learning theory places these activities in the context of

managing organisational defences to create a positive learning culture. It considers role-modelling and facilitation as precursors to project management and innovating change (Argyris and Schön 1996; Oeij et al. 2017). This is relevant in the context of the research findings as nurses are professionally responsible for advancing evidence-based practice for service improvement (Nursing and Midwifery Council 2018a).

The specific action of facilitating critical reflection is proposed as an evidence-based strategy for individual and organisational learning. The facilitator, whether they are an educator or expert nurse, may source the evidence themselves or may guide members of the nursing team to source it (Oeij et al. 2017; Lyman et al. 2019a; Lyman et al. 2019b; Lyman et al. 2021; Mortimore et al. 2021; Lyman et al. 2022a; Lyman et al. 2023). Mortimore et al. (2021) propose that expert nurses should be facilitating organisational learning, then taking action to share the outcomes of it at local, regional, national and international levels. It is easy to suggest that educators and expert nurses must fulfil this role, but they are subject to the same time and workload pressures as the nurses they are supporting. They also experience the challenge of the organisational defences in existence in the National Health Service.

The research participants described how the needs of the service always took precedence over their learning, even mandatory training. In the real-world of practice, opportunities for social learning can be lost unless micro-level systems in the setting are manipulated to ensure there is time set aside (Rushmer et al. 2004c; Armson et al. 2015; Lyman et al. 2020; Lyman et al. 2022a; Lyman et al. 2022b; Lyman et al. 2023). Educator practitioner partnerships are proposed to exploit insider knowledge of the nuanced context of the practice settings, with the power of partnership to manage micro-level systems to create a positive learning culture (Rushmer et al. 2004c; Lyman et al. 2021; Lyman et al. 2022a). This means that they may be able to exploit opportunities to create time for social learning.

The second way that research participants presented educators as key to learning with others and making learning meaningful, was to provide functional support. This included support with learning how to use free online learning resources and support with technology. Research participants who were educators described using some open education resources and free online learning resources within teaching materials. They reported missed opportunities, however, to signpost them as a tool for continuous professional development in the future. In fact, they expressed a need for support themselves, to develop their own confidence in the use of open education

resources. This need specifically focused on understanding Creative Commons licensing so that they felt reassured and confident about using open education resources in their practice.

The research participants who were educators expressed that a significant challenge they face is how to prioritise the learning between the curriculum for registration, and the more abstract concept of learning how to learn for post-registration practice. This tension around balancing curriculum requirements against learning how to learn could be considered a defence against organisational learning. The consequence of the decentralisation is that students focus on advancing their professional knowledge through individual study, at a personal level only. This situation may be exacerbated by the predominant focus on individual learning for formal assessment in the university. The outcome is that learning is single-loop and benefits only themselves (Argyris and Schön 1974; Argyris 1990). Team-work based assessments in the university go some way to prepare students for organisational learning. The challenge for educators and expert nurses is how to support double-loop learning by facilitating the feedback and sharing of individual learning, by exploiting social learning opportunities and critical reflection into purposeful action to improve practice (Jackson et al. 2015; Manley et al. 2018).

Argyris and Schön (1974; 1999) Rushmer et al. (2004b) and Berta et al. (2015) propose a third triple-loop level of organisational learning. This is the result of the organisation and its members learning to learn effectively for real-world practice. Triple-loop learning is characterised by the development of the organisational capacity for learning in new ways. The research findings highlight an error between the intended action of nurses accessing free online learning as continuous professional development, and the outcomes. Their theories-in-use as they engage in online learning result in single-loop learning that feels detached from practice. The research findings reveal the possibilities of using free online learning in new ways that are integrated with service improvement so that it feels meaningful. The findings illustrate how nurses at the frontline of practice can have influence on increasing the capacity of the organisation to learn, if they are supported with a positive learning culture at micro-level systems, or department level.

The challenge is that education programmes can only ever be an initial preparation for the professional role (Clark et al. 2015). Nurses are professionally obliged to undertake continuous professional development to support the implementation of evidence-based practice (Department of Health, 2012, in Clark et al. 2015; Nursing

and Midwifery Council 2019a). The decentralisation of post-registration continuous professional development places the responsibility on individual nurses to manage their professional learning. The transition from facilitated critical reflection with peers at university, to independent learning post-registration was described as challenging by the research participants. The adaptation to new learning approaches in the process of transition to registered nurse was compounded by workload challenges. The reason for this was that workload pressures reduced opportunities for critical reflection with colleagues in the practice setting. The transition experience is not unique to nurses, being shared by medical staff transferring from general medical education to independent continuous professional development (Allen et al. 2024). Arguably, a failure to prepare student nurses adequately for the transition to independent continuous professional development constitutes an organisational defence against learning.

The transition from facilitated critical reflection in university to independent post-registration continuous professional development practice is an ongoing process and not a one-off change for all nurses, in one moment. Supporting nurses around learning how to learn their professional knowledge post-registration requires a dual approach from educators. It requires preparation and support in the university during the nurse training programme, so that student nurses develop the skills for independently sourcing and engaging with free online learning post-registration. It also requires support in practice to develop and refine these skills and to transform individual single-loop learning to organisational double-loop learning. The research findings highlight the importance of educator practitioner partnerships to continue to support nurses' transition to continuous professional development practice after they have registered. Educators based in practice are well placed to support nursing teams to use free online learning in response to real-world problems in the nuanced practice context. The facilitation of collaborative learning activity directly focused on service improvement reflects the third way that participants identified educators in practice as key to supporting meaningful social learning.

This emphasis in organisational learning theory is on nurse leaders and educators in practice partnerships to create a positive learning culture. Recent research focusing specifically on the application of organisational learning theory at the micro-level systems in the health service supports this (Rushmer et al. 2004a, 2004b, 2004c; Armson et al. 2015; Lyman et al. 2020; Lyman et al. 2022a; Lyman et al. 2022b; Lyman et al. 2023). The aim is to create an environment where collaborative social

learning for practice is valued and where shared goals for organisational learning are developed (Manley et al. 2018; King et al. 2021). This reflects the focus in organisational learning theory of supporting the development of a positive learning culture from the bottom of the organisation up Argyris and Schön (Argyris and Schön 1974; Argyris and Schön 1999).

6.4a.vii: Learning for organisational change.

The socio-psychological approach to organisational learning theory posits that empowerment of staff at the bottom of the organisation is likely to lead to double-loop learning and service improvement (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004c; Lyman et al. 2021). Ramage (2017) however, reports a tension between maintaining the constancy of individuals' identity in the organisation or profession and challenging them to develop their capacity to innovate and change practice. Constancy affords a feeling of stability and safety. The research findings highlight how the impact of a workload in constancy limits opportunities for organisational learning. This is discussed below in the theoretical category being swallowed up in practice.

The research findings explain how the decentralisation of continuous professional development, combined with flexible working practices have reduced opportunities for social learning. This constitutes an organisational defence because it limits opportunities to develop awareness of, and beyond self, in response to errors. Nursing research has emphasised the importance of mindfulness in developing self-awareness about the outcomes of nursing actions. Mindfulness can be limited when nurses are overwhelmed with work, or if practice is very repetitive and stable (Chiva and Habib 2015; Kyndt et al. 2016; Coghlan 2019b). Comer (2016) concurs that there is a fine balance between workload and learning. Practice needs to be at least relatively stable so that nurses can develop knowing in action, but if it is too stable then nurses may not notice possibilities for individual and organisational learning. This is relevant in the context of the research findings because it highlights the importance of nurse leaders in practice creating opportunities to critically reflect on practice and finding space to drive service improvement.

Engaging health professionals in social learning is considered to be difficult (Armson et al. 2015). Armson et al's work is focused on the continuous professional

development of physicians and the implementation of evidence-based practice. It has parallels with the findings of this research in relation to organisational defences against learning that exist in the learning culture of health services. To overcome the defences of time and space for social learning opportunities the authors developed an 'initial reflection tool' for formally recording learning during protected time (Armson et al 2015). The tool was implemented to guide reflection as part of a face-to-face small group learning programme. The authors found the tool to be useful in capturing the reflections of the staff. Their evaluation of it revealed however, that the act of engaging in and recording reflective learning did not necessarily trigger learning for service improvement.

Consequently, the authors adapted the reflective tool, adding commitment statements for the physician's engagement in further learning and action for service improvement (Armson et al. 2015). The disconnect between the reflective learning and service improvement reflects the research findings about theories-in-use for reflective practice as a process for assessment. In this case, focusing on the process of recording reflection is not sufficient to overcome the real organisational defences of time, space and empowerment for driving organisational learning. Recording reflective learning does not require a great deal of energy but committing to make change from the learning does. Using a reflective tool in the context of service improvement can support the recording of learning but there is a need to consider new ways to capture reflection that is more than a process-driven checklist.

Evaluating the behavioural outcomes of individual and organisational learning is complex (Manley et al. 2018; Jackson and Manley 2022). Even if the learning could be observed through nurses' applied actions, there are countless variables that impact service delivery in the everyday context. These include staffing levels, the number of staff working at any time who have undertaken specific learning, the experience of the nurse across the range from novice to expert, and the clinical situations that present. Clark and Draper (2011) developed an Impact on Practice framework to help key stakeholders assess the impact of post-registration professional learning. Focusing on assessing the impact of formal education programmes, the tool explores individuals, managers, education providers and healthcare organisations' perspectives. The stakeholders found the framework useful as a tool to consider and prioritise learning towards practice development. This work is dated but it could be adapted to assess the impact of organisational learning from

nurses' continuous professional development using free online learning for service improvement.

6.4a.viii: Summary of the theoretical category professional learning as a social endeavour.

The synthesis of findings in the theoretical category professional learning as a social endeavour with the extant literature reveals a complex interplay of organisational defences. The decentralisation of continuous professional development practice, combined with the learning culture at meta-level have a significant impact on nurses' opportunities for to integrate their professional development with service improvement. The micro-level systems and processes, including changes in working practice to support flexible working, reduce real-time opportunities for social learning through critical reflection with peers.

The research participants reported feeling dissonance because individualised continuous professional development results in single-loop learning, which is at odds with their professional imperative to drive evidence-based service improvement (Nursing and Midwifery Council 2018a). Organisational learning theory goes some way to explaining organisational defences, particularly meta-level systems and processes that create barriers to learning. It is not helpful for guiding nurses how to challenge the organisational defences when they feel that learning for professional knowledge development is not valued. The unique position of the National Health Service in respect of governance and the imposition of mandatory training compounds the problem because managers' interest is on meeting completion targets.

The findings support the critical function of the practice and education learning partnership for developing a positive learning culture from the bottom of the organisation up. Organisational learning theory supports the research findings about the importance of managing the practice environment to create opportunities for meaningful facilitated critical reflection in the nuanced context of the setting. The aim of these social learning opportunities is primarily to provide opportunities for learning professional knowledge for practice. Beyond that however, social learning supports the development of new ways to learn effectively for the real world of practice. This includes the use of free online learning for organisational, as well as individual

learning. Framing facilitated learning within a service improvement context offers the opportunity to capture evidence of individual and organisational learning. This in turn supports formal sharing of practice knowledge, which is a feature of nursing leadership roles.

6.4b: Being swallowed up in practice.

The research findings in the theoretical category being swallowed up in practice focus directly on the need to be supported by facilitated learning, and to have time and space for learning, whether alone or with others. The research participants expressed how prioritising service delivery added to the feeling of being swallowed up in practice. Organisational learning theory explains how these experiences serve as defences against both individual professional development learning and organisational learning (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004c; Lyman et al. 2020; Lyman et al. 2021).

6.4b.i: Having time and space for learning.

A significant focus of participants' attention in the research was on the lack of the fundamental resources of time and space to complete even mandatory training. This lack of time and space was a symptom of being swallowed up in practice. The research participants felt that managers exploited their goodwill, when they had no option but to complete mandatory training in their own time and space. This finding is not unique to the research, being seen in the work of Cowley (1995) and of Allen et al. (2024) with reference to medical professionals.

The research participants explained how managing the burden of mandatory training in their own time and space resulted in feelings of exhaustion and overwhelm. It left them feeling as if they and their professional learning are undervalued. These feelings combined to reduce their motivation to seek out free online learning for independent learning. Organisational learning theory explains how all employees need to feel that they are empowered and that their contribution to the service is valued if organisational learning is to be enabled (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004a, 2004c; Schulz 2008; Berta et al. 2015; Lyman et al. 2021;

Auqui-Caceres and Furlan 2023). The research findings highlight nurses' feelings of disempowerment around their continuous professional development practice.

Some research participants described how their managers had scheduled protected learning time in their diary for completing online learning. The time was only available if their rostered shift was on that day. Nurses who did not work at that time were not supported with time and space for learning. This creates a feeling of disparity among the team and could result in a systems-based defence against organisational learning (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004c; Lyman et al. 2021). Organisational learning theory explains how staff who feel devalued in the organisation have less incentive for learning for the benefit of that organisation (Gagnon et al. 2015). The research participants described how the sense of feeling valued results in their willingness to 'give' to the organisation. In the context of the research this refers to the willingness to go beyond their professional duty to learn for revalidation, by sharing their learning for service improvement.

The research participants expressed feelings of tension between prioritising practice-based work and continued professional development learning. The problem was compounded because the practice workload and interruptions from colleagues made it impossible to even complete mandatory training during work hours. The fact that they had to do this without recompense created feelings of frustration and anger. It was interesting that the participants referred to disturbing other colleagues' learning if they needed to have support with a service issue or query themselves. Organisational learning theory explains this as a factor of the learning culture and the extent to which learning is viewed as a valued activity (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004c; Lyman et al. 2021).

The research participants explained how they knew that their actions reinforced the view of learning as something of low importance in that moment. Their actions were, however, reflective of working in an organisation where the learning culture is influenced by dynamic service needs. Their own professional values were at play too, as they reported feeling guilty if they were seen to be learning at the computer when the service was busy, while colleagues were struggling with workload.

The research participants expressed a genuine need to feel supported with time and space for learning. They proposed that clinical academic or educator partnership roles offer formal authority to create time and space for learning. This is endorsed in the extant literature, where learning partnership roles have been seen to build in learning

time as part of the micro-level structure and systems of the practice setting (Cowley 1995; Rosser 2017; Lyman et al. 2021; Mortimore et al. 2021; Lyman et al. 2022b). This by means guarantees that time will be protected when service demands take precedence, but building a strong infrastructure creates potential opportunities to exploit time and resources for learning.

6.4b.ii: Maximising efficiency for completing free online learning.

The participants' exposure to online learning for mandatory training had socialised them into understanding there was one universal approach to online learning. This led to the application of theories-in-use, as discussed in 6.3a.i, to make the best use of their time with the least effort. Their theories-in-use were balanced with an understanding that free online resources can offer rich learning, with the proviso that the content is accessible, relevant, interactive and engaging. To save time spent on learning, however, they described how they would omit individual reflective activities in online learning. This was a pragmatic decision as they would rather reflect in practice with peers about the learning. The reality they expressed however, was that there was little time to reflect about their independent learning with their peers, except for signposting peers to resources that they deemed especially useful.

Organisational learning theory explains how time pressures challenge individual's perception of their empowerment to notice errors and initiate learning (Argyris and Schön 1974; 1990). Maximising efficiency in engaging with free online resources comes at the expense of being mindful and taking time to reflect deeply on learning. The validation event revealed the power of time and space for critical reflection. The research participants explored the possibilities of a different way to engage with online learning. This was a result of having the protected time and space for critical reflection in a social learning context within the validation event. The discussion led them to verbalise the error that they noticed with respect to their intended actions and outcomes of using free online learning for continuous professional development. This resulted in their imagining possibilities for approaching the learning in a different way that would refocus it on service improvement. This is a stark illustration of the contrast in the real-world of practice where there is rarely time and space to even think about continuous professional development learning.

6.4b.iii: Access to resources for engaging with free online learning.

The research participants expressed frustration about accessing free online learning, particularly in relation to accessing information technology resources at work. They explained how their frustrations and time pressures were compounded by the failure of learning systems across hospital sites to talk to each other. This problem is highlighted in research by Petit dit Dariel et al. (2010). It proved to be especially problematic if participants worked in multiple roles across different hospital Trusts because the burden of mandatory training was doubled. Mandatory training was required at each hospital site, even if evidence of completion at a neighbouring service provider was provided. When the participants challenged this with their managers, they were told that completion was necessary due to nuances in the organisational policies referred to in the training. Organisational learning theory supports understanding of this as a significant structural and systems defence against learning (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004c; Lyman et al. 2021). Organisational learning theory is limited in its potential for guiding meaningful change in relation to this defence, as the organisational systems alter and move on so quickly.

The research findings revealed one specific structural defence against organisational learning in the United Kingdom health service. The limited access to Internet resources because of information technology security policies in hospital Trusts significantly impacts nurses' ability to access free online learning. The lack of access to Internet-based learning resources was also described as a problem in private healthcare providers where students have practice placements. This problem is highlighted in the wider literature as a significant challenge to using free online learning as continuous professional development (Petit dit Dariel et al. 2010; Rolfe et al. 2012; Ladan et al. 2018; Ladan et al. 2019).

The restrictions caused by information technology security policies severely impacts the ability of nurses at all levels of the organisation to access free online learning in their work setting. Even if the participants had the intrinsic motivation to engage in continuous professional development using free online learning resources, they were unable to access these. This situation resulted in a feeling of disempowerment for the participants and reinforced the view that continuous professional development learning is devalued by the organisation.

The research participants highlighted that where learning feels devalued it creates a tangible disconnect between practice and learning. This constitutes an error because there is a mismatch between intended action and outcomes of learning activity (Argyris and Schön 1974; Argyris 1990). Cowley (1995) proposes that practice-education partnership roles have the potential to manipulate the environment with the aim of removing organisational defences and facilitating learning. In the context of the example above, local knowledge and experience of the organisational context can enable the educator to offer team-focused support. They could for example, function as a conduit between healthcare and university settings to access and share online information that is relevant to organisational learning in the context of the service improvement need arising from facilitated reflection in practice.

Partnership arrangements to support access to free online learning and information resources would go some way to overcoming this defence against learning. Nurses in the organisation are more likely to feel empowered if their organisational systems support them to access learning themselves. This is relevant to the research findings since participants expressed feeling disempowered and frustrated because of the decentralisation of continuous professional development. The resulting isolation and disconnect between learning from practice, compounded by workload pressures, left them feeling as if they were set up to fail in meeting their professional responsibility to improve service delivery through their professional learning.

6.4b.v: Tools for understanding and supporting the development of a positive learning culture in healthcare settings.

The research participants highlighted the centrality of a positive learning culture where they felt valued as team members, for organisational learning to be a possibility. A positive learning culture values the influence of their professional learning on improved patient experiences and enables them to be the best nurse that they can. This reflects the socio-psychological approach to organisational learning theory, which posits that all members of the organisation should be empowered to initiate learning (Argyris and Schön 1974; Argyris and Schön 1999; Argyris 2006).

Organisational learning theory has been criticised for its focus on assessing the learning culture at meta-level systems of the organisation. Until recently there was an absence of established organisational learning tools that are directly relevant to

assessing micro-level systems and processes in healthcare settings. The research of Lyman et al (2021; 2022a) into organisational learning experiences of nurses, led to the development of assessment tools to analyse the learning culture in health settings. The Organisation Learning in Hospitals (OL-H) and Organisational Learning Instrument-Mechanisms (OLI-M) assessment tools were developed to explore the application of organisational learning theory at unit or service level (Lyman et al 2021; 2022a). The tools support understanding of the degree to which nurses feel free and safe to identify and report errors that they notice in practice.

The research findings reflect the influence of the nurse leader in the department and educators in practice partnership roles on developing a positive learning culture. Human factors are presented as central to the creation of a positive learning culture that supports individual and organisational learning (Argyris 1990; Cowley 1995; Rushmer et al. 2004b, 2004c; Petit dit Dariel et al. 2010; Manley et al. 2018; Coghlan 2019b; Lyman et al. 2021). Kyndt et al. (2016) develop this point further, proposing that managers who demonstrate commitment to learning through creating a positive learning culture, are effective at exploiting the individual characteristics of nurses who work with them. They refer specifically to maximising nurses' self-efficacy, proactivity and intrinsic learning motivation, characteristics that are strong predictors for engagement in continuous professional development.

When clear structures in the setting empower staff for meaningful learning grounded in practice, this encourages the shift from individual single-loop learning to double-loop organisational learning feeding into service improvement (Kyndt et al. 2016). A challenge for the nurse managers is to find the balance between meeting targets for mandatory training for their department or service and encouraging independent continuous professional development. This is a challenge when managers are themselves subject to being swallowed up in practice and feeling disempowered by meta-level organisational defences involved in mandatory training themselves.

The OLI-M tool enables assessment of team interaction, collective reflection, deliberate learning, retention and leadership (Lyman et al. 2022b). Whilst it has some utility in assessing the learning culture at unit level in the hospital, it does not refer or extend to independent continuous professional development practice using free online learning. The research participants highlighted the importance of feeling supported with continuous professional development learning in respect of all these factors, except retention. This is interesting because the literature does focus on retention as key to the sharing of nursing knowledge and expertise as a commodity

of the organisation (Lyman et al. 2022a; Lyman et al. 2022b). Gagnon et al. (2015) explored the development of a learning organisation in Canada, and its impact on nurse retention and on nurses' continuous professional development. Whilst organisational learning culture was not found to directly impact staff retention, staff identified that they were more engaged with continuous professional development for service development when they felt they were valued members of the organisation.

Following on from the development of the OLI-M tool, Lyman et al have developed a set of evidence-based strategies for creating a positive learning culture in health care settings (Lyman et al. 2021; Lyman et al. 2022a; Lyman et al. 2023). The strategies focus on the development of a culture of leadership, which supports interaction between peers, collective reflection and deliberate learning. These are all features of a positive learning culture highlighted by the research participants. The exception is the emphasis on staff retention to exploit the sharing of expert knowledge.

The evidence-based strategies are not prescriptive and do not offer specific actions that educators and nurse experts should employ to create a positive learning culture. Rather, it offers a toolkit that supports them to assess the learning culture, based on their insider knowledge of the nuanced practice context (see table 10). Following assessment of the learning culture, the toolkit supports them to imagine possibilities for manipulating the environment to develop the culture of leadership, which supports interaction between peers, collective reflection and deliberate learning for service improvement (see table 11).

The evidence-based strategies presented by Lyman et al. (2021) reflect the importance of human factors, in this case the skills and attributes of the nurse leader in partnership with educators to influence the learning culture. Making a difference to the learning culture presents a significant challenge when the nurse leaders are themselves swallowed up in practice. The research participants felt that those nurse leaders they had worked with who displayed clear leadership at a micro-systems level, developing a shared team purpose towards service improvement, positively impacted on their own professional learning practice. The leaders the participants spoken about had created learning opportunities and role modelled learning for service improvement themselves, reinforcing that learning was valued in that setting. The actions of the nurse leaders towards creating a positive learning culture at micro-systems level motivated staff to be involved in organisational learning in their unit.

There is a lack of research at present about the impact of using evidence-based strategies for creating a positive learning environment from the bottom-up of health care organisations up. Research into this area of practice is important to capture actions that nurse leaders and educators have applied to create a positive learning culture and to assess the impact of these for individual and organisational learning.

6.4b.iv: Feeling supported by educators and nurse leaders.

The practice-based research participants outlined their need for feedback on learning from educators. They wanted to engage in critical discussion with educators about the learning, to check their understanding of it and to discuss it in the context of their practice setting. They stated a preference to learn directly from the educators and nurse experts rather than using free online learning. When they did resort to online learning, they were frustrated that they did not get personalised feedback on it. They were also left frustrated when a quiz question within the learning was ambiguous or incorrect and there was no feedback mechanism in the learning resource to explain the answer.

This was significant because it sometimes led the research participants to abandon the learning if they were unsure about something or had a question that could not be answered. They described their intention to present their question to peers in practice. When they were in practice and were subject to workload challenges however, the question was often forgotten, so went unanswered. Organisational learning theory explains how this creates a defence against learning through the loss of social learning opportunities (Argyris and Schön 1974). If nurses learn in isolation without the opportunity to clarify or discuss learning, they may stop that learning activity, or the learning may fail to influence their practice. The loss of social learning opportunities to consolidate individual learning has a wider impact for the organisation (Manley et al. 2018). It can limit the potential transformation of evidence-based knowledge into practice, reducing the potential for service improvement. Furthermore, it can have a negative impact by limiting the organisation's capacity for learning and change.

The professional regulation of nursing education means that nurses are used to their professional knowledge being assessed. The participants expressed how they are used to receiving feedback from educators to confirm their understanding of what has

been learnt. They are also used to social learning for professional practice. This was highlighted as their preferred approach because it is the defining factor in shifting the balance from single-loop individual learning to double-loop organisational learning. The value of the support from educators for participants' professional learning is reflective of Argyris and Schön's emphasis on the centrality of education practice partnerships (1974; 1990).

In the context of the research findings, the emphasis is not just about learning specific professional knowledge from educators. It is also on support for learning new ways to access professional knowledge, using technology. The research participants highlighted their need for educator support about how to source, critically appraise and quality check free online learning resources. They reported that they would prefer educators to directly signpost relevant and quality assured free online learning for them. This was because of the demands on their time and the feeling of being swallowed up in practice. They also wanted support with using different learning platforms and systems, cautioning that educators need to use a tailored approach in response to their individual needs.

The participants warned against educators assuming that all nurses are proficient in using Internet-based learning systems, proposing that this can happen because the current generation of graduate nurses are used to using information technology in their everyday lives. They reinforced the importance of a tailored approach to providing support, which meets individual nurses' needs. The provision of support assumes that the educator is knowledgeable, skilled and confident in using innovative technologies and processes for learning themselves. The research findings revealed that the education-based participants wanted support with developing skills for sourcing and engaging with free online learning resources. They felt this would help them to support undergraduate nursing students to develop these skills. The challenge is for educators to keep up with the exponential pace of change in this area, so that they can support nurses in practice with using free online learning as continuous professional development.

The research participants who were educators specifically referred to their need to develop confidence in understanding open education resources and the Creative Commons licenses that govern their use. This phenomenon, as presented by the participants, constitutes a new structural defence against organisational learning, which has arisen because of the rapid developments in technology and the delivery of online learning (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004c;

Lyman et al. 2020; Lyman et al. 2021). The need for practical support with both learning how to use the technology and learning professional knowledge through engagement with the technology is endorsed by Bolton and Emery (2021).

Argyris and Crossan (2003) have levelled criticism towards educators in practice partnership roles for failing to support practice learning, because they do not engage in action for change. Things have changed to some degree after this now dated publication because of imposed learning and change arising from public inquiries. Armson et al's. more recent work (2015), however, found this remained a problem. Their research highlighted that there is a disconnect for physicians between reflecting on practice and identifying areas for change and actually acting to make the planned changes. This is proposed as an area for attention of educator practice partnership roles. The reports of public inquiries into health services, such as the Francis report (2013) have strengthened practice education partnerships and engagement in learning through imposed service improvement (McSherry et al. 2015).

Although this public inquiry driven learning activity is driven from the top-down, McSherry et al. (2015) propose that the increased visibility of educators in practice has a positive impact on learning for service improvement. They propose that it supports nurses to learn beyond the data about performance indicators that is required by the public inquiry. The education practitioner partnership has been found to support a culture of inquiry and questioning, which is fundamental to individual and organisational learning (McSherry et al. 2015). This work on service improvement learning was focused on auditing and student practice placements rather than on continuous professional development specifically. It is relevant in the context of the research findings because the partnership working in a service improvement context was found to support organisational learning.

Framing organisational learning in a service improvement context helps to overcome one of the challenges around professional learning, which is providing evidence of the outcomes of learning. Recording the learning process and outcomes helps to contribute to the body of evidence-based practice (Clark and Draper 2011; Langlois et al. 2014; Clark et al. 2015). This evidence can be shared by educators and expert nurses in line with their professional responsibility for disseminating practice innovation locally, regionally and nationally (Mortimore et al. 2021). Internationally, nurse leadership groups such as Sigma Theta Tau support professional networking and sharing of evidence-based practice (Rosser et al. 2017; Mortimore et al. 2021). These professional networks are not restricted to clinical practice research. They offer

opportunities to share evidence about new ways to learn professional knowledge for real-world nursing practice.

The research findings add a new perspective to organisational learning theory by focusing on the use of free online learning for continuous professional development as integral to the facilitation of service improvement. Educators working in partnership roles can support nurses' adaptation to new ways of learning. This includes the use of free online learning as continuous professional development. Petit dit Dariel et al. (2010) emphasises that for educators, this requires them to face the challenges of integrating technology as a tool for learning practice-based knowledge. This can be challenging if they need to learn new skills (Petit dit Dariel et al. 2010).

Research evidence demonstrates that reusable learning objects successfully support the professional learning of nursing students (Wharrad and Windle 2010; Windle and Wharrad 2010; Windle et al. 2011; Rolfe et al. 2012; Williams et al. 2015). Whilst the research is predominantly focused on science-based subjects there are reusable learning objects being developed that focus on the application of practice-based knowledge around respect, communication and rights for nurses working with individuals who have a learning disability (Windle et al. 2010a). Critically, the reusable learning objects have been co-created by students and serve as a resource for learning beyond assessment. Co-creation of learning resources is proposed to help make them meaningful, especially in the context of organisational change (Rolfe et al. 2012; Jackson and Manley 2022). Whilst there is little significant evidence of nurses specifically using reusable learning objects for continuous professional development in the literature, the development of reusable learning objects outside of science-based learning have clear potential for post-registration learning.

Windle et al. (2010b) emphasises the importance of moving open education resources into the mainstream to promote participation and their acceptance by nurses as a valid and effective tool for professional learning. This requires modelling their use and teaching nurses in practice the skills needed to use them effectively (Kaatrakoski et al. 2017). Rolfe et al's. (2012) research highlighted the impact of having an interprofessional learning champion to lead and encourage service improvement. Educator attitudes are influential in the adoption of online learning (Petit dit Dariel et al. 2013; Petit-dit-Dariel et al. 2014). In the context of this research an open education resources champion may encourage and support the use of free online learning for continuous professional development.

Organisational learning theory places the responsibility for action in building a positive learning environment onto individuals in the setting. Since the emphasis for action is on implementing structural changes that empower staff to innovate and to act for organisational learning, this is appropriate (Argyris 1990; Cowley 1995; Rushmer et al. 2004c; Argyris 2006; Lyman et al. 2022b; Lyman et al. 2023). Those working in the setting are best placed to identify potential solutions to overcome barriers to learning in the nuanced context of their practice, which incorporate and encourage the use of open education resources.

6.4b.vi: Summary of the theoretical category being swallowed up in practice.

To summarise the theoretical category of being swallowed up in practice, the research findings highlight the importance of nurses being supported with facilitated learning for continuous professional development practice and for organisational learning. The socio-psychological approach to organisational learning theory emphasises the responsibility of nurses at all levels of the organisation to work towards service improvement. This is a professional imperative for nurses. The decentralisation of continuous professional development practice and the sense of being swallowed up in practice results in nurses feeling unsupported. The participants expressed that their professional learning feels devalued. They feel as if they are completing continuous professional development in a silo. This is at odds with them wanting to be the best nurse they can be and to provide the highest standard of care to patients.

Educators and expert nurses were proposed by the participants as best placed to facilitate social learning and critical reflection, which supports meaningful learning. Nurses feel they need support from educators and nurse leaders to develop and apply information technology and critical analysis skills for using free online learning as continuous professional development. The development of practice education partnerships supports the assessment and manipulation of factors in the practice setting to develop a positive learning culture. Education and practitioner partnerships also support the facilitation of collaborative learning through a service development approach where errors in practice are identified and shared goals for organisational learning are developed. As a specific aspect of facilitating a service development project, educators can role model new ways of learning. In the context of the research findings this includes using free online resources for developing professional practice knowledge. Facilitating individual and organisational learning in a service

improvement context supports the recording and sharing of the process of learning and of practice developments that arise from organisational learning.

Contextual factors to foster organisational learning	
Shared purpose	• Explore approaches for establishing a shared purpose towards organisational goals. • Integrate the shared purpose into workplace values. • Ensure equitable treatment of all team members towards a shared purpose. • Ensure all employees understand their own and other's roles in working towards the shared purpose. • Establish a shared approach to patient care.
Motivation	• Involve nurses in decision making. • Develop understanding of incentives that are meaningful and motivating for team members. • Motivate team members by collectively recognising and reflecting on cases where they influenced the organisation's shared purpose.
Psychologically safe relationships	• Support hospital-level initiatives to improve psychological safety. • Cultivate teamwork and unity by encouraging staff to build professional and personal relationships with one another. • Ensure that open communication, constructive conflict, and asking questions are valued in the setting. • Take action to respond to bullying, gossiping, and other forms of incivility. • Normalise error reporting. • Listen empathetically and respond appropriately to staff concerns. • Model authentic mentoring relationships.
Infrastructure	• Advocate for organisational resources such as adequate time, technology, and processes. • Remain up to date with technological advances to support work efficiency. • Ensure appropriate allocation of resources and ensure team members are aware of them. • Regularly evaluate whether the organisation's infrastructure is supportive of working towards the shared goal.
Skills	• Conduct regular team meetings to develop staffs' proficiency in collaborative decision making . • Debrief after adverse events. • Provide opportunities for interprofessional communication. • Practice creative problem solving in combination with evidence-based practice to maximise service improvement. • Engage in service improvement projects
Experience	• Facilitate social learning opportunities. • Use collective reflection to learn from challenging practice situations.

Table 10: Evidence-based strategies to create a positive learning culture (after Lyman et. al 2021).

Mechanisms for facilitating organisational learning	
Leadership	• Provide adequate infrastructure to make organisational changes. • Develop a psychologically safe environment that allows staff to engage in social learning. • Assess for barriers to implementing evidence-based practice and intervene to overcome these. • Help articulate an organisational mission and vision to motivate staff to work towards shared goals.
Interaction with others	• Willingly listen to concerns and questions from others. • Set time and agendas for formal meetings. • Ensure all staff can share their perspectives within the team. • Work to support inclusive practice. • Use technology for interprofessional communications.
Deliberate learning	• Ensure a process for staff to share their learning with the team. • Hold regular training meetings to improve unit performance. • Use imaginative applied processes for learning, such as role play and simulation. • Educate team members about technological developments that improve organisational knowledge .
Collective reflection	• Ensure a safe space, ground rules and expectations. • Ensure protected time for collective reflection. • Use videoconferencing or collaboration software to enhance the collective reflection process. • Give direct feedback in a respectful way. • Foster creative problem solving as a team. • Role model curious, respectful and self-reflective learning conversations. • Seek diverse perspectives.
Retention	• Implement evidence-based practice. • Engage in open communication with staff, sharing the rationale and evidence behind changes in the setting. • Provide opportunities for continuous education. • Use a variety of teaching modalities, reinforce learning over time, and audit how well practice changes are sustained.

Table 11:Mechanisms for creating a positive learning culture (after Lyman 2022a; 2022b; 2023).

6.5: Conclusion.

Figure 22 maps the relevance of the research findings to the facets of the socio-psychological approach to organisational learning theory that are relevant to the theoretical categories and sub-categories. These facets are the identification of

errors, espoused theories and theories-in-use, learning through reflection, single-loop and double-loop learning and organisational defences and barriers.

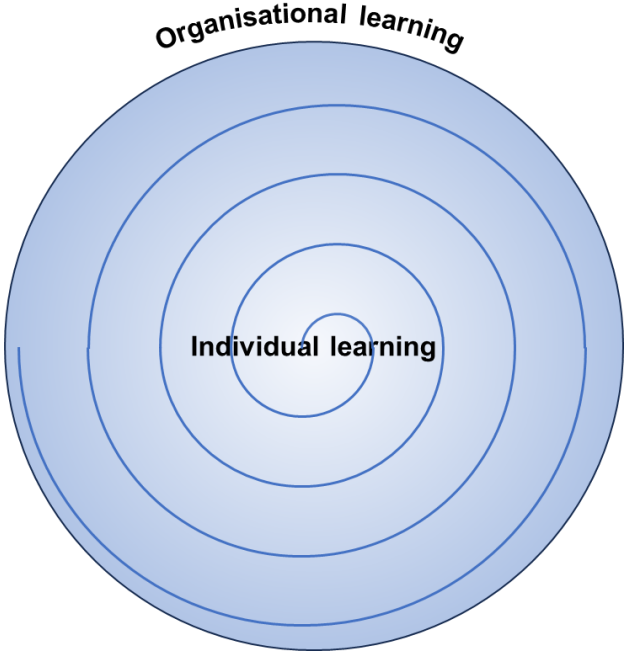
The decentralisation of nursing continuous professional development presents a risk factor for organisational learning because of the focus on independent access to free online learning resources in an ad-hoc way. Healthcare organisations have lost their influence on their nurses' professional learning because they are no longer able to commission education programmes that are aligned with the organisation's strategic aims and objectives.

Reclamation of the power to identify and tailor continuing education towards organisational learning requires new ways of working and learning. This includes the use of free online learning as continuous professional development. Nurse educators in a practice education partnership role are well placed to facilitate critical reflection with the practice team, to support the identification of errors in the application of practice-based theories-in-use and to develop a shared goal for service improvement. Through role-modelling critical self-reflection themselves and signposting resources, educators can support registered nurses to develop new ways of learning. This includes the use of information technology and judicious use of free online learning resources to access evidence for service improvement. Further, they are well placed to record and share learning from service improvement projects, at a local, regional, national, or global level.

Organisational learning theory goes some way towards understanding the influence of the learning culture on professional learning in the United Kingdom health service. It is limited however, because of the complexities of the health service as a huge bureaucratic organisation. Service delivery over multiple sites and variations in practice across geographic areas due to local demographics means that there are multiple learning environments. Each of these has their own learning culture, dependent on the nurse leadership at unit level. The extant organisational learning theory literature focuses on assessing the impact of the learning culture at a meta-level. The organisational learning assessment tools have been criticised for their lack of specific focus on healthcare settings, who are in a unique position of being a public service with education imposed by government and professional bodies in addition to local governance.

Organisational learning defences and facilitators	
• Learning can be triggered by employees at any level of the organisation. • Organisational defences can be set up to protect employees from embarrassment or harm. • Practitioner and educator partnerships support organisational learning.	• The data focuses heavily on the use of online mandatory training which is imposed from the top down in the organisation, and has a significant impact on future learning using free online resources. • Facilitated learning helps nurses to process and share learning at an organisational level.

Single and double-loop learning	
• Single-loop learning is associated with individual learning, that may not be shared with others. • Double-loop learning requires social interaction and learning with others. • Double-loop learning is associated with action research towards service improvement.	• The data suggests that continuous professional development using free online resources is predominantly undertaken as an individual and is not commonly shared with peers in the practice setting. • Participants recognised opportunities for organisational learning using free online learning resources, but felt this was impeded by the organisational culture and workload.



Identifying errors in practice	
• Individual and organisational learning is brought about when either the individual or the organisation is open to noticing when their purposeful action taken fails to result in the expected outcome.	• Noticing errors is dependent on mindfulness and self-awareness. • Feeling overwhelmed by practice workload can impact on opportunities for noticing errors and/or learning from practice experience.

Espoused theories and theories in use	
• All human action is purposeful. • Argyris and Schön (1974) observed discrepancies between theories of action that professionals have been taught in formal education programmes and the actions that they perform in practice (theories in use).	• The data highlights differences between espoused theories and theories-in-use in the context of continuous professional development practices, using free online learning resources. • These impact on both individual and organisational learning

Learning through reflection	
• Reflective practices bring attention to the errors between espoused theories and theories in use. • Through taking notice, an individual is called to action to modify the outcomes, in an ongoing participatory action research style inquiry into the theories in use.	• Reflection is a recognised tool for learning in nursing education and practice. • Reflecting with others is crucial for meaningful learning. • Reflection is linked to the depth of learning at an individual and organisational level.

Figure 22: Summary of facets in Argyris and Schön's (1974; 1999) approach to organisational learning theory, relevant to the research that enables the development from individual to organisational learning.

Analysis and synthesis of the research findings in the context of Argyris and Schön's (1974) socio-psychological approach to organisational learning theory highlights the specific challenges for organisational learning arising from the decentralisation of continuous professional development. The research findings reinforce the importance of learning professional knowledge as a social endeavour, where expert practice knowledge is shared. Nurses feel unsupported when faced with completing continuous professional development learning in isolation and where the learning culture in the practice setting is not prioritised. In contrast, a positive learning culture motivates nurses to engage in organisational learning for service improvement. The positive learning culture is characterised by a manager who is interested in their nurses' learning and who creates a feeling of safety and encouragement to identify errors in practice.

Educator practice partnerships are fundamental to supporting organisational learning through creating opportunities for social learning, role modelling critical reflection and applying learning in practice. In the case of the research this relates to educators and expert nurses supporting others with learning to use technology, sourcing free online learning and engaging with it in new ways. There is a developing body of evidence for creating a positive learning culture in the health service, focusing on the manipulation of micro-level systems to create a positive learning culture, where collaborative action makes a difference by contributing to service improvement. This is discussed in ***chapter 7***, where implications for practice are presented and the theoretical framework to support the integration of free online learning into organisational learning activities is introduced.

6.6: Key points.

The key points arising from the synthesis of the research findings with the extant literature are that:

- Supporting nurses with their post-registration professional learning is an essential component of making learning meaningful in the context of service improvement and organisational learning.
- Partnership between educators and clinical practice-based nurses is fundamental for developing a positive learning culture that supports the facilitation of learning for professional practice and the sharing of professional knowledge developed through service improvement projects.
- There is a need to consider new ways to engage in post-registration learning for professional practice, incorporating free online learning and open education resources, that support team and organisational learning for practice.
- Open education resources have the potential to offer relevant and meaningful learning for continuous professional development learning but require moving to the mainstream with the support of educators who are open education resources champions.

7: Conclusion to the research.

This chapter presents the conclusion to the research. It offers an analysis of how well the research aims have been achieved. It also outlines the contribution of the research to the professional knowledge base for nursing and the scholarship of organisational learning theory. It presents the implications of the research findings for continuous professional development practice at an individual and organisational level. The theoretical framework, developed from the research findings, is presented to illustrate how the integration of free online learning into service improvement activities can support organisational learning in healthcare, not just for nurses, but for the interprofessional team. Future developments in this area of work are discussed, and a dissemination plan is presented. The limitations of the research are analysed. Finally, a reflective researcher note is presented to analyse and summarise reflections on my personal growth as a researcher through undertaking this research.

7.1: Has the research met its aims?

The objective of the research was to explore registered nurses' experiences of using open education resources as continuous professional development towards revalidation. The overarching aim of the study was to develop a theoretical model that supports registered nurses to use open education resources in meeting their requirements for continuous professional development. The research question was driven by the decentralisation of continuous professional development practices for nursing, with the emphasis on a shift from continuous professional development through formal accredited education programmes, to individually led learning. Data was gathered through semi-structured interviews with registered nurses in practice, education, or practice-education partnership roles, using a constructivist grounded theory research design (Charmaz 2014). During the interviews, which were conducted by videoconference, data was gathered about how and when open education resources are used, what learning takes place, how that learning is used in practice, and how it is shared with peers.

The extent to which the research has met its aims is judged by assessment of the credibility and trustworthiness of the findings. The ultimate judgement lies with the reader of this thesis and the stakeholders who are registered nurses using free online learning as continuous professional development. The trustworthiness of qualitative

research is established through community consensus. As such, the findings and the grounded theory must feel relatable to registered nurses, as real and useful in their context, having meaning for their practice and future action (Lincoln et al. 2018). This was proved in the validation event, in the context of the small sample of participants recruited to the study. The test will be in the degree of trustworthiness, relatability and transferability of the findings to other registered nurses.

The single most powerful phenomenon that presented itself in the research was the embodied dissonance between participants' espoused theories and theories-in-use, in relation to their continuous professional development practices. Their espoused theories reflected their knowledge, borne out of experience during and after their training, that true and meaningful learning is the result of genuine engagement with learning materials. Learning is supported by discussion and critical reflection with others. They know that the social aspect of learning and critical reflection is the defining factor that makes the difference between learning at a superficial level or a deep level. The social learning has a positive impact on their ability to understand, apply and consolidate the new knowledge or skills in the context of their professional practice.

The feelings of isolation when learning alone at a computer and the associated lack of opportunity to ask questions or get feedback on understanding in the moment meant that learning was lost to memory almost immediately. Espoused knowledge about social learning was at odds with nurses' theories-in-use for continuous professional development practices, creating dissonance. This constitutes a tangible illustration of their noticing an error between intended action and the outcome of it. In some cases, the feeling of dissonance led participants to feel guilty about not completing learning properly, because they perceived that their theories-in-use conflicted with their professional values and responsibilities (Nursing and Midwifery Council 2018a, 2019a). Organisational learning theory explains how taking notice of errors such as this stimulates learning in different ways at an individual or organisational level if the learning culture is positive and enabling (Argyris and Schön 1974; Argyris 1990; Argyris and Crossan 2003).

Organisational learning theory emphasises the primacy of a positive learning culture that incorporates the noticing of errors, social learning, reflection, and the identification and management of organisational defences (Argyris and Schön 1974; Argyris 1990). The research participants described a learning culture in the United Kingdom healthcare service that was dominated by top-down mandatory training, this

being delivered online. The decentralisation of continuous professional development practice combined with the overwhelming practice workload results in nurses feeling isolated with respect to their professional learning. Consequently, opportunities for meaningful organisational learning in a service improvement context are lost. These factors identified by the research participants present as organisational systems and structural defences against continuous professional development learning (Argyris and Schön 1974; 1999).

Research participants emphasised the primacy of social learning with and from educators and nurse experts for progression of their professional knowledge. This reflects the seminal work of Benner (1982; 1984) and Argyris and Schön (1974;1999). The participants emphasised how facilitated critical refection is the defining factor in consolidating professional knowledge as it enables them to consider the possibilities of its application in the specific context of their practice setting. They did not enjoy the prospect of sitting alone, clicking through the learning. When they did engage with independent learning, they did not usually share it with peers. The research findings support the role of facilitated learning from educators and expert nurses, in the context of service improvement, that shifts the balance from single-loop learning to double or triple-loop learning that is meaningful for organisational learning. The findings demonstrate the power of learning new ways to learn through collaborative working, in this case drawing on the use of free online learning to support the continued development of professional knowledge. The development of a theoretical framework to support the integration of free online learning into organisational learning activities (see figure 23), demonstrates achievement of the research aims.

7.2: The theoretical framework. A novel contribution to knowledge.

The research has resulted in the development of a novel theoretical framework, specifically focused on continuous professional development practices and on the integration of free online learning into organisational learning activities. The theoretical framework illustrates two pathways for learning. The first is individual single-loop learning, represented by the blue pathway, and double-loop learning, represented by the green pathway. It illustrates the factors that predispose single-loop, double-loop and triple-loop learning in the context of decentralised, individualised continuous professional development practices in the United Kingdom

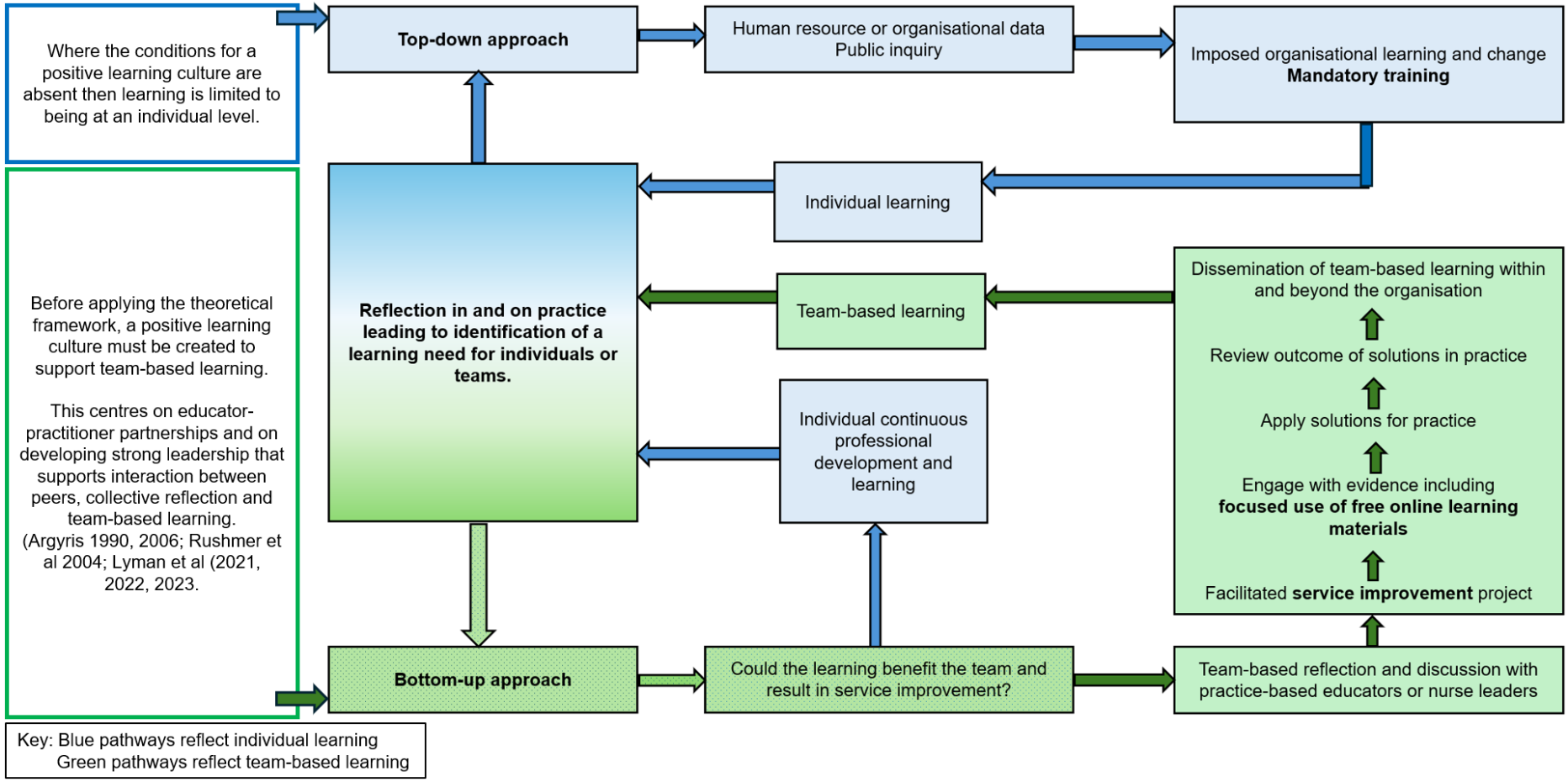


Figure 23: Theoretical framework to support the integration of free online learning into organisational learning activities (Andrewes 2025).

National Health Service. The theoretical framework signposts the focused introduction of free online learning as one strategy to support organisational learning within interprofessional teams, towards service improvement. Building on extant organisational learning theory focusing on the management of systems and structures to develop a positive and inclusive learning culture (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004a, 2004b; Lyman et al. 2021; Lyman et al. 2022a; Lyman et al. 2023), the theoretical framework focuses on managing micro-level processes to support organisational learning. It encourages and exploits error reporting as a trigger for collaborative learning within the interprofessional team, for service improvement, through facilitated team-debriefing on critical incidents.

The theoretical framework (figure 23) is not designed to be used as a standalone tool. Rather, it is intended for use, complimentary to management of the organisational environment to create a positive learning culture. It balances activities for developing a positive organisational learning culture at the micro-level of unit or department of a healthcare organisation. It offers guidance for integrating free online learning resources to improve services in the context of the local practice setting. The creation of a positive learning culture before utilising the theoretical framework is vital, so that nurses at the frontline of practice feel valued and safe to identify errors or issues for development and to have time and space for facilitated critical reflection (Argyris 1990; Rushmer et al. 2004a, 2004b; Argyris 2006; Lyman et al. 2021; Lyman et al. 2022a; Lyman et al. 2023).

Encouraging learning from the bottom up relies on the expert knowledge and understanding of educators and nurses in partnership roles and the role modelling of social learning, critical reflection and a commitment to professional learning (Argyris and Schön 1974; Argyris 1990; Rushmer et al. 2004a, 2004b; Lyman et al. 2021; Lyman et al. 2022a; Lyman et al. 2023). The purpose of the theoretical framework is to encourage a shift from the ad-hoc single-loop individual learning that is the consequence of decentralisation of continuous professional development. It focuses on revitalising double-loop organisational learning through service improvement, which supports nurses to fulfil their professional responsibility for progressing evidence-based nursing knowledge (Nursing and Midwifery Council 2018a; Auqui-Caceres and Furlan 2023). The theoretical framework supports triple-loop learning because it goes beyond learning for the purpose of service improvement, to support learning how to learn using free online resources as continuous professional development for individual and organisational learning.

To reflect the need to create a positive learning culture first, the theoretical framework is underpinned by the core conditions of developing leadership that supports interaction between peers, collective reflection and deliberate learning, and an emphasis on the retention of staff to exploit expert knowledge. These conditions for learning are created by manipulation of micro-level systems by nurse managers or leaders in the local practice setting. The work of Lyman et al (2020; 2021; 2022a; 2022b; 2023) supports the assessment of the unit or department and the implementation of evidence-based strategies to create a positive learning culture. The implementation of service improvement projects is proposed as an effective way to frame the evidence-based strategies for organisational learning.

The nurse leader is charged with creating a learning culture that embodies shared responsibility for developing practice, open communication, constructive conflict, asking questions and team involvement in decision-making. If the conditions do not provide a safe environment for error reporting and critical reflection in a social learning context the default is single-loop individual learning. This phenomenon, which is represented at the top half of the framework, identified by the blue pathway, characterises the current situation where nurses are faced with the imposition of mandatory training.

The theoretical framework provides a novel contribution to the organisational learning theory literature by focusing on practical recommendations for action around the use of free online learning as continuous professional development. It offers guidance to educators and expert nurses who facilitate learning in practice about integrating the judicious use of free online resources for organisational learning in a social learning context. Grounded in the analysis of nurses' theories-in-use around continuous professional development practice the theoretical framework supports the development of new ways of learning to learn. These focus on engagement with free online learning which is meaningful and relevant for both individual and organisational learning.

7.2a: Evaluating the theoretical framework.

The theoretical framework has been evaluated through critical review by an academic with expertise in project management for service improvement. Their feedback was obtained through a critical discussion with the researcher. The purpose of the expert

review was to evaluate the feasibility of integrating the theoretical framework into the undergraduate curriculum for nurses and other healthcare students. The students undertake a service improvement project in their final year of study.

The discussion highlighted that the theoretical framework could raise the possibility of students incorporating free online learning for learning within their service improvement project. Beyond that, it could prove to be a useful tool to support the students to consider how their learning could be implemented in practice to make improvements in practice. The reviewer stated that,

"It would be really beneficial, *because the students often struggle with how they are going to implement whatever change it is. Using the framework might give them that guidance about implementing their change following the green pathway, so it is much more beneficial for them and their organisation, rather than concluding that learning will be shared with relevant local stakeholders".*

The reviewer highlighted how *"we often don't understand the theory behind learning"* and how students often see their university assessment tasks as a 'tick list'. Their experience is that for around 30% of the students, participating in the service improvement project unit results in a realisation that they can have a genuine impact on practice as an individual or as a group. The reviewer proposed that the theoretical framework could help students to visualise the potential for disseminating their learning in practice as they prepare to enter practice as a registered nurse.

A further outcome of using the theoretical framework is that it prepares final year student nurses to think about their post-registration continuous professional development learning. It sets the context for individual and team-based or organisational learning as co-existing and mutually beneficial for improving practice. This is important because without raising nurses' consciousness about using continuous professional development for team-based service improvement, they are likely to be socialised into the prevailing individualised approach to their professional learning.

The reviewer did critique the first iteration of the theoretical framework which was presented by the researcher. They described how it felt overwhelming at first sight because of two factors. The first was the complexity of the language used and the second was the limited amount of white space within it. The result was that it felt as if

there was a lot of learning to do to be able to understand the framework, and this would put students off of using it. The original iteration of the theoretical framework used the complex language of organisational learning theory. The reviewer recommended that the researcher use everyday language that the students would be familiar with, such as reflection in and on practice, individual learning and team-based learning. They also recommended creating more white space, which would separate the learning pathways out and consequently make them clearer to understand.

The reviewer evaluated the second iteration of the theoretical framework presented in the thesis (see figure 23) as significantly easier to engage with and understand. The improved use of white space meant that they could now clearly identify the dynamic relationships between individual and team-based learning when it arose because of reflection in and on action from the bottom of the organisation. Further, they proposed that they could identify how top-down imposed mandatory training, which resulted in individual learning, might feed into team-based learning if reflection in and on action resulted in the identification of a learning need in their practice setting. For example, mandatory safeguarding training is imposed but if there is an incident in practice, reflection and discussion between the team members might identify improved systems and processes that lead to team-based or organisational learning. Individual nurses might also engage with further safeguarding training to increase their own knowledge.

The pilot case study (see figure 24 on page 204) was presented within the review of the theoretical framework, and this was evaluated as a positive tool to stimulate discussion. The case study supported the reviewer's understanding of how the theoretical framework is applied to inform the process of team-based learning for service improvement.

7.3: Recommendations for practice.

Three recommendations have been proposed from the research findings, these being first, a call for the review of mandatory training, second, the application of the theoretical framework and third the dissemination of the research findings to the Nursing and Midwifery Council. These actions are key to increasing the capacity of individual organisations for learning, of elevating the value of independent learning for continuous professional development and of highlighting the contribution of

nursing scholarship for service improvement. They can be implemented alongside each other. A review of mandatory training is not an inconsiderable task and is not necessary to undertake and complete *before* application of the theoretical framework. However, if undertaken alongside the application of the theoretical framework it could be instrumental in freeing up time for educators and nurse leaders in practice to exploit that time for facilitated critical reflection and learning with the nursing team in practice. In combination with dissemination of the findings to the Nursing and Midwifery Council, implementing the research recommendations alongside each other offers an opportunity for organisations to reclaim their influence on nurses' continuous professional development linked to service delivery in their nuanced practice context. This would in turn help to overcome the feeling of disconnect between practice and post-registration learning that participants attribute to the decentralisation of continuous professional development practices. Further, it could contribute to the development of a positive learning culture if nurses feel that their learning and their individual contributions to service improvement are valued and respected. Disseminating the process and outcomes of service improvement projects will raise the profile of nursing scholarship developed by graduate nurses. These factors are important as the conditions for a positive learning culture are a fundamental basis on which to apply the theoretical framework from the research.

7.3a: A call for the review of mandatory training.

The research focused specifically on the use of free online learning as continuous professional development towards revalidation with the Nursing and Midwifery Council. However, the research participants' stories were dominated by the overwhelming nature of top-down, imposed mandatory training. The research participants' needs to manage the burden of mandatory training, which is almost exclusively conducted online, has contributed to the development of their theories-in-use for online learning. The ways that they approach online training enable them to manage the burden of the workload as efficiently as possible, in the face of time and resource pressures.

The resulting superficial engagement with mandatory training results in professional tension because nurses' actions conflict with their understanding of their professional responsibility for continued evidence-based knowledge development (Nursing and Midwifery Council 2019a). The outcomes of the mandatory training are not considered

meaningful because the learning is detached from direct application and consolidation in practice. The burden of completing the mandatory training, in combination with the inaccessibility and dreariness of its delivery style was found to have a considerable negative impact on participants' attitudes towards free online learning and their engagement with it as independent continuous professional development. Notably, participants strongly believe that the transition of mandatory training to online delivery makes it too easy for managers to just add further training. This is often perceived to be in a seemingly ad hoc way, without consideration of the relevance for the individual nurse or practice context. The research participants described feeling powerless to have an influence on mandatory training allocations because the managers they challenged about it also expressed a sense of feeling powerless. The response that "this is the way it is" caused frustration.

The research findings highlight the need for organisations to review the allocation of mandatory training to their staff at all levels of the organisation. This recommendation is based on nurses' feelings that it would support a more tailored approach to their learning, based on their specific role in the organisation. This would make the allocation of mandatory training more transparent and reduce the overall burden of it for individual nurses. As such, it could consequently create some time and space for practice-focused continuous professional development.

7.3b: Application of the theoretical framework.

Where the necessary conditions for organisational learning exist, the theoretical framework offers a tool for educators or nursing leaders within the practice team to guide learning of the team members in a service improvement context. By signposting the use of free online resources as part of a service improvement project the theoretical framework supports both individual learning and organisational learning. Accessing evidence-based information in free online learning resources supports double-loop learning through the development of professional knowledge for service improvement and triple-loop learning about the process of learning itself. Service improvement projects are grounded in actual or potential errors identified in the specific practice setting. They focus on collaborative team working towards a solution, so the learning becomes meaningful for those involved. Using the theoretical framework to guide the use of free online learning as part of a service improvement project supports recording of the learning outputs about practice. It also supports the

recording of learning about the process of learning at organisational level. Learning that is recorded supports dissemination within and beyond the organisation by nurse leaders, or educators in education practice partnership roles.

The theoretical framework will need to be evaluated. To this end it will initially be introduced to practice education partners and nurse leaders responsible for learning in the practice setting. Prior to applying it in practice individuals in these roles will be invited to critique the framework and propose potential applications in their own context. In line with the co-constructive spirit of this research, a starter case study is provided to illustrate how the framework could be applied in practice (see figure 24). This case study gives a baseline point for educators and nurse leaders to discuss and critique the theoretical framework, and to consider its application in their own nuanced practice context. Their own proposed or actual applications of it could be summarised as a new case study, this being added to a portfolio of case studies to accompany the theoretical framework. The portfolio of case studies will further support critical discussion and critique and serve as potential data for evaluation of it.

After testing and evaluating the theoretical framework it will be introduced to final year nursing students who are undertaking an academic unit in team working for service improvement. This will support sharing of the theoretical framework from education, into nursing practice settings.

Figure 24: Case study illustrating application of the theoretical framework.

Clinical context of the learning:

Registered nurse Kevin has been working in the acute admissions ward and has been caring for Lisa, a twenty-seven-year-old lady who was recently diagnosed with aggressive breast cancer. He has been working alongside a third-year student nurse, Rachel, who he is supervising during her placement. Lisa was admitted with an acute onset infection following the administration of chemotherapy which caused neutropenia. Rachel completed Lisa's admission, reporting back to Kevin.

Lisa was on her own as her husband was working away for a week at the time of the admission and she reported to Rachel that this made her feel anxious.

Lisa's lifestyle prior to her cancer diagnosis was healthy and there was no family history of the disease.

Rachel had recently completed an academic unit at university focusing on therapeutic communication skills. She had learnt some strategies to develop her confidence in addressing difficult topics, so felt comfortable to ask Lisa to tell her more about how she was feeling when she had expressed anger about having cancer. Lisa expressed how she was frightened about the cancer diagnosis and the fact that her chemotherapy would make her infertile. She has recently married Steve and they were looking forward to starting a family. Lisa was angry about the loss of her future self and the threat to her own life that the cancer caused.

Following her learning during the therapeutic communication unit, Rachel was able to address the difficult assessment areas of death and dying, including spirituality, and expressing sexuality as two of the twelve activities of daily living being assessed with the assessment based on the Roper, Logan and Tierney nursing model (2000). During the admission Lisa expressed that she felt confused because she did not understand why she had got cancer. That challenged her religious faith. Although the admission paperwork did not specifically pose questions about spirituality, Rachel recognised that Lisa was showing signs of spiritual distress. She was able to ask focused questions using the 'HOPE' tool (Anandarajah and Hight 2001) that she had reviewed during her studies. This meant that Rachel was able to assess Lisa's sources of hope and strength, and the meaning and the role of organised religion in her life. Lisa shared information about her personal spirituality and practices that were important to her sense of self.

Rachel recognised that these aspects may influence Lisa's decision-making around her medical care but did not explore this during the admission as it was outside the scope of her role at that moment. She knew that recording the details on the assessment was important as it would support further discussion and contribute to collaborative care planning and to the signposting of support. Lisa told Rachel that talking about these aspects of religion and spirituality was helpful for her and made her feel less angry and therefore contributed to improving her feeling of wellbeing at that time.

When Rachel discussed the admission assessment with Kevin, they reflected together that using the HOPE tool questions would be relevant and supportive for

assessing spiritual wellbeing for other patient groups in the acute admissions ward, such as those who were admitted because of serious mental health challenges. Rachel explained how she had been taught that using the Making Every Contact Count (Public Health England 2016) health promotion technique and the HOPE tool would offer a holistic approach to assessment and care planning, in keeping with The Code (Nursing and Midwifery Council 2018a; Mills et al. 2021). Kevin discussed their reflections with his team and colleagues and introduced the HOPE tool to two team members who were not familiar with it. He signposted the learning module on e-Learning for Healthcare where they could access the learning independently. The team agreed that using the HOPE tool would be likely to improve patient's experiences of care through demonstrating a person-centred and individualised approach to their situation in their admission assessment. Kevin consulted with the Link Lecturer for the department, who agreed to facilitate a service improvement project.

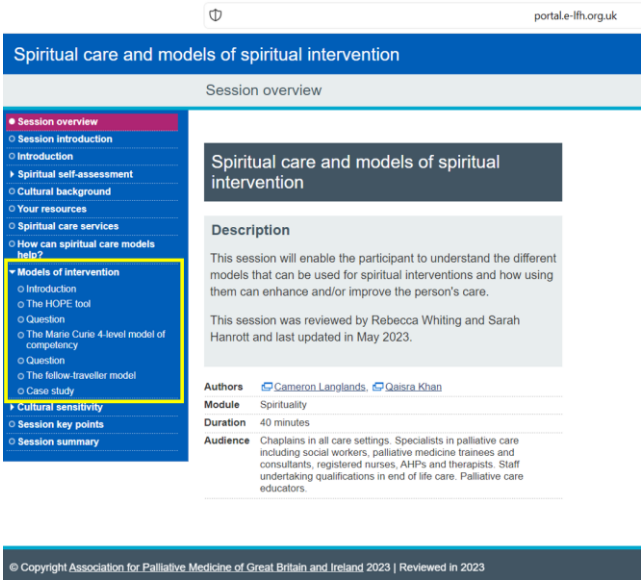
Implementing the theoretical framework:

It is at this point that the theoretical framework can be applied to support organisational learning. The e-Learning for Healthcare learning for end-of-life care contains a unit for spiritual care, which incorporates the HOPE tool within it. The learning provides an evidence base for the use of the HOPE tool in practice. Individual nurses *could* follow the blue pathway in the theoretical framework and review the 'complete' end-of-life learning materials, or the spiritual care unit independently, working through it systematically to receive confirmation of learning. This approach would result in personal, single-loop learning.

Alternatively, to develop double-loop organisational learning, the educator or nurse leader facilitating learning in the setting, following the green pathway, signposts a team member to the e-Learning for Healthcare materials, to review only the 'specific sub-section of the spiritual care unit' that introduces and explains the HOPE tool (see figure below). After they have reviewed the sub-section signposted to them, they would return to summarise the learning to the practice team in a social learning context, as part of the service improvement project.

Combined with other actions including audit of patient records and review of documentation, policies and procedures, the team can review their learning together and plan for the implementation of innovation or changes. For example, they could integrate the questions from the HOPE tool into the admission

assessment. Following evaluation of the impact of the change, the learning from the service improvement project, supported by documentation recorded during the process, can be presented within the organisation or externally through dissemination by publication or conference presentations and sharing through professional networks.



Signposted and focused use of a free online learning resource to support service improvement (screenshot from https://portal.e-lfh.org.uk/LearningContent/Launch/365829).

Based on the case study example, the use of the theoretical framework can be seen to guide the process of learning for the service improvement project. It supports individual single-loop learning by developing nurses' professional knowledge, activity that can be submitted as evidence for revalidation with the Nursing and Midwifery Council. Beyond that, it supports double-loop learning through the application of evidence-based change in practice. The theoretical framework also has the potential to support triple-loop organisational learning as it guides nurses to think about new ways of learning professional knowledge, focusing on the use of open education resources for continuous professional development. This is in response to the decentralisation of continuous professional development and the ongoing development in technology for learning that cause an increasing reliance on the use of free online learning.

7.3c: Disseminating the research findings to the Nursing and Midwifery Council.

The research has come at an opportune moment as the Nursing and Midwifery Council are beginning a process of consultation with respect to The Code (Nursing and Midwifery Council 2018a) and to the process of revalidation. I am in a strong position to contribute to the revalidation consultation in an informed way, based directly on the research findings. Dissemination of the findings to the Nursing and Midwifery Council will create opportunities for me to begin dialogue about the nature and process of continuous professional development learning for revalidation.

7.4: Assessing the credibility of the research through analysis of the research process.

The consolidated criteria for reporting qualitative research tool (COREQ) (Tong et al. 2007) in appendix 1 maps the thesis against the three evaluation domains of research team and reflexivity, study design and analysis and findings. The use of COREQ supports the assessment of the credibility and trustworthiness of the research, by guiding the readers' analysis of it. Mapping against COREQ does not provide an absolute measure of trustworthiness, but it does offer a robust framework for critical analysis.

Evaluating the plausibility, transferability, dependability and confirmability enable a judgment to be made about how real and meaningful the research is (Lincoln and Guba 2013). This depends on the reader having all the required information available to make a judgement about whether the researcher has fulfilled their responsibility to craft the thesis honestly and with integrity. To enable a judgement to be made by the reader in the context of this research, there is a detailed and transparent account throughout this thesis. It addresses each defining step of the ***methodology***, from the justification of the constructivist grounded theory approach, through the ***scoping literature review*** to situate the research, the ***data collection and analysis*** and ***findings,*** to the ***development of the grounded theory***. The inclusion of researcher notes supports the evaluation of their decision-making and explains the influence of decisions on data collection and analysis. This is an essential aspect, if others are to understand or to challenge the research findings, or the grounded theory (Stenfors et al. 2020).

The constructivist grounded theory research process does not require the researcher to compare the two literature reviews (Charmaz 2014), but after the research was complete, I did reflect on the contribution of each to the research (see researcher notes 9). Analysing the significant contrast between the scoping literature review and the immersive literature review gives me confidence in the research findings, and the genuineness of the process. It offers an additional point of analysis for the reader when assessing credibility of the research.

Researcher notes 9: Returning to the literature reviews.

> *The stark difference between the focus of the comprehensive scoping review and the immersive literature review is both interesting and revelatory. The immersive literature review bears little resemblance to the scoping literature review in the research, except for the focus on free online learning. The focus on online learning in the scoping literature review was specifically on open education resources, but I had to alter my 'outsider' language during the data collection and analysis, so that it reflected language the participants were familiar with in terms of using online learning for continuous professional development.*
>
> *The interest arises for me, because few points in the scoping literature review, which guided the semi-structured interview schedule, were raised by participants in the research. In one sense this is unsurprising as the scoping review revealed a paucity of research in the field of open education resources for continuous professional development in nursing. The literature that was available was focused on integrating open education resources and reusable learning objects into a professional curriculum. Recommendations arising from that centred on the potential use of open education resources and reusable learning objects for continuous professional development learning in the future. By contrast, it is surprising that the grounded theory has led to the immersive literature review being focused on organisational learning and the development of nurses from novice to expert. I could not have imagined the direction of the research after undertaking the scoping literature review.*

The validation event served as a member check (Charmaz 2014, 2019) where the theoretical categories were tested with the participants, with respect to their relatability and plausibility. The use of in vivo quotes within the validation event enabled participants to make an informed judgement about the research findings in this respect. The validation event participants were viewing and evaluating the theoretical categories from the knowers' perspective, as individuals and as a collective group, through their dialogue with each other (Koro-Ljungberg 2008). There was no new data presented during the validation event, which gave an indication that the data had been saturated. Participants verified that the theoretical categories were plausible, relatable and meaningful to them.

It is now customary practice for the anonymised research data to be made available to others, either alongside publication, or through an institutional research data repository. The research data, which was managed in NVivo Pro 20®, includes researcher notes that enable tracking of their decision trail and actions, data analysis and theory development. Anonymised research data from this research will be made available in the Bournemouth Online Research Data Repository (BORDaR) at https://bordar.bournemouth.ac.uk/ on completion of the study for others to access and review. This will support them to further evaluate the credibility of the research.

7.5: Areas for future development.

Using a constructivist grounded theory methodology (Charmaz 2014) has enabled the exploration of theories-in-use around continuous professional development practices. It draws on the diverse experiences of the registered nurse participants and incorporates my own reflexivity as researcher. The work begins to explore the unique cultural context of continuous professional development in the United Kingdom healthcare system, which is characterised by bureaucratic systems and the top-down imposition of mandatory training. The theoretical framework, grounded in the research data, refocuses attention on exploiting professional continuous professional development requirements and the use of free online learning as a meaningful activity for both individual and organisational learning.

Reusable learning objects have been proven to have a positive impact on the professional learning of undergraduate nurses. They have clear potential for supporting post-registration continuous professional development, particularly if they

are co-created by key stakeholders in order to strengthen the meaning and relevance of the learning in the real-world of practice (Windle and Wharrad 2010; Windle et al 2011). Educators have a key role to play in championing open education resources and in supporting nurses to engage with them effectively, so that they become mainstream and accepted tools for professional learning in the future. The theoretical framework supports the use of open education resources as a tool for organisational learning for service improvement.

The theoretical framework signposts opportunities to generate tangible evidence of the use of open education resources for organisational learning through the process of record keeping, within a service improvement project context. The generation of this evidence of organisational learning will support future assessment of the impact of the theoretical framework on learning processes for nurses, alongside the portfolio of case study examples regarding its application in practice. Future work should include consideration of the theoretical framework for other healthcare professionals, for example medical professionals and occupational therapists, who are also subject to the decentralisation of continuous professional development and participate in service improvement as part of their professional role.

Currently, free online resources for professional development are developed as ‘units of learning’. As such, isolating a specific section to review as a standalone resource, within a service improvement context, may not always be straightforward and may feel disjointed for nurses. The research data highlighted issues around accessibility and the delivery style of free online resources, that impact on their use as independent continuous professional development. The research findings suggest that there is a need to review the design of free online resources for nursing continuous professional development, so that they can be accessed in a more flexible way as advocated in the theoretical framework. Using reusable learning objects can help to overcome this issue, since they are specifically designed to be accessed in a flexible way as small units of learning. Efforts to support registered nurses to learn new ways to engage with free online learning resources as continuous professional development are destined to fail if the learning resource structure is inflexible.

The research findings suggest a need for nurse academics to work in partnership with Learning Design colleagues and other stakeholders to co-design content and to develop the accessibility and the utility of standalone resources within units of learning. This will support their use as outlined in the theoretical framework. Post-

doctoral research in this area is recommended, supporting a review and development of free online learning resources that are more flexible in their use.

Finally, over the life of my research there has been an exponential growth in the development and use of artificial intelligence in education and practice settings (Ensign et al. 2024). Two research participants referred to the use of artificial intelligence in the context of professional learning in the future. This was not followed up in the interviews as it did not focus directly on the research question. There are some recent publications focusing on artificial intelligence for continuous professional development in corporate organisations. These focus on its potential as a tool for personalised, engaging and effective learning (Business Reporter 2025) and project management (Khelifi and Bhide 2024). This area of development is relevant to the research findings because of the need to learn how to learn using artificial intelligence, representing triple-loop organisational learning.

Significantly, it is proposed that artificial intelligence has the capability to provide personalised feedback to learners (Tusquellas et al. 2024; Business Reporter 2025). Zilcha-Mano (2025) proposes that artificial intelligence has the potential to offer individualised training to psychotherapists that does not rely on training on real people. A significant feature is the possibility of instant feedback on interactions, a utility that participants in this research highlighted as absent in free online learning as continuous professional development. Cohen et al. (2023) have led the way in healthcare by trialling the use of an artificial intelligence driven digital platform for reflective learning. Data analytics from the system where learners entered feedback in response to direct questions enabled predictions about how many learners were likely to change their practice and how many developed deeper professional insights. This was highlighted as a missing utility in free online learning in this research. It is necessary to explore the contribution of artificial intelligence as a new way of learning to learn professional knowledge for practice.

7.6: Dissemination of the findings.

The research has resulted in the development of a grounded theory for organisational learning and a theoretical framework focused on the judicious and focused use of free online learning as professional continuous professional development. This work is of relevance for nurses and other healthcare professionals who are required to

undertake independent continuous professional development post registration. The primary dissemination strategy focuses on sharing and testing of the theoretical framework with practice education partners in the university and local practice settings where nursing students attend for practice placement experience. After testing, the theoretical framework will also be introduced to final year undergraduate nursing students undertaking a service improvement project as part of their curriculum. These actions will support a critical evaluation of the feasibility of using the theoretical framework in practice and confirm whether any adaptations are required.

Publication in professional journals is an essential aspect of dissemination activity. To this end the research findings will be submitted to journals that are relevant for education and nursing practice. The Journal for Continuing Education in the Health Professions is a double-blind peer-reviewed journal which publishes research that contributes to the evolution of continuous professional development practice across the health professions. Specifically, it welcomes papers about trends and issues affecting the fields of continuous professional development and innovative educational programmes and innovations. Furthermore, the journal supports open access publishing, which is important as a core value in the context of the research about open education and free online resources. Open access also supports wide dissemination of the published work. The research findings will also be submitted to Nurse Education Today, which a double-blind peer-reviewed journal which publishes papers that advanced educational theory and pedagogy. The research will also be shared through presentations at relevant professional conferences, such as the 'RCN Education Forum National Conference' in the United Kingdom.

7.7: Limitations of the research.

7.7a: Recruitment strategy.

The initial recruitment strategy proved to be a limitation. Focusing on the use of social media to reach potential participants was a considered decision, based on the focus of the research, which was specifically about online access to continuous professional development. The scoping literature review presented in ***chapter two*** revealed that access to technology and infrastructure for learning, as well as individual's level of information technology skills had a significant impact on whether they were accessing

open education resources at all (Wharrad et al. 2005; Ebenezer 2015). The research also revealed that the use of open education resources for education was led by e-learning advocates who early adopters in each case (Petit dit Dariel et al. 2013). By using social media for recruitment, the intention was to target registered nurses who already had the relevant skills, knowledge, resources and motivation to access free online learning. In terms of inclusion, the sole use of social media for recruitment is a limitation because it automatically excluded a group of registered nurses as potential participants, namely those without access to technological and infrastructure resources. In the case of this research, the exclusion was justified because the registered nurse participants were required to have personal experience of using free online resources as continuous professional development. It is unlikely that they would be eligible to participate if they did not have access to technological and infrastructure resources required for learning and for social media use.

A further rationale for the use of social media for recruitment was to achieve a wider geographical reach than if the research was focused on one or two discrete, local organisations. The scoping literature review in ***chapter 2*** had highlighted a number of higher education institutes across the United Kingdom, who had engaged in research around the development and use of open education resources in nursing or other healthcare practice for undergraduate or postgraduate learning as part of a taught programme (Wharrad et al. 2005; Moule 2006; Lymn et al. 2008; Blake 2009; Petit dit Dariel et al. 2013; Shaw et al. 2014; Elf et al. 2015; Williams et al. 2015; Beckett 2020; Forde and Gallagher 2020; Riley and Carmack 2020; Padilha et al. 2021). The research publications that were included in the comprehensive scoping literature review focused on organisations where there was a drive at that time to develop the use of open education resources. Consequently, the research participants may have been subject to bias because of the attention on open education resource use. The recruitment strategy sought to minimise the risk of potential bias by recruiting from a range of organisations.

7.7a.i: Recruitment to the purposeful sample.

Early in the study I secured a gatekeeper with access to the Health Education England portal e-Learning for Healthcare, which hosts a wealth of free online learning modules for healthcare and nursing. This appeared to be a rich opportunity for recruitment as the recruitment advert was placed so that it appeared for all nurses

who were returning to the temporary professional register to support the National Health Service during the pandemic. All returning nurses had to complete mandatory free online continuous professional development modules on e-Learning for Healthcare to work in practice, which meant that they would have had direct experience that met the inclusion criteria. In fact, no participants were recruited using the advert on e-Learning for Healthcare. This is due to very pragmatic reasons that the nurses returning to the temporary register were focused on completing their required learning and proceeding into practice. The process of returning to practice and working in in practice was an extended, all-consuming and overwhelming experience that impacted on wellbeing and resulted in burnout in some cases (Castellucci 2020; Anderson et al. 2024). The failure of the recruitment using e-Learning for Healthcare was compounded because although the advert was visible on first registration on the system, it was not presented at any future point that the nurse logged into the system, so did not reach the nurses after they had completed the online learning. The failure to recruit led to a review of the recruitment strategy and approval for an amendment through the university ethics committee. Following approval of the amended recruitment strategy a direct invite approach was used to target colleagues at the university and senior registered nurse postgraduate students who were undertaking formal continuous professional development that included the use of free online learning.

The amended recruitment strategy highlighted a flaw in the use of terminology in the advert. Discussions with colleagues regarding their eligibility to participate revealed that they had not previously considered themselves eligible, since they did not recognise the term open education resources. Dialogue about typical open education resources used by registered nurses revealed that they were eligible, so they volunteered to participate. Analysis of the participant demographics as data collection progressed revealed a lack of diversity, with most participants being female and with more than twenty years of nursing experience. To overcome this limitation recruitment was targeted towards male registered nurses and nurses who were recently qualified. Successful recruitment to the purposeful sample of twelve was by targeted invite, with four participants recruited through word of mouth/snowballing. A limitation of this approach is that all the participants were based within a thirty-mile geographical boundary. The participant sample reflected female and male clinical and academic nurses from different branches and specialities across hospital and community settings, from newly qualified to those in a senior leadership position (see table 7). This is positive because it supported data collection from a breadth of perspectives

with the common experience of using free online learning as continuous professional development for nursing.

7.7a.ii: Recruitment to the theoretical sample.

The first step in recruiting the theoretical sample was to approach those in the purposeful sample to with an invitation to participate if they met the strict inclusion criteria. For the theoretical sample, inclusion criteria required that participants had sought and engaged with free online learning resources independently, that were not mandatory training. One participant in the theoretical sample was recruited through social media, where a colleague in their network had shared the recruitment advert posted on X in a FaceBook group for newly registered nurses. They were the only participant outside of the thirty-mile geographical boundary. Like the purposeful sample, there was a spread of participants across female and male gender, branch of nursing, practice-base setting, and length of time since registration.

7.7b: Data collection process.

That data collection was conducted using videoconferencing software, is a potential limitation of the research. The data collection strategy was a considered decision, designed to enable engagement with participants from across the country, at a time and place that was convenient to themselves. Face-to-face audio-recorded interviewing is considered the gold standard strategy for qualitative interviews because the researcher can listen and observe the responses to questions and the non-verbal cues that may accompany responses in the moment (Glaser and Strauss 1999; Charmaz and Belgrave 2014; Denzin and Lincoln 2018; Corbin 2021). However, it incurs additional costs and time burden for participants. Videoconferencing has been developing as a tool for qualitative interviewing over the last decade, but its use accelerated during the pandemic and associated lock-down.

Pandemic restrictions resulted in an increased and routine use of videoconference platforms for teaching, meetings and for clinically focused engagements with patients in practice settings. People became much more comfortable using videoconferencing as a platform for communication in many contexts, and the research participants expressed that they appreciated the flexibility of scheduling the interviews around their work. Using video-conferencing software for data collection was positive

because it supported a clear focus on the participants and their responses during the interviews, whilst taking brief notes during the process. Since interviews were recorded, they could be reviewed multiple times to check for non-verbal cues or nuances in the participants' responses. The observation of cues and nuances is an essential part of data analysis as the researcher works to really listen to what the participant is saying (Charmaz 2014). The benefit of being able to review the interview outweighs the limitations of using videoconferencing software for data collection to some degree.

One responsibility of the researcher when interviewing is to ensure the wellbeing of the participants (Bournemouth University 2022). Whilst it is a limitation that the researcher is not physically in the same space as the participant to monitor their wellbeing, all but one of them used the camera function. This meant that non-verbal cues of distress could be dealt with, in a comparable way to managing the interview in a face-to-face situation. Use of the camera allowed the researcher to confirm that none of the participants presented as distressed during the data collection process. Other factors did arise however, during data collection, which were unique to the use of videoconferencing software. These were maintaining confidentiality and managing potential or actual distractions that could alter the flow of the discussion. Actions to overcome these potential issues included asking participants at the start of the research interview to turn off their phone and checking that they were in a quiet space where they felt comfortable to talk. These actions supported proactive management of some of the limitations of using videoconferencing software, to ensure the integrity of the data and to observe for potential distress of the participants.

7.8: Reflections on my personal growth as a researcher.

My personal growth as a researcher has been significant, with the development of hard and soft skills for research supporting my work as an academic, and for the world outside of work. Maintaining notes throughout the research enhances the transparency of the process which is fundamental to assessing the credibility and trustworthiness of the research findings. Researcher notes extend beyond capturing evidence of the rationale for decision making about factors in the research process such as recruitment, data coding and theory development. They also support a formal review of my learning as a researcher. In addition to researcher notes I captured some of my reflections about developing as a researcher in a blog. The blog posts offer

additional evidence for analysis of my growth as a researcher in the context of completing studies part-time.

The process of learning to be a postgraduate researcher is not without significant challenges. Development towards high level outcomes around in-depth knowledge and understanding of a range of research methodologies is a central focus. The process also includes the development of technical skills, critical analysis and synthesis skills, communication skills for networking and for dissemination, teamworking and leadership skills (Economic and Social Research Council 2022). The management of a research project has challenged me to move from my safe space and preference of being a team member and completer-finisher (Belbin Associates 2020). I have learnt to work independently, under supervision, in a way that Polkinghorne et al. (2023, p51) describe as the master-apprentice model. This development, supported by the wisdom of expert researchers, is on a parallel with the development from novice to expert nurse, in the context of research practice (Benner 1982). Through the supervision process I have developed the skills and knowledge to be an autonomous researcher, who is capable of independent thought. Supervision has also supported soft skill development. Learning to be tolerant and to have faith in the process during times of ambiguity, uncertainty and complexity, exacerbated by the pandemic during the postgraduate study, increased my confidence in myself as a researcher and my resilience (Andrewes 2024b).

The blogs tended to focus on affective elements of my development, around support wellbeing, resilience and adaptability. Undertaking the research as a part-time student meant that I needed to self-check my expectations of the PhD and research process and learn to manage short-term goals towards the end-product. This enabled me to factor in breaks to build resilience and maintain wellbeing. I noted in one early blog that,

> *"The inner study monitor voice has its place, to spur action towards short-term goals, but it is important to take a deep breath, knowing that this PGR journey is about more than 'completing a course' and having faith that everything I do can feed into my development, if I am open to the possibility of that*" (Andrewes 2021b).

The PhD journey was a personal, self-motivated and long endeavour, unlike other higher education with which I have engaged. The feeling of isolation that arises from this unique position as postgraduate researcher is a concern for a considerable number of postgraduate research students (Salmon 2023). The pandemic caused functional isolation from peers during the lockdown. I was however able to create a

strong identity in the local postgraduate research student community, by working as a student representative which developed my connections with other researchers and academics (Andrewes 2021a). I also developed my profile on the social media platform X (previously Twitter), where I connected with other education researchers. This was important as I was in a unique position, researching nursing education practice in a department whose focus is on the development of professional knowledge for practice and service improvement through partnership and engagement with patients (Andrewes 2024a).

The connections with other education researchers on X provided a supportive community and it also created opportunities to share work and discover related research in other contexts. An example is continuous professional development practice in senior schools in the United Kingdom. In the final two years of the research, the X education research networks I developed were instrumental in feeling supported as I progressed the research. Using the hashtag #100DaysOfPhD then #52WeeksOfPhD, posting regular updates created a sense of public accountability and was a clear driver to check in on the research daily (Andrewes 2024a). It was a turning point for the progression of the theory as I was actively thinking about the PhD every day. Engagement in the #100DaysOfPhD and #52WeeksOfPhD also influenced wellbeing practices through sharing of self-care and resilience strategies in the doctoral process and ways to create an effective work, study and outside life balance.

The pandemic lockdown significantly extended opportunities for undertaking professional development in research practice using free online learning resources and attending free webinars. I was able to develop a strong grounding in research methodology, project management, self-management and care (Andrewes 2021c). The focus on online resources led me to special interest groups including the Anglia Ruskin University (ARU) Grounded Theory Network, which further developed my knowledge of grounded theory methodology through engagement in specialist webinars. The pandemic also created a vast increase in learning opportunities, creating a danger of burnout through overwork. Reflecting on the importance of self-awareness and self-care, as advocated by Devis-Rozental (2018), focused my attention on balancing my studies with wellbeing activities of walking and playing a musical instrument. This supported the development of my understanding regarding the need to build resilience as a postgraduate research student (Andrewes 2021c).

Networking led to a range of opportunities that included volunteering at research events, setting up and leading two postgraduate research conferences in the faculty where I work. I became a nurse leader member of SIGMA Theta Tau, an international honour society for nurses. I engaged in peer reviewing activities for professional journals. All these activities have supported me to develop my skills as a postgraduate researcher.

7.9: Conclusion.

In summary, the research has resulted in the development of a novel theoretical framework to support the integration of free online learning into organisational learning activities. The framework builds on extant theory about organisational learning, focusing on the use of evidence-based actions to manage the practice environment towards a positive learning culture. The theoretical framework specifically exploits the judicious use free online learning as a signposted and focused activity within a facilitated service improvement project. This serves to create meaningful and relevant continuous professional development opportunities for registered nurses and the organisations within which they work. The novel contribution to the scholarship of organisational learning theory, focusing on the use of free online learning as continuous professional development, seeks to reclaim the connection between practice and professional knowledge development for registered nurses. Building on extant organisational learning theory about creating a positive learning culture which ensures that nurses at the frontline of practice feel safe to report errors or service improvement needs, the theoretical framework focuses on helping them feel valued and involved members of a team who are working towards an improved healthcare experience for patients.

Practice education partnerships offer opportunities to support the sharing of practice knowledge from expert nurse leaders for the facilitation of learning in the context in service improvement and learning news way to learn. They support single-loop individual learning and double-loop and triple-loop organisational learning. Crucially, a service improvement project approach offers structured opportunities to record and share learning within the organisation through evaluation and feedback, and beyond it, overcoming criticisms of the failure of organisational learning theory to provide evidence of change.

The outcomes of the PhD ultimately extend beyond the research findings and the theoretical framework developed from them. The PhD research apprenticeship has had a significant impact on my own learning, enabling me to develop strong critical appraisal and communication skills that are role modelled in my teaching practice when facilitating learning about research. It has also supported me to develop my self-awareness, self-confidence and resilience as a nurse researcher. These vital life skills support me to maintain balance in my personal life, and they positively influence my effectiveness and adaptability as an academic and a researcher in a world of rapid development and change.

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Appendix 1: COREQ Reporting Framework.

Number.	Question.	Chapter and section.
Domain 1: Research team and reflexivity.		
Personal Characteristics.		
1 Interviewer	Which author/s conducted the interview or focus group?	4.4
2 Credentials	What were the researcher's credentials? e.g. PhD, MD.	1.6
3 Occupation	What was their occupation at the time of the study?	1.6
4 Gender	Was the researcher male or female?	1.6
5 Experience and training	What experience or training did the researcher have?	1.6
Relationship with participants		
6 Relationship established	Was a relationship established prior to study commencement?	4.1b; 4.3
7 Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research.	4.3
8 Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic.	1.6
Domain 2: study design.		
Theoretical framework.		
9 Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis.	3.6; 3.7
Participant selection		
10 Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball.	3.7b Table 6
11 Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email.	4.1b; 4.2a; 4.2b; Table 7
12 Sample size	How many participants were in the study?	4.3; Table 7
13 Non-participation	How many people refused to participate or dropped out? Reasons?	N/A
Setting		
14 Setting of data collection	Where was the data collected? e.g. home, clinic, workplace.	4.5
15 Presence of non-participants	Was anyone else present besides the participants and researchers?	4.5
16 Description of sample	What are the important characteristics of the sample? e.g. demographic data, date.	4.3; Figure 7; Figure 8
Data collection		
17 Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	3.7c; Figure 3; 4.5a
18 Repeat interviews	Were repeat interviews carried out? If yes, how many?	4.3; Table 7

19 Audio/visual recording	Did the research use audio or visual recording to collect the data?	4.5
20 Field notes	Were field notes made during and/or after the interview or focus group?	4.5
21 Duration	What was the duration of the interviews or focus group?	4.5
22 Data saturation	Was data saturation discussed?	3..9; 4.9 Researcher notes 6
23 Transcripts returned	Were transcripts returned to participants for comment and/or correction?	4.11; 5.3
Domain 3: analysis and findings		
Data analysis		
24 Number of data coders	How many data coders coded the data?	4.4
25 Description of the coding tree	Did authors provide a description of the coding tree?	4.6; Table 8; Figure 11 and 12; 4.9; Figure 18; 4.10
26 Derivation of themes	Were themes identified in advance or derived from the data?	4.6
27 Software	What software, if applicable, was used to manage the data?	4.5; 4.6; 4.7
28 Participant checking	Did participants provide feedback on the findings?	4.11; 5.3
Reporting		
29 Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number.	5.2; 5.3; 5.4
30 Data and findings consistent	Was there consistency between the data presented and the findings?	5.2; 5.3; 5.4; 6
31 Clarity of major themes	Were major themes clearly presented in the findings?	5; 6
32 Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	5.2; 5.3; 5.4; 6; Researcher notes 5

Appendix 2: Research Protocol.

FULL/LONG TITLE OF THE STUDY

What are the experiences of registered nurses, of using OER's as CPD for revalidation with the NMC?

SHORT STUDY TITLE / ACRONYM

Exploring the open: the impact of open education on health professionals' continuous professional development.

PROTOCOL VERSION NUMBER AND DATE

V1.0 26th June 2021

RESEARCH REFERENCE NUMBERS

Ethics approval number:	37859_Tanya Andrewes

2021-12-28: Research protocol V 1.0
Exploring the open: the impact of open education on health professionals' continuous professional development

SIGNATURE PAGE

The undersigned confirm that the following protocol has been agreed and accepted and that the PGR researcher agrees to conduct the study in compliance with the approved protocol and will adhere to the principles outlined in the Code of Research Ethics (Bournemouth University, 2019).

I agree to ensure that the confidential information contained in this document will not be used for any other purpose other than the evaluation or conduct of the investigation.

I confirm that I will make the findings of the study publicy available through publication or other dissemination tools without any unnecessary delay and that an honest accurate and transparent account of the study will be given; and that any discrepancies from the study as planned in this protocol will be explained.

For and on behalf of the Study Sponsor:

Signature: D L Holley ..... Date: 12/06/2025

Name (please print): .....

Position: .....

Chief Investigator:

Signature: Tanya Andrewes. ..... Date: 28/12/2021

Name: (please print): TANYA ANDREWES .....

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KEY STUDY CONTACTS

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STUDY SUMMARY

Study Title	What are the experiences of registered nurses, of using OER's as CPD for revalidation with the NMC?
Internal ref. no. (or short title)	Exploring the open: the impact of open education on health professionals' continuous professional development
Study Design	Qualitative – constructivist grounded theory
Study Participants	Registered nurses who have used OERs as CPD
Planned Size of Sample (if applicable)	Stage 1: Purposeful sample of nurses who have been directed to use OERs as CPD. This sample will comprise 10-15 nurses on the NMC temporary* register, who are seeking to revalidate in order to return to the NMC permanent register. Nurses on the temporary register have recently been directed to OERs on the e-LfH platform hosted by Health Education England, as relevant CPD for revalidation. * The NMC temporary register was set up in 2020 as a response to the Covid-19 pandemic. Stage 2: Theoretical sample. This sample will comprise 10-15 nurses on the NMC permanent register, who have experience of sourcing OERs independently. Participants must have specific experiences of using OERs that reflect the initial coding and broad themes generated by stage 1 interviews. Participants from the purposeful sample may be invited to be interviewed for stage 2 if they have further experience of accessing and using OERs that reflects the initial coding and broad themes. Stage 3: Focus group. Up to 10 participants from the purposeful and theoretical sample will be invited to participate in a focus group to test the theory.
Follow up duration (if applicable)	Not applicable
Planned Study Period	2020-2025 (maximum programme registration date 2027)
Research Question/Aim(s)	The research will enable understanding about how learning from OERs contributes to the development of professional knowledge about nursing practice.

2021-12-28: Research protocol V 1.0
Exploring the open: the impact of open education on health professionals' continuous professional development

STUDY SUMMARY

Study Title	What are the experiences of registered nurses, of using OER's as CPD for revalidation with the NMC?
Internal ref. no. (or short title)	Exploring the open: the impact of open education on health professionals' continuous professional development
Study Design	Qualitative – constructivist grounded theory
Study Participants	Registered nurses who have used OERs as CPD
Planned Size of Sample (if applicable)	Stage 1: Purposeful sample of nurses who have been directed to use OERs as CPD. This sample will comprise 10-15 nurses on the NMC temporary* register, who are seeking to revalidate in order to return to the NMC permanent register. Nurses on the temporary register have recently been directed to OERs on the e-LfH platform hosted by Health Education England, as relevant CPD for revalidation. * The NMC temporary register was set up in 2020 as a response to the Covid-19 pandemic. Stage 2: Theoretical sample. This sample will comprise 10-15 nurses on the NMC permanent register, who have experience of sourcing OERs independently. Participants must have specific experiences of using OERs that reflect the initial coding and broad themes generated by stage 1 interviews. Participants from the purposeful sample may be invited to be interviewed for stage 2 if they have further experience of accessing and using OERs that reflects the initial coding and broad themes. Stage 3: Focus group. Up to 10 participants from the purposeful and theoretical sample will be invited to participate in a focus group to test the theory.
Follow up duration (if applicable)	Not applicable
Planned Study Period	2020-2025 (maximum programme registration date 2027)
Research Question/Aim(s)	The research will enable understanding about how learning from OERs contributes to the development of professional knowledge about nursing practice.

v

FUNDING AND SUPPORT IN KIND

FUNDER(S) (Names and contact details of ALL organisations providing funding and/or support in kind for this study)	Non-funded PhD study

ROLES AND RESPONSIBILITIES OF STUDY MANAGEMENT COMMITEES/GROUPS & INDIVIDUALS

PGR Researcher (Tanya Andrewes), will:

- Conduct the study according to the protocol, taking into account ethical approval, data management and health and safety assessments.
- Meet with supervisors regularly, reporting on progress and engaging in quality assurance processes (i.e., discussions about data collection and analysis, major review).
- Disseminate findings through professional conferences and publication.
- Submit anonymised data to BORDaR (Bournemouth Online Research Data Repository) on completion of the study.

Research supervisors (Professor Debbie Holley and Dr. Dawn Morley), will:

- Oversee the conduct of the study.
- Meet regularly with the PGR researcher for supervision.
- Report to the Doctoral College on progress.
- Contribute to the dissemination of findings through professional conferences and publication.

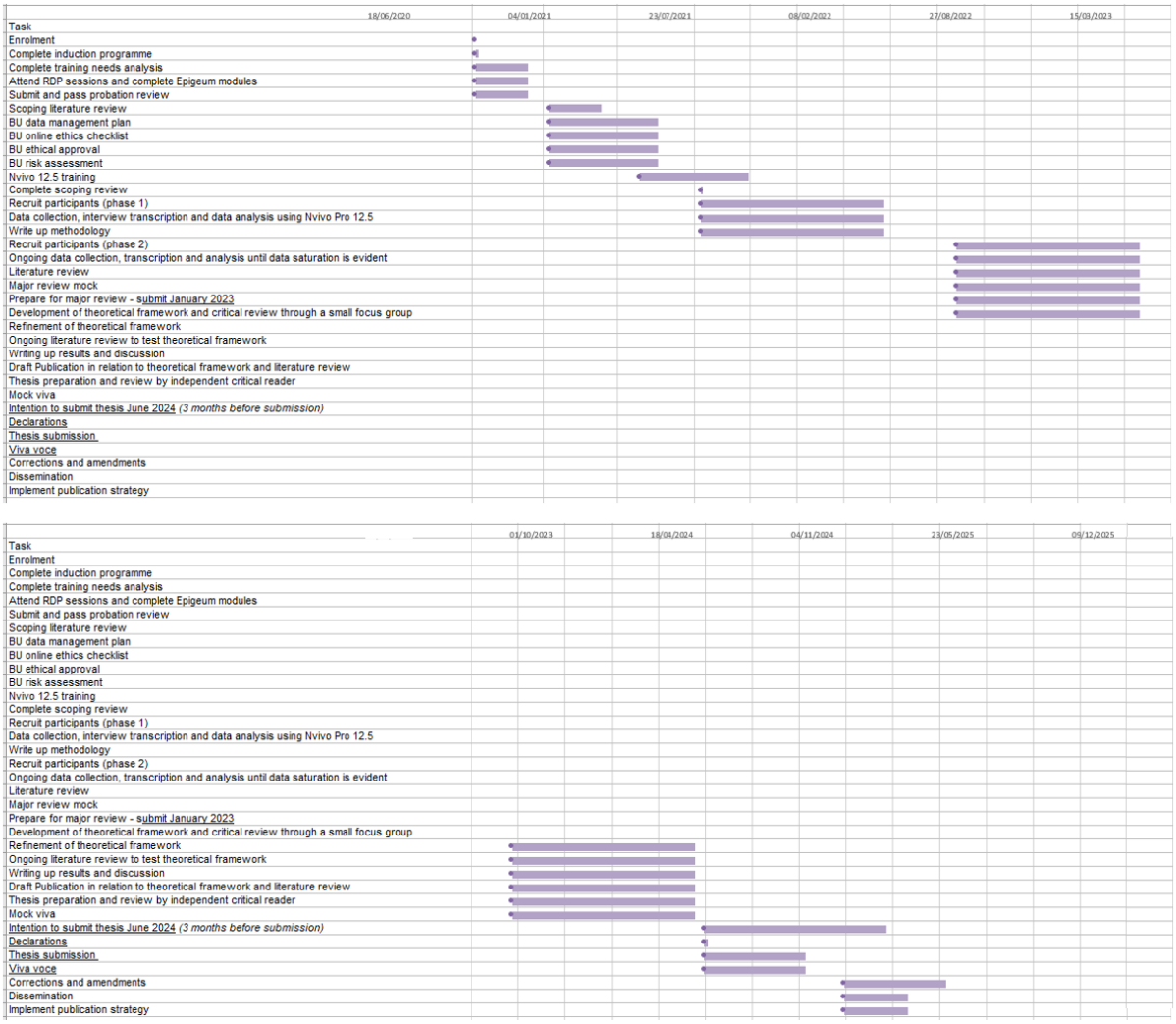
PROTOCOL CONTRIBUTORS

PGR Researcher: Tanya Andrewes.

Research supervisors: Professor Debbie Holley and Dr. Dawn Morley.

KEY WORDS: Registered Nurses; Personal experiences; Open Education Resources (OERs); Continuous Professional Development (CPD); Revalidation; Nursing and Midwifery Council (NMC)

STUDY FLOW CHART



STUDY PROTOCOL

Exploring the open: the impact of open education on health professionals' continuous professional development

1 BACKGROUND

Registered nurses are required to undertake CPD in order to stay up-to-date with developments in professional knowledge and practice, as well as to ensure safe and effective practice. In order to remain on the NMC register, nurses are required to submit documentary evidence of learning to the NMC triennially, for review and approval, in a process called revalidation (Nursing and Midwifery Council, 2020). Previously, nurses attended study programmes, that were validated by the professional body, as CPD. Recently there has been a shift towards nurses assuming individual responsibility for accessing CPD (40 hours over 3 years, 20 hours of which must be participatory). The NMC (2015) broadly claim that 'online learning' is appropriate as CPD revalidation in the face of reduced funding for study from employers, insufficient staffing to support protected learning time, as well as its accessibility and flexibility for nurses who work night shifts and/or have family or caring responsibilities.

Whilst open education is not new, the use of OERs in nursing practice is. The open education movement is founded upon the principles of social justice and equity of access to education, offering all individuals (with access to technology) access to free, or low-cost learning resources. OERs are learning resources developed specifically for the facilitation of learning, that are hosted on the Internet, supporting access for personal interest, as part of an educational programme, or mandatory staff development (McAndrew and Farrow, 2013). OERs can be part of an online course, or individually produced resources such as YouTube videos. Hurley (2020) notes the availability of an increasing range of health practice related OERs, relevant for CPD for registered nurses.

This research targets the gap in knowledge about how registered nurses use OERs as continuing professional development (CPD), for revalidation with the Nursing and Midwifery Council (NMC).

2 RATIONALE

This research project is framed by pressures on NHS budgets to fund CPD accredited study programmes in Higher Education Institutions (HEIs). Nurses are encouraged to seek out individualised learning opportunities, that they understand to be relevant to their practice. After completing learning activities, evidence of learning is submitted to the NMC, enabling revalidation (NMC 2020). OERs represent cost-free resources that nurses can use for CPD.

The Covid-19 pandemic has accelerated the development of online learning resources and/or OERs that can be used for CPD towards revalidation. The objectives of the research are, through the lens of CPD, to:

1. Scope the circumstances in which registered nurses use OERS.
2. Identify the types of learning that take place from OER use.
3. Develop a theoretical model to explain how this new knowledge underpins and informs the wider development of professional knowledge in nursing practice.

3 THEORETICAL FRAMEWORK

Understanding the experiences of nurses of using OERs as CPD requires a qualitative approach. Constructivist grounded theory (CGT) (Charmaz, 2014) will enable the collection of rich interview data about nurses' individual experiences through semi-structured interviews. Data from individual interviews

will enable the development of themes, that will lead to the generation of theory to support the use of OERs for CPD for the future. This will be tested in a focus group.

4 RESEARCH QUESTION/AIM(S)

What are the experiences of registered nurses', of using OER's as CPD for revalidation with the NMC?

4.1 Objectives

The objectives of the research are, through the lens of CPD, to:

4.1.1 Scope the circumstances in which registered nurses use OERS.
4.1.2 Identify the types of learning that take place from OER use.

4.2 Outcome

The outcome of the research is the development of a theoretical model to explain how this new knowledge underpins and informs the wider development of professional knowledge in nursing practice

5 STUDY DESIGN and METHODS of DATA COLLECTION AND DATA ANALYIS

- The research uses the constructivist grounded theory method (Charmaz, 2014).

- Data collection will be through individual semi-structured interviews in stage 1 and 2 and through focus group interview in stage 3. The PGR researcher will conduct all semi-structured interviews and the focus group.

- Alongside qualitative data collection, the researcher will analyse an example of the documentary evidence of learning for the NMC, from each participant in stage 1 and stage 2, to enable analysis of how learning through OERs is captured in documentary form and through dialogue with others.

- Interviews and the focus group (recorded) will take place online using video-conferencing tools (i.e. Zoom), from September 2021-December 2022. Participants will be able to select a location of their choice to participate in the interview, which will be scheduled at a mutually convenient time.

- All interview and focus group data will be transcribed by the PGR researcher. At the point of transcription, participants' personal information will be anonymised.

- Data will be entered into Nvivo Pro 12.5 by the PGR researcher, for coding.

- All the study data will be stored in a BU secure platform, as outlined in the data management plan (DMP V1 2021-04-29). Data to be stored is personal details and contact details of participants, audio-visual recordings of interviews and anonymised transcripts of interviews.

- On award of the degree, personal details of participants will be destroyed. Anonymised data will be presented within the thesis, which will be held in BURO (Bournemouth University Research Online) and British Library e-theses online (https://ethos.bl.uk/Home.do). Anonymised data (transcripts of interviews) will be uploaded to BORDaR (Bournemouth Online Research Data Repository).

6 STUDY SETTING

Data will be collected through recorded semi-structured interviews/focus group, in online video-conference facilities (i.e., Zoom), therefore will take place at a location/site of the participants choice and a mutually convenient time.

7 SAMPLE AND RECRUITMENT

7.1 Eligibility Criteria

7.1.1 Inclusion criteria

- Nurses on the UK Nursing and Midwifery Council (NMC) professional register
- Must have used OERs for CPD, as part of the triennial revalidation process to remain on the register
- Able to take part in an interview using video-conferencing

7.1.2 Exclusion criteria

- Nurses not currently registered on the temporary or permanent NMC professional register

7.2 Sampling

7.2.1 Size of sample

The sample size (10-15 registered nurses for each of stage 1 and stage 2, then up to 10 of the original stage 1 and 2 sample in a focus group) is predicted to enable saturation of the data, where no new information will be presented in the research interviews, that would disconfirm the theory under development.

7.2.2 Sampling technique

There will be three stages of sampling.

Stage 1: Purposeful sample of nurses who have been directed to use OERs as CPD. This sample will comprise 10-15 nurses on the NMC temporary register, who are seeking to revalidate in order to return to the NMC permanent register. Nurses on the temporary register have recently been directed to OERs on the e-LfH platform hosted by Health Education England, as relevant CPD for revalidation.

Stage 2: Theoretical sample, comprising 10-15 nurses on the NMC permanent register, who have experience of sourcing OERs independently. Participants must have specific experiences of using OERs that reflect the initial coding and broad themes generated by stage 1 interviews. Participants from the purposeful sample may be invited to be interviewed for stage 2 if they have further experience of accessing and using OERs that reflects the initial coding and broad themes.

Stage 3: Focus group. Up to 10 participants from the purposeful and theoretical sample will be invited to participate in a focus group to test the theory.

7.3 Recruitment

Stage 1 recruitment (via gatekeeper who hosts the eLfH website). I will advertise for participants on the e-Learning for Health (eLfH) website hosted by Health Education England. The participant information sheet and my contact details will be provided.

Stage 2 recruitment. Some participants from stage 1 may be invited to be re-interviewed in the theoretical sample. In addition, recruitment for stage 2 will be through social media channels (i.e. Twitter and LinkedIn) or word of mouth.

7.3.1 Sample identification

Stage 1 recruitment is via an advert on the eLfH website. Participation is voluntary.

Tanya Andrewes, a research student at Bournemouth University is exploring the experiences of Registered Nurses of using Open Education Resources (OERs) as Continuing Professional Development (CPD) towards revalidation with the NMC.

The online modules that you are undertaking here, to provide evidence of CPD for your revalidation are considered OERs. Tanya would like to interview 20-30 nurses about their experiences of using the OERs. If you are interested in taking part, please read the information sheet at (hyperlink).

Please feel free to contact Tanya at tandrewes@bournemouth.ac.uk or 01202 961768 for further information.

7.3.2 Consent

The PGR researcher will ensure that:

- Participants have read the relevant participant information sheet (stage 1 interviews/stage 2 interviews/focus group).

- Participants have the opportunity to ask any questions arising from the information sheet before they consent to take part.

- Consent is obtained before any data collection takes place.

All of these documents have been approved through the BU ethics processes for PGR students.

- Participants can exercise their right to withdraw from the study at any point up to its completion.

- Participants will need to inform the researcher that they want to withdraw. If participants withdraw at stage 1 or stage 2 (individual interviews), they can request that their data is not included in the study. If participants participate in the focus group, it will not be possible to extract their data after the focus group has completed. The data would remain in the study, anonymised in the same way that all data will be anonymised from the point of transcription. This is outlined in the participant information sheet for the focus group.

8 ETHICAL AND REGULATORY CONSIDERATIONS

The ethics application was subject to scrutiny and it was confirmed that neither NHS REC or HRA approval were needed (see confirmation e-mail). HEI ethics approval was granted by BU on 24th June 2021.

8.1 Assessment and management of risk

Risk analysis was undertaken and submitted as part of the ethics approval in June 2021 (see approved risk assessment 30th April 2021).

Following on from the Covid-19 pandemic there is a move towards remote interviews, using platforms such as Zoom ® and recognition that these can be both effective and efficient for qualitative data collection (Archibald et al., 2019). The researcher is duty bound to pause or stop the interview if participants become distressed (British Education Research Association, 2019), and the imperative for the researcher to be sensitive to the response of the participant to the interview questions is particularly key in

the context of remote interviews. In the event of participants becoming distressed, the researcher will signpost relevant support.

8.2 Research Ethics Committee (REC) and other Regulatory review & reports

Before the start of the study, ethics approval was granted (24th June 2021) following review of all study documentation.

Regulatory Review & Compliance

- No interview data will be collected before the research supervisors confirm that appropriate ethical approval is in place.

- The study may be subject to random quality checks through a monitoring visit by the Governance Team, as outlined in the BU Research Ethics Code of Practice (Bournemouth University, 2019).

Amendments

- If any amendments are made to the study, the PGR researcher will submit information to the BU HEI ethics committee, using the online application form, in order for them to issue approval for the amendment.

- No changes will be implemented until the relevant approvals are confirmed.

- If any amendments are made to this study, the PGR researcher will track these via the online ethics application form.

8.3 Peer review

This study has been reviewed by the research supervisors, by the HEI Ethics Committee and by the HRA.

8.4 Patient & Public Involvement

This study does not have patient and public involvement.

8.5 Protocol compliance

Accidental protocol deviations can happen at any time. They must be adequately documented on the relevant forms and reported to the research supervisors immediately.

Deviations from the protocol which are found to frequently recur are not acceptable, will require immediate action and could potentially be classified as a serious breach.

8.6 Data protection and patient confidentiality

- Data collection will be through recorded individual semi-structured interviews in stage 1 and 2 and through focus group interview in stage 3. The PGR researcher will conduct all semi-structured interviews and the focus group.

- All interview and focus group data will be transcribed by the PGR researcher. At the point of transcription, participants' personal information will be anonymised.

- All the study data will be stored in a BU secure platform, as outlined in the data management plan (DMP V1 2021-04-29). Data to be stored is personal details and contact details of participants, audio-visual recordings of interviews and anonymised transcripts of interviews. On award of the degree, personal details of participants will be destroyed.

8.7 Indemnity

Not applicable.

8.8 Access to the final study dataset

- Anonymised data will be presented within the thesis, which will be held in BURO (Bournemouth University Research Online) and British Library e-theses online (https://ethos.bl.uk/Home.do). Anonymised data (transcripts of interviews) will be uploaded to BORDaR (Bournemouth Online Research Data Repository).

9 DISSEMINATION POLICY

9.1 Dissemination policy

- BU will own the data arising from the study.

- On completion of the study, the data will be analysed and tabulated and a Final Study Report prepared.

- The full study report can be accessed within the thesis, which will be held in BURO (Bournemouth University Research Online) and British Library e-theses online (https://ethos.bl.uk/Home.do).

- Participants will be notified of the outcome of the study, through the provision of a link to the publication.

- The anonymised participant level dataset will be made publicly available, after award of the degree, by request in BORDaR (Bournemouth Online Research Data Repository).

9.2 Authorship eligibility guidelines and any intended use of professional writers

Authorship arising from this study is granted to the PGR researcher for the final study report (thesis) and to the PGR researcher and research supervisors for conference and journal publications.

10 REFERENCES

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11. APPENDICES

11.1 Appendix 1- Required documentation

- Ethics checklist
- Risk assessment
- Data management plan
- Gatekeeper confirmation
- Proposed recruitment advert
- Participant information sheet – stage 1 interviews
- Participant consent form – stage 1 interviews
- Participant information sheet – stage 2 interviews
- Participant consent form – stage 2 interviews
- Participant information sheet – stage 3 – focus group
- Participant consent form – stage 3 – focus group
- Semi-structured interview schedule
- Focus group interview schedule

11.2 Appendix 2 – Schedule of Procedures

	Stage 1 data collection	Stage 2 data collection	Stage 3 data collection
Informed consent	x	x	x
Demographics	x	x	
Semi-structured interview	x	x	
Sample of CPD documentation from OER use	x	x	
Focus Group			x

13.3 Appendix 3 – Amendment History

Amendment No.	Protocol version no.	Date issued	Author(s) of changes	Details of changes made
1	V2	2022-08-29	TA	Key study contacts Changed VH to LG
2	V2	2022-08-29	TA	5. Study design Added lit review to process
3	V2	2022-08-09	TA	7.3.1 sample identification – new advert as agreed by ethics

List details of all protocol amendments here whenever a new version of the protocol is produced.

Appendix 3: Participant information sheet. Purposeful data collection and analysis.

Ref & Version: Participant information sheet – use of OERs as CPD – stage 1 v1
Ethics ID: 37859
Date: 15/05/2021

Bournemouth University

Participant Information Sheet

individual interviews – stage 1

The title of the research study

Exploring the open: the impact of open education on health professionals' continuous professional development.

Invitation to take part

You are being invited to take part in a research study being conducted by Tanya Andrewes, a Lecturer (Academic) in Adult Nursing at Bournemouth University. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If you have any further questions, please contact Tanya at tandrewes@bournemouth.ac.uk. Take time to decide whether you wish to take part.

What is the purpose of the study?

The purpose of the study is to explore the experiences of registered nurses, of using open education resources (OERs) as continuing professional development (CPD) towards revalidation with the NMC. I am seeking to develop a theory to support nurses' use of OERs as CPD.

Data collection and analysis will take place between March 2022 and December 2022.

Why have I been chosen?

I am seeking to recruit 10-15 participants for the first stage of the study.

You have been chosen because you are currently a registered nurse and you have been directed to use OERs as professional development. For example, you may have been on the NMC temporary register* and completed modules on the e-Learning for Health (e-LfH) platform as CPD towards revalidation, or you may have been required to complete OERs on e-LfH as preparation for being a vaccinator in the pandemic.

I am interested to talk to you about your experiences. I believe your contribution will be valuable to the research.

* The NMC temporary register was set up in 2020 as a response to the Covid-19 pandemic.

Ref & Version: Participant information sheet – use of OERs as CPD v2
Ethics ID: 37859
Date: 07/03/2022

Do I have to take part?

It is up to you to decide whether to take part. If you do decide to take part, you will be given this information sheet to keep and will be asked to sign a participant agreement form. We want you to understand what participation involves before you decide whether to participate.

Your decision about whether to take part (or continue to take part) will not influence your application for revalidation in any way.

Can I change my mind about taking part?

Yes, you can stop participating in study activities at any time and without giving a reason.

If I change my mind, what happens to my information?

After you decide to withdraw from the study, we will not collect any further information from or about you.

Why have I been chosen?

If you decide to take part, I will invite you to take part in a recorded interview, of approximately 40 minutes, using video-conference. This will be at a time and place of your own choosing. I will ask you some questions about your experiences of using OERs for your CPD towards revalidation. Our conversations will not require any preparation.

In addition to taking part in an interview, I will ask if you are willing to share an example of the reflection on your learning from an OER, as prepared for your professional portfolio for NMC revalidation. You do not need to submit this if you do not wish to, but it will enrich the data if you do. Taking part in the research study is not dependent on sharing an example of written reflection of learning.

After the transcription of the interview has been completed, I will be asking you to check the accuracy of what we discussed at the interview.

The second stage of the research study will involve interviewing registered nurses about their experiences of using OERs as CPD, specifically focusing on participants who have experience of the themes that emerge from the data. I may invite you to be re-interviewed for the second stage of the research study if you have experience of the themes. This would involve a

recorded interview of approximately 40 minutes using video-conference, at a time and place of your own choosing. You are not obliged to be re-interviewed.

Towards the end of the research study, I may invite you to take part in a focus group using videoconferencing. This is a group interview/discussion with a small group of participants who will have the opportunity to check the overall findings of the study and to contribute any further thoughts on the use of OER's as CPD towards revalidation. The focus group session will last for 90 minutes. You are not obliged to participate in the focus group.

What are the advantages and possible disadvantages or risks of taking part?

The disadvantage of taking part is giving up your time for the interview and checking the accuracy of the record of the interview. We do not anticipate any risks to you taking part in this research study specifically.

Whilst there are no immediate benefits to you participating in the study, your participation will support the development of knowledge for nursing practice in the future, focused on the practices of CPD for revalidation.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research study's objectives?

I will request your personal contact details for maintaining contact throughout the study if you are invited for a second interview or the focus group and to advise you where you can access the thesis after completion.

Within the interviews I will asking you about how you came to access OER's, how you selected OER's to use as CPD, how you used the OER's and what you learned by using them. This information will lead to the generation of themes and ultimately a theory to support the use of OERs as CPD for future practice.

Will I be recorded, and how will the recorded media be used?

The interview will be recorded. The audio and/or video recordings of your activities made during this research will be used only for analysis and the transcription of the recording(s), for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the study will be allowed access to the original recordings.

Data will be anonymised from the point of transcription of the interview.

Ref & Version: Participant information sheet – use of OERs as CPD v2
Ethics ID: 37859
Date: 07/03/2022

How will my information be managed?

Bournemouth University (BU) is the organisation with overall responsibility for this study and the Data Controller of your personal information, which means that we are responsible for looking after your information and using it appropriately. Research is a task that we perform in the public interest, as part of our core function as a university.

Undertaking this research study involves collecting and/or generating information about you. We manage research data strictly in accordance with:

- Ethical requirements; and
- Current data protection laws. These control use of information about identifiable individuals, but do not apply to anonymous research data: "anonymous" means that we have either removed or not collected any pieces of data or links to other data which identify a specific person as the subject or source of a research result.

BU's Research Participant Privacy Notice sets out more information about how we fulfil our responsibilities as a data controller and about your rights as an individual under the data protection legislation. We ask you to read this Notice so that you can fully understand the basis on which we will process your personal information.

Research data will be used only for the purposes of the study or related uses identified in the Privacy Notice or this Information Sheet. To safeguard your rights in relation to your personal information, we will use the minimum personally-identifiable information possible and control access to that data as described below.

Publication
You will not be able to be identified in any external reports or publications about the research as all data will be presented in an anonymous form.

Research results will be disseminated internally and externally to BU in professional journals and professional conferences on completion of the study. I will highlight any publications arising from the research study via my Twitter account @AndrewesTanya.

You will be able to access the thesis after the study has finished via the Bournemouth University Research Online system (Buro@bournemouth.ac.uk) and/or the British Library's open access theses system at https://ethos.bl.uk/Home.do.

Security and access controls
BU will hold the information we collect about you in hard copy in a secure location and for digital information, on a BU password protected secure network.

Personal information which has not been anonymised will be accessed and used only by appropriate, authorised individuals and when this is necessary for the purposes of the research or another purpose identified in the Privacy Notice. This may include giving access to BU staff or

others responsible for monitoring and/or audit of the study, who need to ensure that the research is complying with applicable regulations.

Further use of your information
The information collected about you may be used in an anonymous form to support other research studies in the future and access to it in this form will not be restricted. It will not be possible for you to be identified from this data. To enable this use, anonymised data will be added to BU's online Research Data Repository: this is a central location where data is stored, which is accessible to the public.

You can find out more about your rights in relation to your data and how to raise queries or complaints in our Privacy Notice.

Keeping your information if you withdraw from the study
If you withdraw from active participation in the study, we will keep information which we have already collected from or about you, if this has on-going relevance or value to the study. This may include your personal identifiable information. As explained above, your legal rights to access, change, delete or move this information are limited as we need to manage your information in specific ways in order for the research to be reliable and accurate. However, if you have concerns about how this will affect you personally, you can raise these with the research team when you withdraw from the study.

You can find out more about your rights in relation to your data and how to raise queries or complaints in our Privacy Notice.

Retention of research data

Study governance documentation, including copies of signed **participant agreements**: we keep this documentation for a long period after completion of the research, so that we have records of how we conducted the research and who took part. The only personal information in this documentation will be your name and signature, and we will not be able to link this to any anonymised research results.

Research results:
As described above, during the study we will anonymise the information we have collected about you as an individual. This means that we will not hold your personal information in identifiable form after we have completed the research activities.

You can find more specific information about retention periods for personal information in our Privacy Notice.

Ref & Version: Participant information sheet – use of OERs as CPD v2
Ethics ID: 37859
Date: 07/03/2022

We keep anonymised research data indefinitely, so that it can be used for other research as described above.

Contact for further information

If you have any questions or would like further information, please contact Dr Debbie Holley (dholley@bournemouth.ac.uk) or Dr Dawn Morley (dmorley@bournemouth.ac.uk).

In case of complaints
Any concerns about the study should be directed to Professor Vanora Hundley, Deputy Dean for Research and Professional Practice, FHSS, Bournemouth University by email to researchgovernance@bournemouth.ac.uk.

Finally

If you decide to take part, you will be given a copy of the information sheet and a signed participant agreement form to keep.

Thank you for considering taking part in this research study.

Tanya Andrewes
Post-Graduate Research Student
FHSS, Bournemouth University
tandrewes@bournemouth.ac.uk
Telephone 01202 961768

Appendix 4: Digital participant agreement form.

Participant Agreement Form – individual interviews - stage 1

Ref & Version: Participant agreement form – use of OERs as CPD – stage 1 v2

Ethics ID: 37859

Date: 04/12/2022

* Indicates required question

1. Email *

Section A: Agreement to participate in the study

Study and researcher details

Participant Agreement Form – individual interviews

Full title of project: Exploring the open: the impact of open education on health professionals' continuous professional development.

Name, position and contact details of researcher: Tanya Andrewes. Postgraduate research student. FHSS, Bournemouth University. tandrewes@bournemouth.ac.uk. Tel: 01202 961768

Name, position and contact details of supervisor: Dr Debbie Holley. Professor of Learning Innovation. FHSS, Bournemouth University. dholley@bournemouth.ac.uk.

To be completed prior to data collection activity

You should only agree to participate in the study if you agree with all of the statements in this table and accept that participating will involve the listed activities.

I have read and understood the Participant Information Sheet (2022-09-16 Participant information sheet – use of OERs as CPD – stage 1 v2) and have been given access to the BU Research Participant Privacy Notice which sets out how we collect and use personal information (https://www1.bournemouth.ac.uk/about/governance/access-information/data-protection-privacy).
I have had an opportunity to ask questions.
I understand that my participation is voluntary. I can stop participating in research activities at any time without giving a reason and I am free to decline to answer any particular question(s).
I understand that taking part in the research will include the following activity/activities as part of the research:
• being audio recorded or video recorded during the interview for the study
• my words will be quoted in publications, reports, web pages and other research outputs without using my real name].
I understand that, if I withdraw from the study, I will also be able to withdraw my data from further use in the study **except** where my data has been anonymised (as I cannot be identified) or it will be harmful to the project to have my data removed.
I understand that my data may be included in an anonymised form within a dataset to be archived at BU's Online Research Data Repository.
I understand that my data may be used in an anonymised form by the research team to support other research projects in the future, including future publications, reports, or presentations.

2. **I consent to take part in the project on the basis set out above (Section A)** *

Mark only one oval.

- ◯ Yes
- ◯ No

Section B: The following parts of the study are optional

You can decide about this activity separately. Even if you do not agree to this activity, you can still take part in the study.

If you do not wish to give permission for an activity, select 'no'.

3. I agree to submit one example of reflection on learning from an OER, in the style of evidence for revalidation with the NMC *

Mark only one oval.

- ◯ Yes
- ◯ No

4. I agree to be contacted about taking part in a second interview if my experiences reflect the themes emerging from the first stage of data collection *

Mark only one oval.

- ◯ Yes
- ◯ No

5. I agree to be contacted about taking part in a focus group towards the end of the research study *

Mark only one oval.

- ◯ Yes
- ◯ No

I confirm my agreement to take part in the project on the basis set out above.

6. Full name *

7. Date *

Example: 7 January 2019

Name of researcher: TANYA ANDREWES

Upon receipt of your submitted agreement form, I will sign a copy and return it to you by e-mail.

This content is neither created nor endorsed by Google.

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Appendix 5: Participant information sheet for focus group.

Ref & Version: Participant information sheet – use of OERs as CPD – focus group v3
Ethics ID: 37859
Date: 05/07/2024

Bournemouth University

Participant Information Sheet – focus group

The title of the research study

Exploring the open: the impact of open education on health professionals' continuous professional development.

Invitation to take part

You are being invited to take part in the focus group stage of the research study being conducted by Tanya Andrewes, a Senior Lecturer (Academic) in Adult Nursing at Bournemouth University. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If you have any further questions, please contact Tanya at tandrewes@bournemouth.ac.uk. Take time to decide whether you wish to take part.

What is the purpose of the study?

The purpose of the study is to explore the experiences of registered nurses, of using open education resources (OERs) as continuing professional development (CPD) towards revalidation with the NMC. The focus group will take place between September and December 2024.

Why have I been chosen?

I am seeking to recruit 5-8 participants for the focus group. You have been chosen because you have previously participated in an individual research interview for this study.

Do I have to take part?

It is up to you to decide whether to take part. If you do decide to take part, you will be given this information sheet to keep and will be asked to sign a participant agreement form. We want you to understand what participation involves before you decide whether to participate. Your decision about whether to take part (or continue to take part) will not influence your application for revalidation in any way.

Can I change my mind about taking part?

Yes, you can stop participating in study activities at any time and without giving a reason.

If I change my mind, what happens to my information?

After you decide to withdraw from the study, we will not collect any further information from or about you. If you decide to withdraw after taking part in the focus group, it would not be possible to separate out your data without it impacting on the overall data for the group of participants. Therefore, your data would remain within the study, but it would be anonymised in line with all the data for this research study once transcription is complete.

Ref & Version: Participant information sheet – focus group v3
Ethics ID: 37859
Date: 05/07/2024

What would taking part involve?

If you decide to take part, I will invite you to take part in a recorded focus group, of approximately 90 minutes, using videoconference. This will be at a place of your own choosing, at a mutually convenient time for all participants.

What are the advantages and possible disadvantages or risks of taking part?

The disadvantage of taking part is giving up your time for the focus group. We do not anticipate any risks to you taking part in this research study specifically. Whilst there are no immediate benefits to you participating in the study, your participation will support the development of knowledge for nursing practice in the future, focused on the practices of CPD for revalidation.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research study's objectives?

Within the focus group I will ask you some questions about preparing nurses to adapt to evolving technological systems in professional practice and specifically continuous professional development, post-registration. Questions will be focused on the provisional categories, that have been developed from the individual interviews.

Will I be recorded, and how will the recorded media be used?

The focus group will be recorded. The audio and/or video recordings of your activities made during this research will be used only for analysis and the transcription of the recording(s), for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the study will be allowed access to the original recordings. Data will be anonymised from the point of transcription of the focus group.

How will my information be managed?

Bournemouth University (BU) is the organisation with overall responsibility for this study and the Data Controller of your personal information, which means that we are responsible for looking after your information and using it appropriately. Research is a task that we perform in the public interest, as part of our core function as a university.

Undertaking this research study involves collecting and/or generating information about you. We manage research data strictly in accordance with:

- Ethical requirements; and
- Current data protection laws. These control use of information about identifiable individuals, but do not apply to anonymous research data: "anonymous" means that we have either removed or not collected any pieces of data or links to other data which identify a specific person as the subject or source of a research result.

BU's Research Participant Privacy Notice sets out more information about how we fulfil our responsibilities as a data controller and about your rights as an individual under the data protection legislation. We ask you to read this Notice so that you can fully understand the basis on which we will process your personal information.
Research data will be used only for the purposes of the study or related uses identified in the Privacy Notice or this Information Sheet. To safeguard your rights in relation to your personal information, we will use the minimum personally identifiable information possible and control access to that data as described below.

Ref & Version: Participant information sheet – focus group v3
Ethics ID: 37859
Date: 05/07/2024

Publication

You will not be able to be identified in any external reports or publications about the research as all data will be presented in an anonymous form. Research results will be disseminated internally and externally to BU in professional journals and professional conferences on completion of the study. I will highlight any publications arising from the research study via my Twitter account @AndrewesTanya.

You will be able to access the thesis after the study has finished via the Bournemouth University Research Online system (Buro@bournemouth.ac.uk) and/or the British Library's open access theses system at https://ethos.bl.uk/Home.do.

Security and access controls

BU will hold the information we collect about you in hard copy in a secure location and for digital information, on a BU password protected secure network. Personal information which has not been anonymised will be accessed and used only by appropriate, authorised individuals and when this is necessary for the purposes of the research, or another purpose identified in the Privacy Notice. This may include giving access to BU staff or others responsible for monitoring and/or audit of the study, who need to ensure that the research is complying with applicable regulations.

Further use of your information

The information collected about you may be used in an anonymous form to support other research studies in the future and access to it in this form will not be restricted. It will not be possible for you to be identified from this data. To enable this use, anonymised data will be added to BU's online Research Data Repository: this is a central location where data is stored, which is accessible to the public. You can find out more about your rights in relation to your data and how to raise queries or complaints in our Privacy Notice.

Keeping your information if you withdraw from the study

If you withdraw from active participation in the study, we will keep information which we have already collected from or about you, if this has on-going relevance or value to the study. This may include your personal identifiable information. As explained above, your legal rights to access, change, delete or move this information are limited as we need to manage your information in specific ways in order for the research to be reliable and accurate. However, if you have concerns about how this will affect you personally, you can raise these with the research team when you withdraw from the study. You can find out more about your rights in relation to your data and how to raise queries or complaints in our Privacy Notice.

Retention of research data

Study governance documentation, including copies of signed **participant agreements**: we keep this documentation for a long period after completion of the research, so that we have records of how we conducted the research and who took part. The only personal information in this documentation will be your name and signature, and we will not be able to link this to any anonymised research results.

Research results:

As described above, during the study we will anonymise the information we have collected about you as an individual. This means that we will not hold your personal information in

identifiable form after we have completed the research activities. You can find more specific information about retention periods for personal information in our Privacy Notice. We keep anonymised research data indefinitely, so that it can be used for other research as described above.

Contact for further information

If you have any questions or would like further information, please contact Dr Debbie Holley (dholley@bournemouth.ac.uk) or Dr Dawn Morley (morleyd@bournemouth.ac.uk).

In case of complaints

Any concerns about the study should be directed to Associate Professor Leslie Gelling, Deputy Dean for Research, FHSS, Bournemouth University by email to researchgovernance@bournemouth.ac.uk.

Finally

If you decide to take part, you will be given a copy of the information sheet and a signed participant agreement form to keep.

Thank you for considering taking part in this research study.

Tanya Andrewes
Post-Graduate Research Student
FHSS, Bournemouth University
tandrewes@bournemouth.ac.uk
Telephone: 01202 961798

Appendix 6: Data management plan.

Exploring the open: the impact of open education on health professionals' continuous professional development

A Data Management Plan created using dmponline

Creators: Tanya Andrewes, First Name Surname, First Name Surname

Affiliation: Bournemouth University

Template: BU Template

ORCID iD: 0000-0001-9905-3599

Project abstract:

The open education movement is founded upon the principles of social justice and equity of access to education. Open education offers all individuals (with access to technology) the opportunity to access free, or low cost, learning resources. Individuals can freely use open education resources (OERs) to learn for personal interest, as part of an educational programme, or mandatory staff development (McAndrew and Farrow 2013). Hurley (2020) notes the availability of an increasing range of health practice related OERs, relevant for CPD for registered nurses. This research targets the gap in knowledge about how registered nurses use OERs as continuing professional development (CPD), for revalidation with the Nursing and Midwifery Council (NMC). The collection of qualitative data within a constructivist grounded theory (CGT) design (Charmaz 2014) will generate new knowledge about the use of OERs by registered nurses, the nature of learning from OERs (personal and professional), methods for recording that learning, and the contribution of learning from OERs to the professional knowledge base of nursing.

Last modified: 29-04-2021

Created using dmponline. Last modified 29 April 2021

Exploring the open: the impact of open education on health professionals' continuous professional development

Data Collection

What types of data will you collect, create, acquire and/or record?

I will collect brief demographic data (participant name, date of entry to the NMC professional register, date of last revalidation, date of next revalidation).
Participant e-mail address/contact details to organise interviews.
Audio-visual recording of the individual interviews and focus group, for the purposes of transcription.
One example of documentary evidence of reflections on learning from an OER from each participant.

What file formats will your data be collected in? Will these formats allow for data re-use, sharing and long-term access to the data?

Microsoft Words documents (.docx)
AV files (video (MP4), audio (M4A) and text (.txt) if chat used)
Pdfs (.pdf)
These formats will allow for data re-use, sharing and long-term access to the data.

If data are collected using laptops or mobile devices, explain how you will securely store and transfer the data.

The data will be stored in a BU secure system, that is routinely backed up through university IT systems.

No data will be stored on hard drives of laptops or mobile devices.

How much data do you anticipate collecting? Include an estimate of how much storage space you will require (in megabytes, gigabytes, terabytes). This estimate should also take into account storage space required for file versioning, backups, and the growth rate over time.

Video recording @200MB per hour for 20-30 participants - (5 GB)
Documents (transcripts etc., coding and analysis) - (5 GB)

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Are there are any existing data that you can re-use? If so, explain how you will obtain that data and integrate it into your research project.

No

What conventions and procedures will you use to structure, name and version control your files to ensure that your data is well-organized?

Clear filing system using dates on folders and documents, as well as version numbers, for example
2021-04-29 tandrewes dmp v1.*

Documentation & Metadata

What documentation will be needed for the data to be read and interpreted correctly in the future? This includes study-level documentation, data-level description, and any other contextual information required to make the data usable by other researchers.

Information on the methodology used to collect the data
Analytical and procedural information
Format and file type of the data and software used to collect and/or process the data.

List the metadata standard and tools you will use to document and describe your data.

DDI (Data documentation initiative - https://ddialliance.org/resources/tools)
Use of tags on files

How will you make sure that documentation is created or captured consistently throughout your project?

By using a strict consistent filing system
By including a 'readme' text file
In a spreadsheet with links to each item

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Ethics & Legal Compliance

Have you gotten explicit mention of consent, confidentiality, anonymisation and other ethical considerations, where appropriate?

Yes.

How will you manage any copyright and Intellectual Property Rights (IPR)?

IPR of new data is held by BU as I am a PGR student
Copyright issues will be addressed within publishing agreements
Data will be housed in BORDaR after completion of the study.

Storage & Backup

How will your data be stored and backed up during your research project?

Data will be stored in BU secure platform and it will be backed up routinely through university IT systems.

How will you ensure that sensitive data is stored securely and only accessible to the research team during the research project?

Sensitive data will be password protected, within the BU secure platform.

Selection & Preservation

Where will you deposit your data?

BORDaR

Describe how you will prepare the data for preservation and access, including any necessary procedures for data cleaning, normalisation or de-identification. Explain how you will prevent data from being lost while processing and converting files.

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I will apply the BU guidance outlined at the time of transfer of data to BORDaR, to ensure that clean and anonymised data is stored in the repository.

I will liaise with IT to ensure access to a backup if required, whilst processing and converting files.

How long do you need to store your data?

10 years

Data Sharing & Re-use

What data will you be sharing and in what form? (e.g. raw, processed, analyzed, final). Consider which data may need to be shared in order to meet institutional or funding requirements, and which data may be restricted because of confidentiality/privacy

Processed data (transcriptions), analysed data and final data as documents (.docx or .pdf)

How will you be sharing your data? (e.g. institutional repository, a specialized data archive, project website, informal/on-request sharing). Include a brief description of any resources needed to share your data (equipment, systems, expertise, etc.).

Institutional repository.

Will there be any restrictions placed on your data and who may have access. If data are not openly available, describe the process for gaining access.

BORDaR data is freely available to members of BU, with no restrictions

External requests can be made for access to data on BORDaR by using a contact form or e-mailing bordar@bournemouth.ac.uk

What type of end-user license will you include with your data? Please include a copy of this license with your Data Management Plan.

CC BY and PD

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Responsibilities & Resources

Who will be responsible for data management during the project? (i.e. during collection, processing, analysis, documentation)? Identify staff and organisational roles and their responsibilities for carrying out the DMP. Include time allocations and training requirements.

Researcher (PI) Tanya Andrewes PGR student
Dr Debbie Holley (academic supervisor)
Dr Dawn Morley (academic supervisor)

What will happen when personnel changes occur or if the principal investigator leaves the institution?

The study will have been completed, or it will cease and the research data housed in BORDaR.

Who will be responsible for data sharing and preservation after the project has concluded? Indicate the List the individual(s) with primary responsibility for how the data will persist over time when the original personnel have moved on.

The researcher (PI) Tanya Andrewes
Academic supervisors Dr Debbie Holley and Dr Dawn Morley
BU research and Doctoral College

What resources will you require to implement your plan? Will extra people, time, hardware,storage be required? How much will this cost (estimation)?

None outside of PGR study programme

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Appendix 7: Semi-structured interview schedule – theoretical data collection and analysis.

Ref and version: Semi-structured interview schedule stage 2 v1
Ethics ID: 37859
Date: 20/09/2023 – edited 25/02/2024 to reorder questions

Exploring the open: the impact of open education on health professionals' continuous professional development

Semi-structured interview schedule for theoretical sample

1. Confirm consent.
2. Can I take some brief demographic details before we start:
   - Professional background
   - Length of time qualified
   - Gender

For new participants – brief context	
Thinking about learning you have used for continuous professional development in the past how did you find or come across the free Internet learning resources?	
How is using free Internet-based learning for continuous professional development different from using them for mandatory training?	
Thinking about the free Internet based learning that you accessed, how did you assess the relevance and accuracy of the materials?	
Thinking about finding and using free Internet-based learning as continuous professional development, what skills and knowledge do you feel nurses need to use them effectively?	
Thinking more broadly about nursing practice, what preparation do you feel nurses need to work, in the context of rapid technological advances?	

Ref and version: Semi-structured interview schedule stage 2 v1
Ethics ID: 37859
Date: 20/09/2023 – edited 25/02/2024 to reorder questions

Question focus: What motivates nurses to use open education resources?	
Possible questions: • Why do you use open education resources as continuous professional development? • What sort of open education resources you use for continuous professional development? • How does using open education resources develop your professional knowledge and understanding? • How is using open education resources as continuous professional development different from using them for statutory and mandatory training?	
Question focus: How do nurses find open education resources?	
Possible questions: • How do you know about open education resources available for you to use? • How do you find open education resources? • What prevents you from finding open education resources? • What would help you to find open education resources for your continuous professional development?	
Question focus: How do nurses make decisions about using open education resources?	
Possible questions: • How do you feel you could use open education resources as continuous professional development? • What prevents you from using open education resources that you have found? • How do you assess or judge the quality/relevance of the open education resource? • What knowledge and skills do you feel are necessary for using open education resources as continuous professional development (? mention adaptation specifically and knowledge of CC licensing)?	
Question focus: What technology access and skills are necessary for using open education resources?	
Possible questions: • What technological knowledge and skills do you feel nurses need to work in today's health system? • What technical knowledge and skills do you need to be able to use open education resources as continuous professional development effectively? • What support do you feel you require to be prepared for using open education resources as continuous professional development?	

Ref and version: Semi-structured interview schedule stage 2 v1
Ethics ID: 37859
Date: 20/09/2023 – edited 25/02/2024 to reorder questions

Question focus: How do nurses engage with open education resources?	
Possible questions: • How and when do you engage in continuous professional development using open education resources? • What makes open education resources good quality or relevant to your context? • How do you, or how could you adapt the open education resources to suit your context? • What influences whether you skip content or engage with it? • How do you engage with other learners in the open education resource, where that is part of the learning?	
Question focus: How do nurses use knowledge from using open education resources?	
Possible questions: • How do you apply or consolidate learning from the open education resource in practice? • How do you share your learning with colleagues or others that you interact with outside of the open education resource? • How do you keep evidence of learning (i.e., for yourself, or for managers and employers)? • How do you, or how might you reflect on the learning for revalidation?	

Is there anything else that you would like to tell me about using open education resources as continuous professional development?

Appendix 8: Sample interview transcript.

2023-01-13 #P2

TA: Thank you, [P2], for joining me for this morning. So, as you know, I'm trying to find out what people's experiences are, of using oers, when they've been directed to use them. And typically, this is e-Learning for Healthcare at the moment, during the pandemic. So,

Q1. I wondered if you could just start by telling me roughly how long you've been registered for, and what the context was. You don't have to give it in exact years, but what the context was for you using the oers or the e-Learning for Healthcare.

P2: So, when I first registered with it?

TA: Well, when you first got on the register, when were you first qualified.

P2: Oh, okay, oh, right, back in the dark ages. I qualified as a nurse in 1998, so I've been registered for almost 25 years, as a nurse.

TA: Wow. Okay,

Q2. and what was the context then of you using the e-Learning for Healthcare learning?

P2: It was so that I could do COVID… immunisation. I was working as research, well I was a [clinical speciality] specialist nurse, and I was a dual role because I was doing [clinical speciality] research nurse one day a week. The [clinical speciality] research nurse role actually was more than [clinical speciality]. I actually recruited to other studies. And then, of course, when the pandemic kicked in, it was thought likely that we might, I might need to support with the COVID vaccination study that was going on, because in my trust they were doing. They were supporting, and some of the other research nurses did support with the COVID vaccination research at Oxford. In the end, I didn't need to do that, but because I did the training, I decided to do COVID immunisation, on the bank. So, I did extra shifts to vaccinate people against COVID, because I didn't want to waste it, and I felt like I wanted to do something useful. So, that's why I did it.

TA: Okay, Thank you. That's really useful. Thank you.

Q3. So, the main question then is, what was your experience of using the oers, that could be around how you found them, how you accessed them, and what it was like to use them, so the floor is open really.

P2: So obviously, it's, that, even though it's only like, when did I do the last one? I'm trying to remember, so I would have started it in 2020, and finished it early 2021. That's right. Yes. Because I started doing vaccination clinics in like January 2021. That's when I did, started them. Because of COVID, I do feel slightly fuzzy about it, because I actually think I've mentally blocked out some of that time because I didn't enjoy it very much. However, because I knew I was doing this interview, I did sort of reflect back and think about, and I also went into it, to remind myself of the experience and what I did. So, my key feelings about it, were that it was straightforward. It was easy to access. It was pretty user friendly, and it was very convenient because, I was able to do it, around my life. And actually, it was quite a lot of work. I had to do a lot of I, I, I remember that it was a lot of time that it took me to do it, and in reality, if I hadn't been able to do it at times and places that were convenient to me, because I did it on my laptop, and I remember even doing some in Costa, to be honest. If I hadn't been able to do that, I don't, well I wouldn't have been able to do it.

Because I, it wouldn't have been practical. It had to fit around my regular job and my family life. I'm a mother to three kids, and everything that was going on at that time, because it was COVID. If I hadn't been able to do it in that way, it would not have been accessible to me, so the fact that I was able to do it remotely, was really the, probably the main reason I was able to do it, and it was quite straightforward to do it. I'm not saying that it's perfect, because I do think that overall, the experience of doing that kind of learning, is better when you do it face to face in terms of the actual enjoyment you get out of doing it, the interaction you have with other people, the option to ask questions of a facilitator. But as an experienced nurse who's gone through lots of different learning, and I'm able to self-direct, and I'm autonomous. It worked absolutely fine for me.

TA: Okay,

Q4. you said you accessed it in places like Costa. Can you tell me a little bit more about how you went about doing it? Because it sounds like you did it in your own time.

P2: So, let me try and think. So, I, probably did do the majority of it in my own time. I may have been able to do some of it on a Thursday, which was my research day. But

probably, I wouldn't have done much of it on a Thursday, because what I ended up doing, so Monday, Tuesday, Wednesday, I was [clinical speciality] Specialist Nurse. Thursday was my research nurse day, which, it was a secondment actually, so it was sort of funded separately to my other role, and when the pandemic hit, because at that point we, we weren't, we stopped recruiting for the regular studies, because everything else had to take priority. I basically just said, well, I might as well just do my clinical role on Thursdays, and that's what I did. So, I ended up supporting the [clinical speciality] centre, because we were short staffed, anyway, and it made absolute sense. I'm already in the [clinical speciality] centre. We're not doing studies. I'll do the [clinical speciality] nursing because we've you know, we really needed it. Our patients needed us.

So, I think that most of the time when I did it, I probably did it on a Friday morning, like when I dropped my daughter off at school, walk up to the coffee shop, and. I, my main memory is of doing it there. I'm sure I must have done some of it at home. But that I didn't mind too much because it was like, fitting around, you know, actually having a coffee or whatever. Now, obviously, there would have been times when I couldn't have done that because of lockdowns. So, I would have done it when I could do it. Because I'm just trying to remember when I started it. It's so, sorry, it's so hard to remember it all, because it was all a bit of a blur. So, I would have done some of it, I think I would have done some of it in work time, in my research nurse time, and I definitely did some of it in my own time.

TA: Okay.

Q5. And when you were engaging with it, what was the experience of actually engaging with the learning that you had to do, would you say?

P2: Oh, it was fine, I mean, you know it is a bit dry when you're doing e-learning, because you are sitting there engaging with the, the modules, which it, you know that that is dry. It's not the same as when someone's interacting with you presenting something and talking it through with you. But it, my recollection is that the information was presented in a very sort of user-friendly way. You know I was able to sort of, you know your own, when you get to my stage in life, you know your own way of learning, so you know that you'll read through something. You'll make notes. Well, I've still got my notes somewhere, you know, because obviously I was going to use it for a practical reason. So, I wanted to be clear that I knew what I was doing when it came to giving people the vaccine, you know. You want to be confident. So, I don't, yes that

all seemed quite straightforward. Yeah. And I remember like there being a range of diff, I can't remember exactly, but I have a feeling, were there like some, maybe some videos. Things like that. It's not all delivered in one way, as far as I could recall.

TA: Okay, thank you.

Q6. Did you find you experienced any issues in … technology at all, during the time that you were accessing the learning.

P2: No, not that I can remember, no because I know like, for example, when I've used other systems at work to do statutory and mandatory training, sometimes you have issues like, you do the whole thing, and then it doesn't log that you've done it. And you'll be getting in touch with learning and development because of IT glitches because it's not coming up that you've completed it. I didn't have anything like that. No, I don't remember having any technical issues. There could have been, but not I recall.

TA: Okay. Not that you recall, okay. (TA checking notes).

Q7. So, moving on a bit then, what did you learn? Can you tell me what you learned from using the oers or e-learning?

P2: So, I, yes and no. The quick answer is I can't, because I've blanked it all out, because I'm not doing COVID vaccinations anymore, and I've got no intention to do any more. So, I try to know things on the need-to-know basis, and I've now moved on, and I'm doing, you know, as you know, doing my PhD, and now that is where I've got to put all my focus and attention. But basically, what I learned at that time was how to safely administer COVID vaccinations to, well, it was members of the public, so I was working in the, the public clinic. I wasn't doing the staff. So, I learnt about the Pfizer. I was delivering that one and the other vaccine, the, what's it called, Astra Zeneca. I did both, so covered things like anaphylaxis. I think the, I think, I suppose some of it might have been a bit of a, it's not a waste of time, but there was definitely, I think I had to do all the other vaccines. I think I had to learn about, I'm sure I had to do all the other immunisations, which I didn't mind at the time, because I knew that I didn't want to carry on in my exact job role that I was in at that point, and I've been a practice nurse before. So, as a practice nurse, I've had to deliver childhood immunisations, way back. And I kind of liked knowing that I might then have that as a, option to go back to if I wanted to, so I kind of didn't mind. But I can imagine that some people might have got a bit frustrated about that, because I'm pretty sure I had

to go through the other vaccinations. I'm sure I must have done like. I'm just trying to remember, sorry but it's sort of a bit rusty, but I'm sure I did. Do you? Sorry, do you mind if I ask you? I did, didn't I?

TA: Yes, diphtheria etc.

P2: Yeah, exactly. And so, I remember at the time thinking, why am I having to do this? Because I'm not going to be delivering these vaccines, but I could see the relevance, and, like I said, I knew that it was kind of another string to my bow, but I can imagine that. Well, I had another colleague, who didn't do the training, because when she saw how much it was, she just said, oh, I'm not doing that. And so, she didn't do the vaccination. So, it was a lot of effort, considering, I didn't do that many clinics. I did about, I probably did about 5 clinics. So, if you think I did all that training. But, do you know what, it was just such a weird time, anyway, and none of us knew what was going to happen, and you didn't know. You know, I didn't know whether I'd be doing more in the future, and. I mean now it must have lapsed because it's 2 years, and I think you have to do it. I would probably have to do it. I can't remember now. I think I'd have to revise it, but I'm not planning to do it again, so it's not the end of the world.

Q8. You mentioned relevance a couple of times. I just wondered if you could tell me any more about that, because you've talked about some of the learning you did, and you've made several references to the fact there was a lot of it.

P2: Well, I suppose at the end of the day, if you're delivering COVID vaccination, it is sensible to have an understanding of vaccination generally. And also, like I say, because you don't know whether you might then transfer that knowledge and skill to a different role. But then I mean probably most of the vaccinators didn't and were just using it purely for working in COVID vaccination clinics. Obviously for me, I was trying to think more broadly and bear in mind that I might want to use it for some other role, like if I did decide to go back to [clinical speciality] nursing, for example. And because you don't know what questions patients are going to ask you, and they might have concerns. And if you sort of understand the whole principles of immunisation generally, in the context of different health conditions, then that does seem. It does seem sensible, but in reality, probably, it would have made more sense in terms of time, in terms of getting people to take part, to really just focus on COVID, the COVID vaccinations, the principles of immunisation, of course, in the in the wider context, and some understanding of different vaccinations. And obviously you need to

understand about anaphylaxis. But in truth, did I really need to do all the other vaccinations which I, clearly illustrate I don't even remember.

TA: Yeah.

Q9. And can you remember any of the other learning you did as well because it wasn't just about the vaccinations, was it? There was other stuff that was compulsory.

P2: I can't remember.

TA: It's not a test by the way.

P2: No, I know. I will, hang on, I've just found my COVID immunisation (reaches for documentary record of training from shelf). I've got this on my desk actually, my records. But I mean, when I look at that, what I've put in there, literally is just the vaccination stuff. I don't….

Q10. What about safeguarding and things?

P2: No, I didn't. I don't think I did safeguarding through that, because I do safeguarding through my, I've done it through NHS professionals because I'm, employed by them now, but I would have done safeguarding. I don't think they would made me do that because I've done that through my Trust. But then I don't, you know what system do they use? Well, I do do that online. Is it the same? Is it? Is it the same e-Learning for Healthcare? Oh, I found some of my certificates. Immunisation. Oh! Immunisation, immunology, national immunisation policy, Diphtheria, Hib, hep B, so it's all the vaccinations, HPV, I mean? I don't mind knowing about it, but I haven't used it. Pertussis, shingles. Okay, so I like, yeah, communicating with patients, parents and carers? I don't remember that one, but I mean, that seems sensible, doesn't it? You know because people definitely ask you questions. They come. They're anxious. They're worried. Storage, legal aspects, administration. Okay. So, for, thinking about relevance to me, the relevance is the stuff that, the legal aspects, the storage, the administration, communicating with patients. The actual vaccination. Prevent. You know, rather than all the other. I don't think I should have had to do all the other. The other ones. It doesn't really make sense. Yeah, I did core knowledge for COVID-19 vaccinators. So, yeah, so some of it makes a lot of sense, recognising and managing anaphylaxis. So then, yeah. So, just going back to what you were saying as well, then? What I suppose I'm not 100% clear about is the systems that they use, like, for example, in NHS Trusts, is that, is that the same? Is it e-Learning for Healthcare.

TA: It is now.

P2: Okay. So, then I would have done my safeguarding. Yeah, I would have done all those other things. They're more recent.

TA: So, in a way the workload might have been slightly less at the time because you'd already done some stuff, because you already in practice. Some people I talked to wouldn't been in practice.

P2: So, yeah. So, I was in practice. My statutory mandatory training was up to date. Thinking about that, though, you know, I left my job as a [clinical speciality] specialist nurse, so I could do my PhD. And because I knew that I would need to supplement my income, and just to keep my clinical skills up to date, I joined NHS professionals, and they may, they did transfer over some of my statutory and mandatory training. Some of it was due for renewal anyway. They gave me so much it was unreal. It was nuts. That was, that was bonkers, some of the stuff I had to do, and some of that definitely didn't feel particularly relevant, because it wasn't relevant to my role as a [clinical speciality] Specialist Nurse.

Q11. Was that e-learning?

P2: Yes, it was all e-learning. So, I did that in September. There were loads of modules. Again, it is off-putting for people. So, if I think about my colleague, she took ages to get around to it, because we, oh, you have to do it in your own time so, and one of them I got, let me just remember which one it was. I think there was one about equality, so there was one that I had to do quite recently. It was about equality and diversity, and it said something like you need half a day for this. Well, I will be straight with you, because I know this is confidential. I didn't spend half a day on it. I'm afraid to say what I did was not what I did with the COVID vaccination thing. What I did was, went to the assessment, answered the questions, and then, because I knew I'd be able to answer the questions, because I've done enough for quality and diversity in my life. Then, because you can't complete it until you've gone through all the modules, went to the start and click, click, click, click, click, click, click, click, click, click. And what was very frustrating about that was, when I looked at the content as I was clicking through it, it was good.

The content was very good. I could see it was a really good programme, but that was one module out of numerous modules that I had to do in my own time, when I knew I could pass the assessment. Well, why would I do that? I'm not going to do that am I?

But that's not good. That's not good use of a resource. Someone's created that resource. I, I should be doing that, because that's relevant to my role. Just because I can pass the assessment doesn't mean that I wouldn't learn something from it. Course I would learn something from it. Every time you do those sorts of training courses you learn something from them. They're important. I, I do recognise that, but I can't spend the amount of time in my own time on a statutory and mandatory training, and I think that's it totally wrong that they would expect you to do that. So, I do a shift once a week or once every 2 weeks, and I think that you should be paid to do your statutory and mandatory training, so that you can deliver the care the best way you can. That's my opinion.

TA: Yeah. No, and that's interesting to relate to those recent ones, because obviously those are more, they're not more realistic. You can recall those more easily, and, and it's the same.

P2: Yeah, but I know I didn't do that with the other ones. Maybe because I sort of felt like, I don't know, that was like it was different. I was doing it for the COVID vaccination. It was all sort of, I don't know, I just, I just know it was a bit different. And I, this is like I'm trying to do my PhD. I'm trying to look after my kids. I'm trying to work. I'm trying to do this. I'm trying to do that, when you're telling me that I've got to spend half day of my own time unpaid, when there were actually loads of them, like I had absolutely loads of modules. And some of them, like the, the one about equality and diversity, well, that's definitely appropriate to anything that I'm doing as a nurse. But there were some, more clinical ones that weren't, I'm trying to remember what some examples, but because they weren't particularly applicable to my role, I can't really think of them now. I've sort of blocked them out.

I mean, as an example, my, one of my colleagues, because our, because our role as a [clinical speciality] Specialist Nurse doesn't actually exist on NHS professionals, they try to code you according to something else, and it doesn't quite work. So then, you start getting given modules that aren't relevant to your role because they don't have a code for [clinical speciality] Specialists Nurse, so they might try and tag you to like community nurse as if you were a district nurse, which is a very different role. So, they might be trying to tell you stuff about catheters, well we don't deal with catheters. I don't, you know I haven't touched a catheter for years. But my colleague got one because they coded her, where they were asking her to do blood transfusion, and she said, no, I'm not doing that. I don't do blood transfusion. It's completely irrelevant to my role, and if I, I wouldn't be safe to do that, I'm not going to. I don't need to do a

module about blood transfusion. So, I think one of the challenges might be making sure that the training that you're given, lines up with the role that you have. That's very important. Because sometimes there's a discrepancy there.

TA: Yeah.

Q12. So, I'm just interested, when she said she wasn't going to do that blood transfusion, just from talking with her. Is there a system to then justify that?

P2: Then she was, well. Then, what she then had to do was, she was having to try and work out whether they, they had to change her code, NHS professionals. So, she was trying to work out which code she should be under, so that she didn't then get given training that was irrelevant to the role, so she was up. But the thing is, we're not the same band, so I was down as something like, I'm on, down as something like team manager which actually isn't my role. I don't go into the [clinical speciality] Centre as a team manager. I go in as a [clinical speciality] Specialist Nurse, but on my card, it says Team Manager, so she couldn't use the same code as me because she's a band 6 and I'm a band 7, and so I don't know how she got round it. In the end she must have worked out. So, there were, there are a few little things like that. But that's not so much about the existence of the e-learning, because that could happen if it was face-to-face training. That's just about, how complex things are now, and that there's all these different types of nursing roles, and then there's this training, and then it's trying to work out which training is appropriate to each role, because some of them won't be. Yeah, does that makes sense?

TA: Yeah, it does.

Q13. So, you made reference to talking to somebody else about the e-learning in the context of, what you've both been doing, but can you tell me about any more about whether you spoke about the learning with anybody else, or how you kind of thought about what you'd learnt, or.

P2: Probably the main topic of conversation is the expectation that you will do it in your own time. Another senior nurse, the same level as me, who works four shifts a week as a [clinical speciality] Specialist Nurse, she said, I'm, I'm not happy with this expectation that I'm going to do all this statutory and mandatory training in my own time, and the expectation was tough, suck it up or you, you don't work for us, which I didn't know that they could really do that, like, but I think, I suppose you know. Sorry to digress slightly, but I'd better say it, before I forget, I do think one of the

disadvantages of e-learning is, e-learning is great because it's accessible, and it's easy to use, and I've given you examples of how I was able to use it and fit it around my time, and I found that, it, really simple. I think one disadvantage is that it just increases the expectation that you will fit in with everything else, and that you won't necessarily have protected time to do it. When you, had to go somewhere, for face to face learning, for the day, it would be more unusual that it would be expected that you would do that in your own time, or that you would be trying to fit that in, around your day to day job, because everyone knew you were going to, you know, like if you go to basic life support training, because that's still face to face, everyone knows you're there. You can't answer emails. You can't see patients. That's what you're doing. If you say I need the morning, to do my statutory and mandatory, my fire, safety, my this, my that, manual handling, this, that, and the other, you would get a look of like, well, you've got to. We've got patients. We've got … phone calls. We've got emails to respond to. So, the, our modern life is, this translates to modern life generally, the more we have this sort of technology, the more expectation there is that you then, you, have to fit it into your life, and that, you know. I know loads of other people that just do it when they get home. They just do that because it's just simpler. Because they've got to get their job done, and, they don't get the protected time, you know.

So, I'm not just talking about people who are on an NHSP, I'm talking about people who are employed by the Trust. And even as a manager I'll be saying to a junior nurse, oh no, you do need to, I don't expect to do this in your own time. But me saying that I don't expect you to do this in your own time, but then there isn't any time for them to do it, because of the clinical load, which has just got worse over the years, because of the situation within the NHS. It's sort of not realistic, is it? It's like, I can say to somebody, who I'm line managing, I do want you to do that after lunch, and then some, some urgent situation comes in, and then you can't not deal with the patient's situation. So, it's, a bit of a tricky one, that. And I, I do think that that's sort of. You know I have spoken to other people, and you know it's a bit of a theme that people are doing this sort of thing in their own time, and the expectation is more and more that you would be just fitting it in, rather than having the protected time. And furthermore, I know I'm not the only person who does that click, click, click thing! Does the assessment and does the click click, click, and I don't feel good about that. You know, that's not good is it. I don't feel good that I do it and I don't feel good that I know my colleagues are doing it. Because that's not, that's not right, is it? You know the, the training is there for a reason. But if you're not given time to do it, and you're already

stressed and burnt out, what are you supposed to do? You got, you have, you have to take shortcuts.

TA: Well, when especially when you talk about that in the context of them, making it easy to give you as much work as they think is relevant, based on the tags that are attached to you. Then that, it, you know.

P2: Yeah, so like if there's some stuff that's not appropriate, then they really shouldn't. They need to be as efficient as possible, in terms of. And I think they should listen, you know, like. Slight pause. Yeah, like if you, you know, if you say I'm not doing this in my role, then they do need to, to take that on board. And you shouldn't have to argue about it really.

TA: Yeah, I've got a couple of more questions then.

Q14. You talked about, obviously face to face being valuable because you can interact with others and ask questions and things. I just wondered if you wanted to tell me any more about that in the context of the e-learning, or?

P2: Yeah, okay. So, I suppose a good example, is, the one that I think sticks out in my mind and I've thought about this outside of this interview, quite a few times, is, when it comes to safeguarding. If you are doing safeguarding adults, safeguarding children, you're going to get a lot from the e-learning, because all the information is there. I know the contents there. The videos are there. You know it's thought provoking. But what's lacking is that opportunity to discuss real life situations that nurses will deal with. They will. I can't believe any nurse wouldn't have had a situation, where they're wondering about somebody, an adult or a child, and how best to manage that situation, or to hear reflections from other clinicians, or the facilitator, which might get you to think about your own clinical practice, and how you might do something differently when you, when you should be responding to a situation. Or, to have the opportunity to, just kind of get stuff off your chest as well.

And if you think about the, the current situation that women in the NHS, and in society, where there's a lack of resources. Services are incredibly stretched. When you read on e-learning about what you should be doing, and how you should be dealing with situations, that's telling you the ideal world. That's not what's often feasible in practice, you know. You might in practice make a phone call. Okay, slightly different example. Let let's just talk about something where you might have to call an ambulance for, for somebody. I've done training, like basic life support face to face. They'll say to you,

right, if this happens, you call the ambulance. Well, then you can have the conversation when it's face to face about, well, yes, but the ambulance won't come. You know, I've been in the situation where the ambulance did not come. So, it's not just about what you should be doing, based on, policy, research. It's also about reflecting on real life situations which you can't do in e-learning in the same way. You know. If you can have that conversation of, well hang on a minute, what if blah blah blah? Then other people will talk it through with you.

Do you see what I'm getting at? That's what's lacking. So, I do think there is some, some e-learning, which it shouldn't really be e-learning, I don't really think. It's better than not having any learning at all. But in truth, when it comes to something like safeguarding. If I think about the training that I've done, the things that stick in my mind are the conversations that were had, around real life situations, either from myself or from somebody else, where you can then be thinking critically, reflecting, and making decisions which will influence your practice and other people's practice, in a way that you're not going to get from e-learning. That's my view.

TA: Yeah.

Q15. And have you experienced anybody, including yourself, talking about the e-learning that you've done in that context, to kind of try and add that element in or anything?

P2: No. Because if I think about it. I haven't had to do any face to face statutory and mandatory training now, I think, apart from the basic life support. So, basic life support, you always do that face to face because it's practical. I can't remember the last time I had to do children's or adults safeguarding face to face. Yeah.

Q16. So, would you take the learning that you did online? Would you then go and discuss that with somebody in practice? Or?

P2: I wouldn't do. I wouldn't take the learning and go and discuss it with someone in practice, no. But if I had a clinical situation I was concerned about, then I would go and discuss it with somebody, so I would not, take my, my learning, unless there was like a key thing that I felt really concerned about. Maybe that's because I'm a bit older, and I've been in nursing a long time? I think if I was younger, that might be different, because that might be something that you discuss in your one-to-one with your manager. But then it's hard for me to know, because when I was younger and I did require that level of, sort of supervision and support from senior staff, I didn't, e-

learning wasn't really so much of a thing. So, yeah, I, I guess maybe because I'm, you know, I've been in nursing a long time. That doesn't mean, I do know that there's still things I can learn, and that I can reflect upon, and I would need support with. But then, I would just talk to someone about that specific thing at the time. You know, so I might have a clinical situation, and one of the good things about the team where I work is, it is a team. It very much is a team at the [clinical speciality] centre, so when I do shifts there, especially because I'm not working there all the time anymore, there's definitely going to be clinical things that I'm not completely sure about. I'll come out of the room and talk to one of the other nurses, or talk to the doctor, which I really like. You know you're not isolated. It is, and they have an MDT, and I often work on a Wednesday. That might be the day that would work, and then I can come sit in their MDT, so I'm still learning. So, I, wouldn't. I wouldn't take the actual thing that I'd done in that session. No, I don't think so.

TA: Okay. All right. Thank you. So, we've almost reached the end. So, it's really just,

Q17. is there anything else you wanted to tell me about your experiences of e-learning, to finish.

P2: No, not really, I suppose, just to sum up. You know my key feelings about it are that it's usually really easy to use. It's straightforward. They are well done. You know the content is good. You can see that a lot of thought's gone into it, and they try to make the sessions, by teaching you in different ways, like with little videos and quizzes and things like that. I just feel that it's a shame that, there is a, there is an expectation that a lot of it you will do in your own time, which sometimes is fine. And sometimes it's not fine at all, because the amount. If it's just like an hour thing, it's no big deal. And that some, some subjects, are more appropriate for face to face, I think. And when I say face to face, I don't necessarily mean, you know, Teams meetings can work. I've done some really good training online, which have used sort of online programmes, but then they're delivered by facilitator and there's option for discussion, especially when it's in a small group, and everyone keeps their camera on, and you are encouraged to speak. So, that's kind of my, main feelings about it.

TA: Okay, thank you very much for sharing your thoughts and experiences. I'll stop the recording.

After the recording was switched off there was a brief conversation where P2 discussed how she 'physically took the learning to work' as notes in her pocket,

‘consolidating the learning’. Also, brief reference to battling about how to approach the learning/professional conscience. Need for choice but acknowledging that knowledge evolves over time, greater consciousness about knowledge and some discussion about unconscious bias and challenging thinking. Confirmation of not feeling great about passing assessment and missing out on what might have been learnt.

*Didn’t consent to share documentation of learning as hadn’t reflected on it for revalidation – used other stuff.