

Using Virtual Communications to Facilitate Telehealth Innovations and Learning amongst Healthcare Practitioners

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Abstract

This paper reveals research on the use of digital technologies within professional learning for practitioner developments and telehealth care. This case study examined practitioners as they experienced real-time challenges adapting to delivering telehealth interventions. Employing a naturalistic inquiry methodology, investigating how WhatsApp as a platform facilitated reflective practices according to Schön's model of reflection, that is to reflect as they acted (Reflection in action) and to reflect after they acted (Reflection on action), results from dialogic interactions were explored through a qualitative interpretivist case study lens. Detailed insight into professional interactions taking place between members of a virtual professional learning community (vPLC) sheds light on positive impacts and innovations in telehealth care delivery. This research indicates benefits borne from digital health transformations, and how digitized reflection tools can support career professional development. Future research potential to incorporate artificial intelligence data-driven strategies in healthcare management are highlighted.

Keywords: communities of practice, virtual learning communities, telehealth, digital education

Background Rationale

Digital transformations across sectors of vocational education have taken place over recent years and there has been a burgeoning use of technologies in healthcare as professionals adjust to telehealth clinical delivery. *Telehealth* is a term used to describe the wide range of technologies and services involved in the delivery of preventative and curative health services using telecommunication networks. As telehealth delivery has become more commonplace since the COVID-19 pandemic, an aim of this research was to raise positive awareness of and practical

strategies for using virtual professional learning communities (vPLCs) to aid practitioners, fostering their reflective practice skills and use of digital communication tools in healthcare. In concordance with contemporary studies such as that by Heneghan et al. (2020) investigating the influence of telehealth e-mentoring within healthcare practice education, and Goodwin et al. (2021) evaluating clinical effectiveness in primary care, this paper provides a practical treatise of the effect of embedding vPLC based communication within healthcare practices and

interventions. It is important for staff to provide effective care and negotiate meanings between patients and colleagues, in line with their career professional development (CPD) and associated reflective practices, to support effective decision-making in their specific contexts (Battersby & Verdi, 2015). As such, the focus of this study leant towards exploring the use of this digital transformation to facilitate career professional development and professional practices.

The Development of Learning Communities

Using real-time telecommunications is an adjustment that practitioners have made as part of telehealth care provision, and virtual learning communities have been associated with situated experiential learning between practice work teams, hence purposeful digitized interactions within a vPLC may serve to support clinical practice. Learning communities can be defined as a collective of people that engage and work together to provide support, promoting collaboration and group commitment (Davies et al., 2005). In 1991, cognitive anthropologist Jean Lave, and educational theorist Etienne Wenger introduced Communities of Practice (CoP) a learning community framework which includes three key elements of a shared domain or interest, a focus on social community, and developing shared resources and practices to maximize purposeful collaboration with peers. It highlights how apprentices can learn from experienced individuals and incorporate knowledge gained into decision-making and purposeful action (Lave and Wenger, 1991). The benefits of CoPs have been covered across various sectors with Wenger and Trayner's work (2015) highlighting consilience in applying the framework to aid the implementation of evidence-based practice, encouraging interdisciplinary collaboration within healthcare systems to address complex challenges and support the adoption of electronic health records, as examined in the study by Ford et al. (2006), which predicted notable trends.

Additionally, a professional learning community (PLC) can be developed; this refers to a group of professionals and experts who meet regularly and share expertise for improving their learning, establishing knowledge, and for

building professional skills (Dufour & Eaker, 1998; Hord, 1996, 2004;). Whilst CoPs and PLCs show similarities in that they both increase support, collaboration, and communication amongst participants (Robinson et al., 2020), the PLC model framework places dialogue as a central focus — with success being achieved through its typified framework characteristics. CoPs and PLCs have been shown to facilitate interprofessional collaboration between multidisciplinary healthcare team members. A study by Reeves et al. (2013) emphasized improvements to communication, coordination, and patient-centered care that developed from professional learning communities.

Characteristics of PLCs

Figure 1 summarizes key features that represent a professional learning community underpinning members' focused actions. The community should demonstrate a collaborative culture that is both action-oriented and results-oriented. With collective enquiry, members of a PLC focus on learning and making continuous improvements as they work through challenges and evaluate their learning using purposeful dialogue.

Figure 1

Key Characteristics of a Professional Learning Community



Owing to its seamless principles, interprofessional health education (that is, education involving health practitioners from different professions collaborating their specialist knowledge to improve patient outcomes) adopts the PLC framework. They both have at the heart of their foci, an emphasis on shared goals, and a collaborative, collective structure that ensures continuous improvement. Guidelines and studies over recent years (Barr et al., 2016; Miller et al., 2019; Smith et al., 2023), have cemented the affordances brought to developing practitioners and improving patient outcomes by incorporating professional learning communities in career practices.

Learning Community Digital Transformation: vPLC

There are various platforms centered around digital technologies and other software applications have been implemented, such as videoconferencing, online blogs, discussion boards, and software applications Twitter and WhatsApp (Carlen & Jobring, 2005; Williams, 2018). Over the past decade, while social media tools have become familiar platforms for virtual communication and have been used increasingly to support knowledge sharing and facilitate learning for those working in the medical field (Cheston et al., 2013; Panahi et al., 2016); there are also concerns to consider. As highlighted by Almoamary et al. (2021), there are negative impacts involving new learners working with the technical aspects of its use such as being subject to potential distractions from task-related practices. Notwithstanding, the implementation of virtual technologies has been adopted (Kouijzer et al., 2023), due to their suitability in meeting the needs of practitioners who provide healthcare services in remote communities and facilitate collaboration, engagement, and interactions. As highlighted in reviews from Bouabida et al. (2022), virtual professional learning communities (vPLCs) became an innovative format to promote learning and experiential knowledge-building amongst practitioners as they experienced real-time challenges adapting to the delivery of telehealth interventions during the COVID-19 pandemic in 2021.

Research Questions and Theoretical Framework

This study focused on the following research questions:

- How do healthcare practitioners interact and operate within a virtual PLC?
- To what extent can a vPLC facilitate reflective practices amongst its vocational practitioners?

The theoretical framework of this study was underpinned by Hord's (2004) Professional Learning Communities model and Schön's (1983) reflective practice model. Reflective practice is an important tenet for healthcare practitioners, and an essential employability skill linked to complementing professional autonomy. In addition to Schön, other researchers such as Graham Gibbs (1988), David Kolb (1984) and Christopher Johns (2018) developed reflection models which are used by practitioners completing professional development frameworks to support the development of reflective practice by clinicians. These models seek to provide a structure that conveys what an individual can do to facilitate reflection; to organize reflective thinking; and to construct and reconstruct clinical knowledge through experiential learning. However, there is critique about the use of some of these models because they have been said to lead to a superficial form of reflection as one may be reflecting on matters that they are already familiar with (Moon, 1999). For clinicians working in dynamic environments who manage diverse and complex caseloads requiring mastery, Schön's reflection models have proved to be useful for healthcare practitioners who need to make purposeful decisions in their working day (Ménard & Ratnapalan S., 2013). Figure 2 summarizes Schön's models of "reflection-in-action" and "reflection-on-action", flexible approaches which can suit peer and self-reflection. Reflection-in-action involves thinking critically while engaging in a task, allowing for immediate adjustments. Reflection-on-action, on the other hand, occurs after an event, enabling deeper analysis and learning. This alludes to why these tools are widely recognized as valuable

assets in professional development and learning. This dual model promotes shared learning and problem solving by encouraging individuals to reflect on their experiences, and identify areas for improvement, thereby fostering interprofessional collaboration and leading to more effective teamwork and patient care. Investigating how reflections using a virtual tool such as WhatsApp are made using Hord's PLC model and Schön's models of reflective practice was therefore a driver within the research design.

Figure 2

Schön's Model of Reflection



(Source: Cambridge Assessment International Education. (n.d.). *What is reflective practice?* <https://www.cambridgecommunity.org.uk/professional-development/gswrp/index.html>

Given the proven popularity of social media tools as a learning space to encourage communicative engagement, creative participation, and situated learning (Selwyn, 2016), using the *WhatsApp* platform as a vPLC environment proved suitable to encourage the sharing of reflections and to develop reflection records for practitioners through active involvement in community discourse around working activities. Clear records of communication could also be shared to all, real-time patterns and responses to situations could be revealed, and professional work challenges that shaped daily practice in healthcare could be reviewed. *WhatsApp* is an established versatile online communication space for social science research and a cost-effective way of gathering data because downloading the app onto a mobile

communication device is free. It is used amongst health professionals as they interact to impact clinical practice (Ganasegeren et al., 2017; O'Sullivan et al., 2017). During the timeframe of this study, social distancing restrictions were imposed because of the COVID-19 pandemic — which meant that virtual environments and the use of software applications were appropriate and advantageous.

The vPLC Case Study

Research Methodology

There was scant research available on virtual physiotherapy professional learning communities during the COVID-19 period and therefore a pragmatic approach of using interpretive research methodology was employed in this case study. This meant adapting to new insights that could emerge from the capturing of rich data, and providing contextual understanding of participants experiences as the aim of the study was to provide deep insights from a focused sample of participants to elucidate shared meanings. Whilst agreement is held that large sample sizes can generate robust findings in research, whether sample sizes in qualitative case studies are large or small, they can serve to provide fragments of experiences and events, and each fragment can produce a rich elaboration of experiences. To study the case at two points in time and in line with Yin's (2009) rationale of single case study design, research tools included observations of vPLC focused group discussions and individual semi-structured interviews. Collecting these different sources was also underpinned by the decision to triangulate and increase the validity of the qualitative findings to enhance rigor in the case. Table 3 outlines how the data collection methods were used in greater detail. These methods were also well suited towards answering research questions in an explorative style, offering insight into the patterns of interactions of vPLC members as events occurred, and reporting data in a narrative form. The researcher took an interactive role within the vPLC, getting to know the participants in an environment where they were socially

connected, and was able to form interpretations once the data was collected and analyzed, sharing them with participants accordingly.

The interpretation of how a vPLC operated to support learning and telehealth delivery in this study, would not likely be generalizable to all clinical training environments; however, it provided a novel insight for analysis.

Participants and Data Collection Activities

Practitioners who had active caseloads while being members of a vPLC were chosen to observe their patterns of interaction as they carried out clinical interventions. Participants were employed from initial contact made to a target population of 50 physiotherapy practitioners from the UK via e-mail using a closed network member community area from a clinical special interest group database. Four participants were then sent a further email with background information about the study, an informed consent request, and resource articles to stimulate initial discussions in the vPLC WhatsApp group. They were provided with information on how to use *WhatsApp* specifically for the vPLC. They had

relevant experience in their field ranging from a few years to over many decades, therefore could be represented as being of an intermediate to a mastery level. Dedicated activity in group discussions for a maximum period of 21 days and for a minimum of 15 minutes every 2 days over the period was requested. The rationale for this specified time frame was based on maximizing the sharing of healthcare practices and promoting dedicated participant engagement over this period. Detail of how participants relayed their interactions provided evidence to support the answering of the research questions. Whilst the timeframe could be argued to be relatively short, gathering information from participants over a 3-week period was deemed sufficient time to indicate signs of how reflective practices informed their clinical plans and decisions and to uncover their interactions and daily discourse within the vPLC setting during the heightened period of the COVID-19 pandemic. In addition, there was conscious understanding of a low rate of engagement by participants due to adjusting to work pressures and increasing levels of telehealth provision. Participants took part in an individual semi-structured interview with the researcher in addition to contributing towards the vPLC.

Table 3

Framing Data Collection Procedures around my Case Study Phenomenon

CASE STUDY FEATURES	RECORDED EVIDENCE	DATA COLLECTION METHODS
Chronological narrative of the case	Sharing from vPLC members detailing thoughts and concerns regarding their clinical practices/patient caseloads.	Focused group discussion observations within the vPLC.
Description of events alongside an analysis	Sharing from real-time clinical happenings between vPLC members during a working day. Discussions/signs of reflection-in-action/reflection-on-action amidst vPLC members.	
Opinions of individuals within the case and their perceptions	Individual opinions are openly shared amongst members of the vPLC.	Observations of discourse and dialogic interactions in the vPLC.
Specific events within the case	Signs of reflection-in-action/reflection-on-action affecting decisions.	
Reflexive researcher review: Involvement in the case analysis		
Attention on presenting the case clearly to capture the situation	Creating detailed accounts of what was involved in the event. Creating codes and themes from data transcripts of focused group discussions and individual interviews.	Interview stage discussing experiences of being involved in the vPLC.

Data Analysis

The data collected at each of the two stages was evaluated using thematic analysis and undertaken concurrently using a 6-staged approach, as typified by Braun and Clarke (2013). This stepwise process involved reading, transcribing, classifying, and creating initial codes; then iterative checking, comparing, and reviewing to ensure data was meaningfully captured. A coding framework was then generated (See Table 4) which served to enable the refinement and evaluation of the data relating to the research questions.

Table 4

Generated Coding Framework

- POSITIVE EXPERIENCE ENABLING COLLABORATION
- IMPACTFUL AND INFORMATIVE SHARING
- BLURRED BOUNDARIES AND WORK-LIFE PRESSURES
- MAINTAINING WELL-BEING AND MUTUAL RESPECT
- MOTIVATIONAL STEERING
- REFLECTION-IN-ACTION WITH DOCUMENTATION
- REFLECTION-ON-ACTION DEBRIEF
- ONLINE DISCUSSION RECORDS FORMING REFLECTION LOG
- ORGANISED LEARNING AND SUPPORT
- ENLIGHTENMENT/EXPERIENTIAL KNOWLEDGE

The researcher adopted the roles of interviewer and observing facilitator, convening the group members within the vPLC, maintaining a guided focus on shared problem solving and giving voice to the participants' observed interactions and vPLC discourse through individual interviews; thus, directly focusing on their responses, interactions, and the researcher's transparent interpretation. Thematic analysis of vPLC group discussion data took place prior to conducting the individual interviews and was repeated for the data collected from interviews. Through highlighting and crosschecking evidence of the coded themes borne from the analysis of vPLC group discussion data with interview transcripts

to bolster dependability and data credibility in trusting and confirming the data, findings were shared with participants and challenged through reflexive review (Lincoln & Guba, 1985). In addition, the researcher took an outsider approach with an emic stance, meaning, instead of taking the perspective of someone looking in towards the research population, they became connected with the research participants in an observatory fashion within the vPLC to gather knowledge and the reality of their specific experience. The researcher's personal and professional characteristics or preconceptions could have naturally afforded a biased viewpoint, therefore, to reduce bias and to build rapport and trusting relationships within the vPLC early on, the researcher declared their own background as a Chartered Physiotherapist and raised questions and shared resources that would impact the participants' strategies and actions towards thinking about their reflective thinking. Each criterion feature was thought about in detail, by adopting a layered approach in collecting data at different points and over a prolonged time within vPLC focused discussions and using semi-structured interview data methods to follow up with the participants.

vPLC Focus Group Observations

Whilst the research design incorporated a fixed timeframe of 3 weeks for exploring focus group discussions within the vPLC, it would have been most advantageous to steer the gathering of focused group discussion data over a long period of time. However, due to the small-scale nature of this study and reduced researcher availability, a strategy of engaging in group discussion for a specified time to gather views was chosen to capture data over a dedicated timeframe. The discussions took place during a time when working conditions were affected by a wave of COVID-19 spreading through the UK population and coincided with a period where balancing time for personal and academic commitments escalated amongst some participants.

The vPLC discussions were initially stimulated by the provision of three resource articles to garner initial feedback, raise queries on their

clinical actions, and encourage reflections, in line with Schön's reflection models. The articles reviewed patient perspectives of physiotherapy services and the future role of telehealth remote consultations and patient triage activities in light of the global COVID-19 pandemic. Further discourse then ensued based on daily work practices.

Interviews

To encourage familiarity and raise the potential of participants being forthcoming in sharing their views through their interview, the researcher developed question frames guided from Patton's (2002) principles of qualitative inquiry to develop interview questions (See Table 5) based on revealing behaviors, opinions, and knowledge from engaging in a vPLC. A conversational and

purposeful approach was employed to investigate initial themes gathered and to maximize the natural creation of a free-flowing conversation. Participant responses fueled the direction and order of the questions accordingly to uncover new findings and cross-check existing themes. The semi-structured interviews took place online using the Zoom software application lasting 20-30 minutes. Due to the COVID-19 crisis and subsequent scheduled lengthy lockdown periods, the participants had become familiar with using Zoom as a communication tool in their working practices and personal activities, therefore this software application served as a suitable virtual setting for them to provide further individual information — thus maximizing the validity and authenticity of data collected.

Table 5

Interview Questions

BEHAVIOURS/ EXPERIENCES	OPINION/VALUE	EMOTIONS/ FEELINGS	KNOWLEDGE
What motivated you to become part of this learning community?	How did being part of the group help you in your day-to-day practices?	How did you feel about being part of the group?	Based on your understanding of learning communities how could the discussion group have operated differently/better?
What impacted on/influenced your interactions over the 2-week period of being engaged in the PLC focus group?	How did reflection impact you in your work practice/routine/approach?	How did you feel about reflecting-in-action during the day?	How has being a part of the study impacted your knowledge acquisition?
	Give an example where being in the group and reading/reviewing responses brought value to you and your day-to-day practices.	How did being in the group impact on your reflection-on-action practices?	

Ethical Considerations

Given potential ethical risks that may have arisen, there was a conscious attempt to address potential ethical risks through a collective and stepwise review with careful planning in line with British Educational Research Association (BERA) guidelines (2021). Being aware of researcher biases, a transparent approach towards disclosing how to overcome ethical challenges was employed throughout the study, which is typified in Table 11. To enhance elements of trustworthiness and rigor, participants were empowered throughout the study by way of providing the background information of the study, giving them options of sharing data collected with them, and giving

them access and ownership of their own digitized data. Ethical approval was granted from a UK university institution and the institution's data cloud storage platform was used to ensure that data was protected and held safely. Informed consent was requested and as part of planned guidelines, background information of the study was shared to all participants, with the option of preserving anonymity unless they stated otherwise. Researcher positionality was made explicit, adopting methods of validating information with participants sharing transcripts generated; adopting a reflexive researcher perspective through journal record compilations was actively employed to reduce researcher bias. All data was anonymized throughout the analytical and reporting stages of the study.

Table 6
Addressing Ethical Issues

POTENTIAL ETHICAL RISKS	METHODOLOGICAL STRATEGIES TO ADDRESS RISKS
Recruitment and retention of participants	Requesting participation by preparing informed consent and background information correspondence and seeking research participants from established clinical groups.
Acknowledging researcher positionality and potential bias	Being explicit about my researcher position and how this may influence data collection and analysis techniques at all stages. Aiming to recruit participants randomly and from external sources. Employing a semi-structured interview component to data collection to help to minimize bias and adhering to a generalized set of interview questions. Adopting methods to validate responses made, such as repeating participant responses back to them as an interpretive check of what has been said. Performing checks of transcripts to validate interpreted responses to data collected. Adopting a reflexive perspective in the research journey by keeping a journal record to actively reflect and address the influence of researcher bias.
Maintaining privacy and anonymity	Informing participants of privacy and anonymity of each participant unless they state otherwise. Ensuring data collected was anonymized for the analytical processes and reporting of the study.
Aspects of sharing data online	Adhering to professional codes of conduct from relevant bodies in connection to the research study. Using encrypted digitized environments and storing data in an encrypted fashion.
Adhering to equality and fairness to all involved	Empowering the participants throughout the study by way of giving them options of sharing data collected with them. Adapting interview design to consider any special requirements.
Misplacing data	Ensuring participants had access and ownership of their own digitized data. Using an encrypted data cloud storage platform to ensure data is protected and held safely.

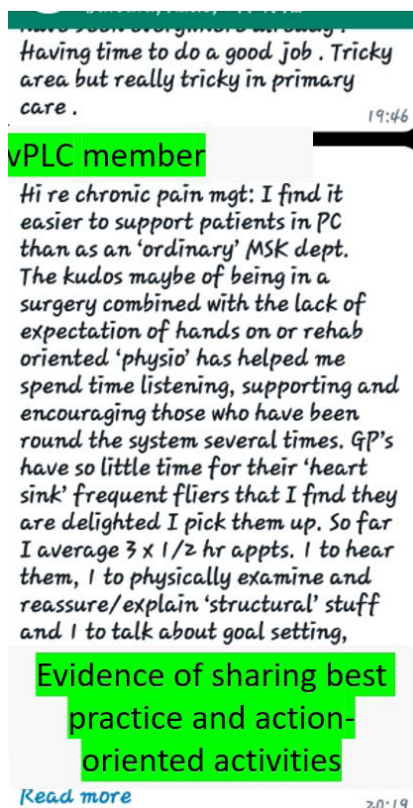
Addressing Research Questions – Thematic Findings and Discussion

Research Question 1: How do healthcare practitioners interact and operate within a virtual PLC?

In considering how a vPLC operates with healthcare practitioners, data revealed consilience amongst the members. Positive collaboration and collective learning (as typified by Hord's (2004) model) was evident. As shown in Figure 3 and participants' quotes, they provided support to each other which facilitated reflection with respect to Schön's (1983) reflection models, a notable benefit that is well-suited for learners. They openly revealed thoughts and ideas that had worked for them as they had to learn new digitized administrative procedures that incorporated the provision of telehealth care.

Figure 3

vPLC Discourse Illustrating Consilience with Hord's (2004) Framework



PARTICIPANT A:

I'll look at some of the other bits in more detail and get back to you and discuss. I am not 100% sure how much I should waffle each day like I said I will go for a couple of minutes and on a different topic with things that spring to mind. It is quite a nice way of voicing our thoughts in a similar type of reflective account but sharing it more widely, which is strange but perhaps useful. So, I will look forward to using it on that basis.

PARTICIPANT B:

Sorry all, not contributed much here yet but will work through the points later. May be quiet but I do agree with what has been said so far.

As a result of the lockdown and subsequent social distancing that occurred during the COVID-19 pandemic, telehealth provision included an increase in the communication of information to patients via digital media. Whilst a shift towards a hybrid model of working involving telehealth consultations and face-to-face appointments may be advantageous for providing patient care (Cottrell & Russell, 2020), previous study findings highlighted that these procedures could lead to a blurring of the boundaries of work and personal time and relationships with others, as supported by previous literature (Segar et al., 2013). The findings showed that the participants engaged in reflection through the vPLC to engage quietly and be in greater control of their personal time. As such, it aided them in using time efficiently to share and review their assessment and treatment provisions in line with electronic consulting telehealth procedures.

PARTICIPANT C:

I do not get time weekly for supervision. Time together like this for peer support is vital. Ongoing I need to adjust my learning habits and take time to learn and support one another in delivering e-health without extra pressures.

Thus, it could be suggested that there is a time-saving benefit involved with being part of a vPLC in line with reflective practice strategies, in contrast to literature which notes that engaging in peer reflection can be seen as a time-consuming exercise (Curtis et al., 2016).

Whilst the findings indicated that engaging in a vPLC fosters support, respect, and critical enquiry amongst members, there was a paucity of shared leadership, which is not in agreement with Hord's PLC model. Instead, case findings revealed that participants took ownership of their decision-making, leaning more towards individual development in their practices. Given literature inferring the high degree of skill and autonomy needed by lone working healthcare practitioners to manage clinical uncertainty and risk (Martini & Kelly, 2017), it could be surmised that the participants' engagement in the vPLC did not require a leader per se. However, discourse within the vPLC may have contributed towards participants making professional decisions independently. As a result of engaging in vPLC interactions, independent and self-directed learning would therefore take place whilst carrying out work practices, leading to the development of autonomous leadership responsibilities.

PARTICIPANT A:

Re your chronic pain question, I find it easier to support patients in PC [primary care] than as an "ordinary" MSK [musculoskeletal] Department, because of the way I can learn from other practitioners in the surgery. The kudos maybe of being in a surgery, combined with the lack of expectation of hands on or rehab oriented "physio" has helped me spend time listening, supporting, and encouraging those who have been round the system several times.

PARTICIPANT B:

Mmm thanks that's helpful I will look into it! Maybe I don't "allow" myself that many opportunities to contact others, but why not — we are there to be of assistance to all. We only have 20 min appointments now, so I must bear in mind your approach. Thank you."

Research Question 2: To what extent can a vPLC facilitate reflective practice amongst its vocational practitioners?

Within the vPLC, participants evidenced a range of reflective practices from thinking and documenting previous events in solitude,

reflecting through peer discussions, to debriefing with a close member outside of the PLC and sharing thoughts in the group format for further understanding before implementing the learnings into their working practice.

PARTICIPANT C:

"I have spent years working with psychologists in chronic pain and have learned an enormous amount about their thinking mechanisms [of reflective mechanisms]. They are very reflective people and I think I probably have gained a lot of insight into how important it is here for the patient. I think the one thing that I'm aware of is that I'm not too worried about looking silly. So, I find I might say something like, this patient just told you about this and then somebody else will come back to me and say, have you thought about x, y, & z or did you try this test? And I will quite happily put my hand up and say no. Didn't think about doing that. Good idea."

Wider literature from Ziebart & MacDermid (2019), Mamede et al. (2005), and Rigolizzo (2020) support these styles, showing that variations in how clinical practitioners reflect is not unusual. Displays of Schön's reflection-on-action were in scant abundance within the vPLC, compared to reflection-in-action. A contributing factor towards this could be the way in which they individually organized and managed their time towards thinking critically and being actively involved in group discussions during daily working interactions. For example, one participant (who contributed less within the group discussions) still made a point of mentioning that reflections and decisions were made without writing things down after reviewing discourse from group discussions which further informed clinical practices as a useful time-management strategy when presented with complex patients and situations.

Using the WhatsApp platform, participants had access to real-time information which served as a functional journal in which they could add content, conduct personal reviews, and make decisions. The participants involved in this study were physiotherapists with diverse career backgrounds in a range of vocational specialisms, thus their collective knowledge bases and experiences

varied. Having to provide services to patients through both telehealth formats and direct face-to-face appointments affected the availability of time and motivation that practitioners placed on engaging in reflective practice, and thus the subsequent depth of reflection. Operating under a hybrid model incorporating virtual and face-to-face settings amidst lengthy patient waiting lists and an increasing demand of patient expectations for clinical intervention impacted the participants' patterns of work and required adaptation to different care interventions (Minakshi, R. et al., 2021; Aderonmu, J. A., 2020). In addition to this, administrative challenges that arose due to lengthened waiting lists and a shift towards prioritizing the provision of support were significant changes that had to be considered. The vPLC became an environment where members shared work-related doubts and perplexities; thus from this standpoint, alignment with Schön's reflection-in-action was apparent. Some participants engaged more readily than others during their working day in between patient appointments, putting forward creative ideas for further group discussion. For others, their approach was to acknowledge review of the information shared with positive engagement and take advantage of the fact that the online group discussion thread was available for them to review and comment later. It could be surmised that engaging in vPLC discourse could be used to stimulate self and peer reflections, stimulating clinicians to efficiently sustain the incorporation of reflective practices independently.

vPLC Inclusion Strategy in Career Professional Development and Training Models

There were no signs of participants experiencing technological issues using WhatsApp as a reflective journal that was transparent, safe, and could be edited in real-time. Engaging in the communication functions for the study also strengthened their abilities in digital transformations pertaining to telehealth care delivery, which suggests that a more widespread incorporation of this software tool could enhance professional development amongst clinicians.

This research makes an original contribution towards illustrating the practical benefits of vPLCs as a digital transformation strategy. It has been uncovered that vPLC environments can be a harmonious and advantageous digital platform for facilitating reflection amongst healthcare professionals across community settings. However, from a converse perspective, the interactions in this vPLC study also indicate that the depth of reflection that occurred from participants was variable. Whilst active engagement served to develop skills in effective time management and independent decision-making, the vPLC was not deemed to facilitate deeper forms of reflection-on-action amongst members. Further exploration which took place in one-to-one interview discussions served to facilitate this. As an example, one participant mentioned a preference for reflecting-on-action using the vPLC discourse records either alone or with peers to develop communication and leadership interactions with peers.

PARTICIPANT A:

It was a really bad time for me, so it comes down to timing. I don't think it's motivation because I think we all need to do this now and so and I think the other thing is you were putting some really good resources out there. So, I think a group like this was useful because of putting good content in. It is a massive factor because what was said, the articles that you put forward were really good and I reviewed some of them and then discussed with others to learn more about specific areas in our own working practice.

This research therefore raises the potential of building on the vPLC and individual debrief methods for career professional development purposes, as it could be an impactful digital transformation strategy for healthcare practitioners to implement.

Adding further pragmatic value, developing vPLCs of practitioners across wider regions may provide an opportunity for greater networked learning and reflective practice continuity. The findings of this study shed light on details regarding the provision of global telehealth care and changing communication methods evolving from the global COVID-19 pandemic.

In concordance with contemporary studies such as that by Heneghan et al (2020) investigating the influence of telehealth e-mentoring within postgraduate clinical practice education and Goodwin et al (2021) demonstrating significant benefits of embedding FCP practitioners skills into primary care, this study highlights vPLCs as a useful resource for professionals to gain practical understanding of incorporating modern strategies such as mediated communication in their practice. Stakeholders can build on the findings from this study and gather more information investigating the efficacy of implementing vPLCs into vocational capability frameworks. A notable suggestion for further research could include researching the impact of engaging in a vPLC over a longer timeframe, reviewing opportunities for preventing potential burnout amongst workers as they manage their workload (Wilski et al., 2015).

Collaborating with other healthcare colleagues on specified foci and supporting each other through their experiences may prove to be a useful peer-reviewed resource on which practitioners can build confidence in their competencies of telehealth delivery.

Implications and Further Research

With the application of reflection in healthcare practice as an important skill for healthcare professionals (Health Education England [HEE], 2021) and their professional learning, practitioners also require support in continuing the progression of their critical thinking skills to guide decision-making and service provision in a specialized role. This study uncovered that reviewing how a vPLC was facilitated to aid reflective practice was impactful. From an educational perspective reflective practice has been built around facilitating learning and training that helps people to be aware of learning inherently from thoughts and actions (Rogers, 2001). This study asserts perspectives that raise understanding in real-time. Through documenting participant interactions and views as professionals carrying out daily clinical practices, this research

makes an original contribution to professional development strategies amongst those working in primary care. It has been uncovered that vPLC environments can be harmonious for facilitating support and reflection amongst those who work as lone practitioners within various settings. However, a limitation of this study lies in the notion that this requires dedicated steering and investigation over a longer period of time would have been advantageous. The complexity of managing time and maintaining motivation can be a barrier towards facilitating deeper forms of reflection-on-action amongst PLC members.

Despite this limitation, by documenting practitioners' voices and uncovering practical insight about how interactions and discourse took place in real-time, solutions for tackling these barriers and facilitating reflective decision-making based on individual communications were raised. As such, this research potentially builds on these discoveries to support the development of professional competencies based on the use of soft skills and how these can be investigated further using artificial intelligence (AI) strategies in telehealth clinical practices. Future research should explore the long-term impact of vPLCs, compare them to traditional models, and delve into analysing the ethical implications of AI in healthcare from the practitioner's perspective; with the aim of driving innovation, improving patient care, and advancing the healthcare profession. By leveraging AI into further research, this could personalize reflection and provide real-time feedback; using Natural Language Processing for data collected to identify emotional nuances related to participants display of soft skills and personalities and gaps that could be filled by improving learning strategies and professional competencies. Additionally, employing future research which investigates AI-driven social network and predictive analysis methods to map relationships and reveal virtual community dynamics in organizations could be an advantageous way to enhance the effectiveness of vPLCs and improve the quality of telehealth care.

Summary

In answering the research questions, insight into how professionals may interact via a vPLC has had positive implications for the career development of technical and vocational education professions such as clinical practitioners. This study has evidenced a vPLC as a purposeful and innovative digital transformation suited for healthcare practitioners. The rich discussions facilitated amongst participants uncovered members' interactions, contributing to the building of independent learning and decision-making, and showed varying competencies and soft skills. The sharing of best practices and challenges amongst members in the real-time of encountering clinical situations was made easier and contributed to the provision of support being offered and received at participants' leisure. The vPLC enabled practitioners to develop strategies well-suited to demonstrating reflection in line with Schön's reflection-in-action model — with the potential of further individual debriefs to stimulate deeper reflection-on-action activities. This was a small research sample with the accompanying limitations around generalizability. However, in line with qualitative case study methodology being about gathering depth and insight from social construction interactions and communications, this study was not necessarily dependent on the volume of research participants involved. The intent of the study was to provide qualitative data that could be considered along with other studies and thus inform future studies. In conclusion, this study offered a unique perspective about how a vPLC could be studied further using artificial intelligence strategies to reveal behaviors, attitudes, and new ways of working – for a professional advantage whilst adjusting to the changes in working practices such as that involved in the provision of telehealth care.

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