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University Educators' Experience of Personal Learning Networks to Enhance Their Professional Knowledge

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Abstract

This paper explores the experiences of university educators who use personal learning networks (PLNs) to enhance professional knowledge. With growing expectations to design and deliver effective online learning experiences, the PLN may offer flexible and supportive professional learning opportunities that build digital pedagogical capabilities. Previous research investigating PLNs has focused on how school teachers leverage social technologies to build these networks. However, there is limited examination of PLN use by university educators. This research is informed by the theories of networked learning and connectivism and uses a case study approach to deeply consider the experiences of five university educators from different disciplines across the globe. They share their understanding of the concept of the PLN, the influence of the COVID-19 pandemic, and how their PLN affects their digital pedagogies. The findings reveal nuanced insights of university educators' real-life experience, shedding light on how the use of social media and other digital tools for professional learning is changing and the implications this has for the development of university educators' understandings of digital pedagogies.

Keywords: personal learning network, networked learning, connectivism, university educator, digital pedagogy

Introduction

The global mass migration of education into the online space hastened by the COVID-19 pandemic has highlighted university educators' understanding of digital pedagogy and the requisite skills to teach effectively within digital environments (Bozkurt et al., 2022). Many in higher education continue to grapple with the implications of the transition to online teaching and the impacts of COVID-19 (Gonzalez et al., 2021). This paper presents findings about university educators' experience of personal learning networks (PLNs) to enhance professional knowledge, particularly the development of digital pedagogies, by addressing the following research questions:

1. How do academics understand the concept of personal learning networks?
2. How has the capacity to connect with others through social technologies influenced academics' professional learning experiences since the worldwide pandemic began?
3. In what ways do academics use personal learning networks to enhance their understandings of digital pedagogies?

A critical factor underlying successful implementation of educational technologies within higher education is the competence of teachers to know why, when, and how best to implement them (Englund et al., 2017). Networked learning may support university educators' confidence and capabilities, as the transition to learning and teaching within digital environments is complex, requiring more than a simple skill-based focus (Hodgson & McConnell, 2019). The PLN offers an environment where university educators can experience networked learning to build their capabilities and enable digital pedagogy initiatives.

Despite increasing research about PLNs in K–12 education (Oddone et al., 2019; Ranieri, 2019; Trust et al., 2018), to date there has been limited attention to their use in higher education (Pallitt et al., 2021). As PLNs support self-directed online learning, they would seem well suited to educators working remotely by choice or force of circumstance such as a pandemic. Untethered from face-to-face requirements and driven by the needs of the individual at their choice of time and place, the PLN is an under-recognised method of enhancing professional knowledge for time- and budget-poor university educators (Bali & Caines, 2018; Pallitt et al., 2021).

This paper reports research that investigates the experience of five university educators using a PLN for professional learning throughout and beyond the COVID-19 pandemic. The purpose of the study was to develop an informed understanding of the nature of university educators' engagement with PLNs and how their associated professional learning shapes their teaching practice.

Conceptual Framework of Study

This study posits the PLN to be a purposefully created network of digital connections to enable self-directed professional learning. Conceptually, it embodies networked learning and connectivism. Supported by social media, the PLN enables conversational interaction between individuals and groups (Dabbagh & Kitsantas,

2012; Dron & Anderson, 2014). The following section presents the literature in which this research is situated.

Networked Learning and Connectivism

Networked learning seeks to explain how learning takes place through the intersection of human relationships, digital communications technologies, and meaningful collaborative engagement (Networked Learning Editorial Collective, 2020). Rather than focus on the impact of educational technology on learning, networked learning critically examines the changing nature of learning through connections and collaboration, as enabled by increasingly ubiquitous technology (Hodgson & McConnell, 2019; Jones, 2015; Networked Learning Editorial Collective, 2020). Networked learning is characterised by non-linear paths to knowledge construction, driven by the needs of the learner, within online spaces constructed through the action of seeking and creating connections (Blaschke et al., 2021; Gourlay et al., 2021; Siemens, 2005). Networked learning has been related to professional learning across a range of disciplines, including higher education (Pallitt et al., 2021). It has been found to offer opportunities for synergy and collaborative learning experiences that enable social innovation, agency, and action (Dohn, 2014; Goodyear, 2019; Jones, 2015).

Associated with networked learning is connectivism. This concept focuses the construction of personal connections and individual networks for knowledge acquisition in changing and unpredictable environments (Downes, 2012; Siemens, 2005). Connectivism suggests that learning and knowledge rest in diversity of opinions and learning entails a process of connecting network nodes, both human and non-human (Siemens, 2005). The distributed nature of connectivism aligns it closely with the experiences of collaborative online learning (Reese, 2015; Utecht & Keller, 2019). Connectivism centres around autonomy and agency and the capacity of the individual to construct and interact within networks, motivated by personal learning needs (Blaschke et al., 2021; Downes, 2012).

Personal Learning Networks

PLNs are initiated autonomously by individuals to meet personally identified learning goals, leveraging the affordances of social media to create connections at any time or place (Carpenter & Krutka, 2015; Oddone et al., 2019). A PLN has been described as a “learning artefact and a real world tool” (Fair, 2021, p. 213). Thus, the PLN can be visualised (as seen in the PLN maps presented in this research) and also remain intangible, enabling informal learning occurring through connections with people, platforms, and information resources (Fair, 2021). Described as “learning in the wild” (Haythornthwaite et al., 2018; Schreurs et al., 2019), informal networked professional learning using PLNs is a flexible and innovative source of learning and support which may stand alone or be used to enhance formal learning opportunities (Dabbagh & Kitsantas, 2012; Oddone et al., 2019).

Most exploration of university educators' use of social technologies for informal professional learning is focused on a particular platform, with Twitter being the most common (Budge et al., 2016; Ehsan et al., 2018; Xie & Luo, 2019). Far less is known about how university educators engage with informal professional learning through PLNs involving interaction across a range of social networking sites, including Facebook, Twitter, blogs, social bookmarking, LinkedIn, and YouTube (Krutka et al., 2016; Trust et al., 2017).

University Educators and Digital Pedagogies

The COVID-19 global pandemic initiated a rapid transition to online learning, which consequently required many university educators to learn and implement digital pedagogies (Vääätäjä & Ruokamo, 2021; Van der Klink & Alexandrou, 2022). Digital pedagogies require not only using digital technologies in teaching but the enhancement of learning, teaching, assessment, and curriculum through effectively embedding digital technologies (Kivunja, 2013; Vääätäjä & Ruokamo, 2021). Therefore, university educators' digital pedagogical skills require capacities that go beyond foundational ICT practices, where technology use is teacher driven and implemented simply (Prestridge, 2012).

The development of digital pedagogical skills involves leveraging digital technologies to facilitate thinking and knowledge construction, supporting students to navigate digital spaces as they critically analyse, synthesise, and remix information for collaborative investigation and problem solving (Gonzalez et al., 2021; Prestridge, 2012). To develop digital pedagogical competencies, university educators require high self-efficacy to respond to technological challenges and problems with resilience and perseverance. They must also understand that pedagogical competence (and digital pedagogical competence) requires ongoing learning and maintenance (Kivunja, 2013; Prestridge, 2012; Vääätäjä & Ruokamo, 2021). The shift to greater incorporation of online learning in higher education during and after the COVID-19 pandemic has elevated the focus upon the development of these capabilities (Bećirović, 2023; Blonder et al., 2022; Van der Klink & Alexandrou, 2022). Significantly, educators who learn through PLNs often display similar attributes and dispositions which include autonomy, curiosity, and a desire for continued learning and development (Oddone et al., 2019; Prestridge, 2017).

Method

As the PLN is idiosyncratic to each individual, I adopted a qualitative case study approach for this research. This method explores and compares related individual experience within a real life context, and is suited to the evaluation of complex educational innovations (Simons, 2009). Therefore, I sought firsthand insights from university educators who engage with a PLN for professional learning.

After approval from the University Human Ethics Committee, participants were recruited through several social media channels, including Twitter, Facebook, and LinkedIn. Using social media as a recruitment tool for this study reflects the context and content of the research. Five people volunteered, met the selection criteria, and participated in the study. Each participant had engaged with online teaching and learning in different disciplines, namely: medical science, teacher education, instructional technology, business administration, and academic development. Two participants were in the United States, and one each in France, Great Britain, and Sweden. The variety of disciplines and global spread of the participants ensured rich data and a good depth of experiences and responses (Moser & Korstjens, 2018). All participants were familiar with the terminology of the PLN and had active PLNs used for professional learning. Participants taught in both online and face-to-face settings, working with undergraduate and postgraduate students. Exploring the experiences of a small number of participants allowed this research to deeply examine the nature of the PLN experience from individual perspectives. I sought similarities and differences between cases, relevant to real-life personal and professional contexts (Lincoln & Guba, 2016).

Participants were invited to construct a visualisation of their PLN using a method of their choice. They were guided by exemplar maps but were encouraged to design the map in a style of their choosing, with the content they felt most relevant. The maps stimulated reflection prior to the interview and acted as a prompt throughout the interview, surfacing unspoken thoughts and feelings about the PLN and enriching data collection (Kearney & Hyle, 2004; Mannay, 2010). I had successfully developed and applied this method of online map-based interviewing in a previous study with school teachers (Oddone, 2019, 2022; Oddone et al., 2019). The semi-structured interview was based on questions included in the Appendix.

Using networked learning as a theoretical frame, I analysed the data from the transcripts of the interviews and the PLN maps using thematic analysis, to identify implicit and explicit themes and ideas within and across each case (Fugard & Potts, 2019; Guest et al., 2012). I manually coded each case individually, before comparing and contrasting through cross-case analysis. The manual coding process involved reading the transcripts several times. I read each transcript twice initially; once for overall meaning and a second time for more thorough coding. After conducting this process for all cases, I read all again sequentially, noting similarities and differences in the emerging themes, and identifying overarching themes. I identified shared and contending perspectives, as presented in the Findings and Discussion. The participant names shown are pseudonyms.

Findings and Discussion

The findings respond to questions about how university educators understand the concept of the PLN and use it in their practice; how their experiences of informal networked professional learning through PLNs may have been influenced by the recent COVID-19 global pandemic; and how they considered their PLN may have informed or enabled their use of digital pedagogies. This section presents the general findings of each of the research questions in turn. The findings for each research question are presented as the major themes emerging from the data. In each case, these themes are then discussed under relevant subheadings. While this research reveals that some educators' experiences echoed previous findings in PLN research (Oddone, 2022; Prestridge, 2017; Trust et al., 2017), new approaches to engaging with PLNs are also emerging, which are described in the following sections.

University Educators' Understandings of PLNs

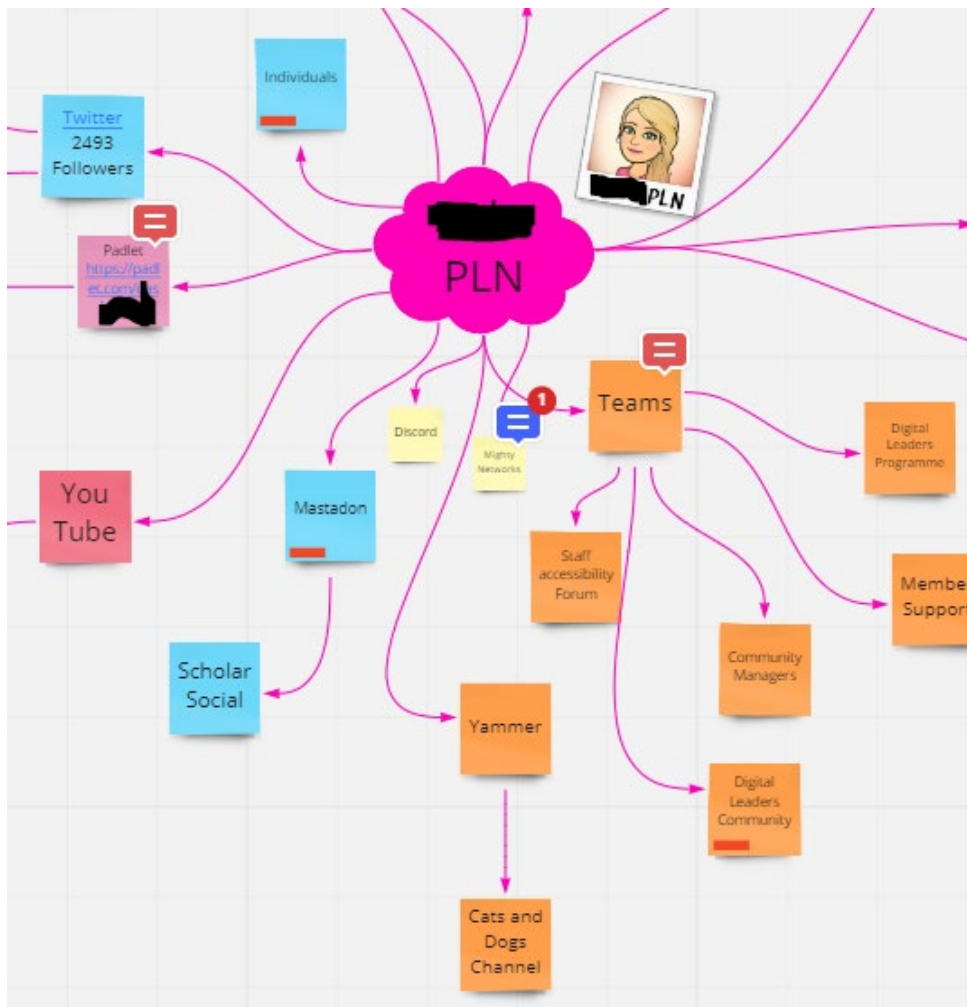
The educators interviewed each identified a distinctive understanding of their PLN and the value that they gained through it. This reflects the findings of previous research which suggested that a PLN is an individual creation, described through idiosyncratic verbal and visual descriptions (Oddone, 2019; Trust et al., 2017). The common thread through each participant's insights was that the PLN was subject to constant change, informed by personal needs and interests, connections with different individuals and groups, and the platforms which enabled the connections. This is illustrated by the following examples of how the participants viewed the PLN as *people and platforms* and as *knowledge management*.

PLN as People and Platforms

Examination of the PLN visualisations revealed a recognised relationship between the social media that enabled the network to exist and the human presence which enlivens the learning taking place. While each

Figure 2

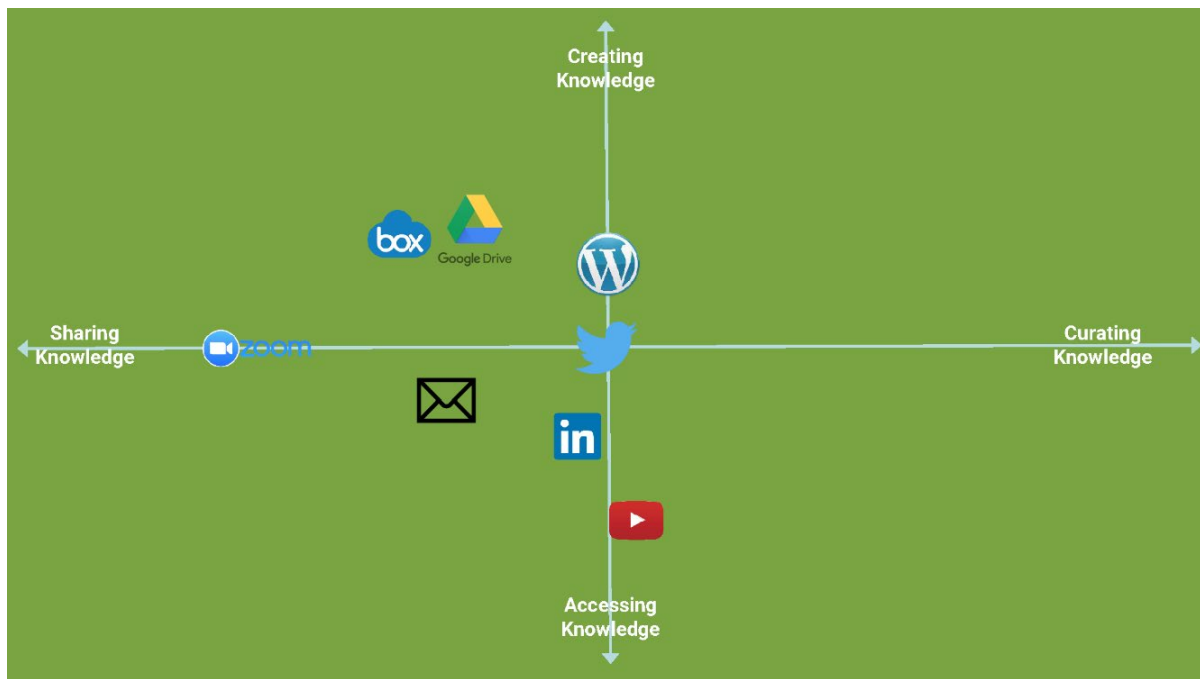
Magnified Section of Bodhi's PLN Map



Technology plays a stronger role for Peyton, as it is depicted enabling access, creation, curation, and sharing knowledge, as can be seen in their visualisation (Figure 3).

Figure 3

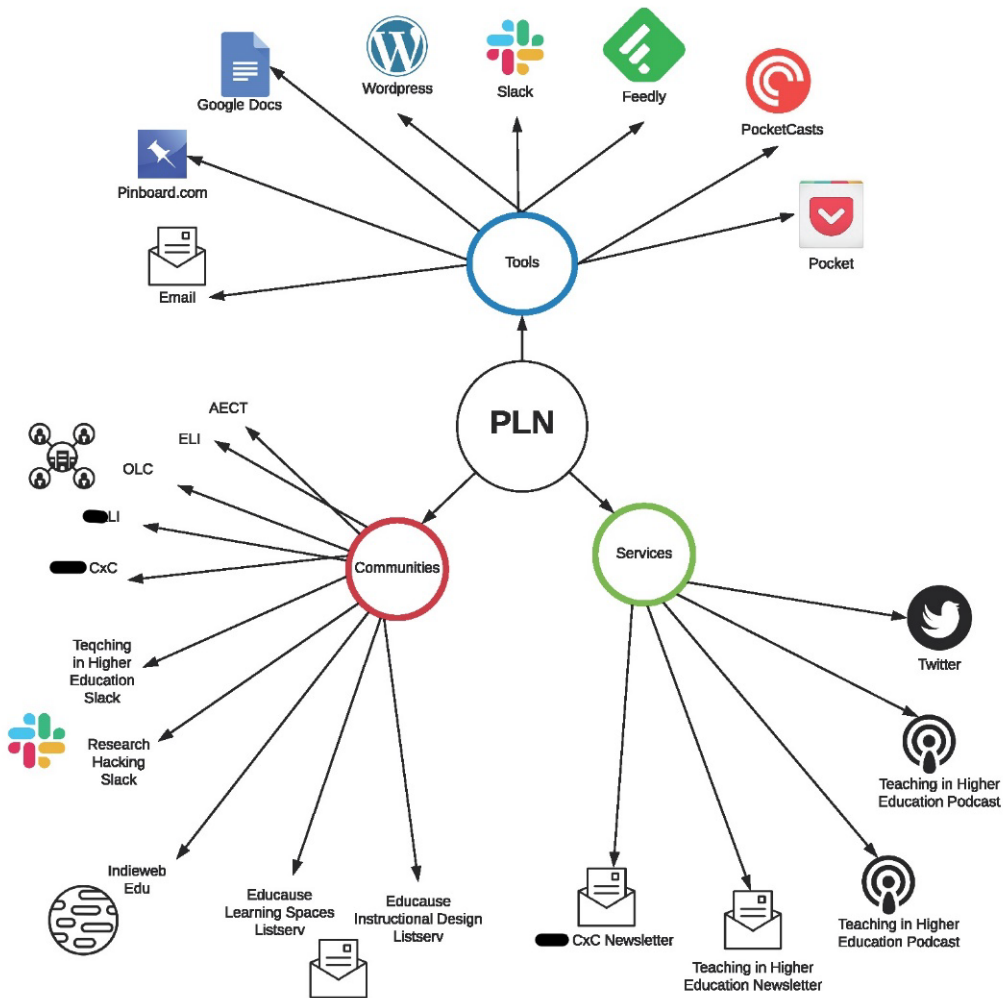
Peyton's PLN Map



The blend of people and platforms is also reflected in the map created by Manning (Figure 4) who divides their network into tools, communities, and services.

Figure 4

Manning's PLN Map



Each of these descriptors symbolises a different way to express the learning happening through the PLN. Manning explained that while the services represent the passive receipt of information via different digital channels, the communities indicate online spaces with more frequent two-way communication. The learning happening through interactions with services and communities is enabled through different tools, which are the avenues through which creation and connection occurs.

The Entangled Characteristics of Networked Learning. As exemplified in Figures 1–4, the participants' visualisations and accompanying insights emphasise connection as a prerequisite for learning to take place in the PLN. The entangled characteristics of people and platform within each PLN reflects the networked nature of this type of learning and demonstrates the complexity of social learning occurring within digital environments. Although learning through the PLN is informal, the inability to disentangle people and platforms has implications for the design of authentic formal learning opportunities within the digital space. As learning in higher education increasingly transitions to the digital space, educators may

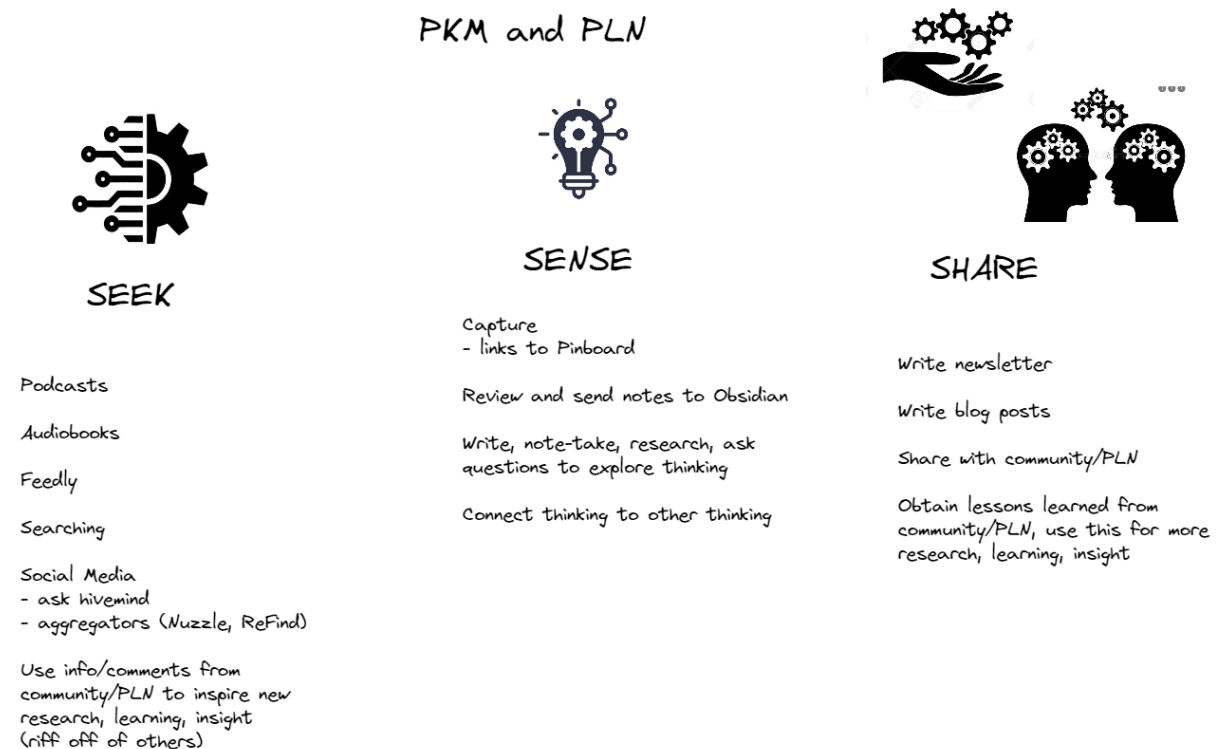
find a PLN assists them to shift their pedagogical paradigms, moving beyond paradigms of teaching (objectivism) and learning (subjectivism) to a paradigm of knowledge (complexivism). A complexivist paradigm views learners as active agents and knowledge as residing within individual cognition and the networks that extend and connect individuals to other individuals, resources, and tools (Downes, 2010; Dron & Anderson, 2022; Siemens, 2005). Building experience of this type of learning paradigm through engaging with a PLN may enable educators to engage successfully with digital learning and teaching contexts where place, pace, relationship, media, time, and delegation may be undetermined (Dron & Anderson, 2022).

PLN as Knowledge Management

The concept of knowledge management through the PLN emerged in the visualisations of some participants, most notably in those by Oakley (Figure 5) and Flynn (Figure 6).

Figure 5

Oakley's PLN Map



actions of seeking, sensing, and sharing, and the steps involved in digital content curation, reflect a process of locating, analysing, and enriching the information prior to redistribution (Jarche, 2020, Chapter 7; Kanter, 2011). Engaging with these practices as university educators may inform ongoing development of innovative digital pedagogies that respond to changing student learning needs. Gonzalez et al. (2021) observed that considering university educators as subject matter experts may no longer hold relevance, as they are but one source within an information-saturated environment. Instead, emphasis might now shift to building student capacity to define, locate, evaluate, and apply information—to become efficient knowledge managers. Using the PLN as a method of personal knowledge management builds capacity through informal professional learning, raising educators' confidence and enhancing digital pedagogy.

Networked Professional Learning and the COVID-19 Pandemic

Research investigating informal professional learning through PLNs prior to the COVID-19 pandemic identified the flexibility of this mode of learning. Learning at any time or place, seeking just-in-time solutions, and engaging with people and resources beyond physical boundaries are drawcards of the PLN for time-poor educators (Prestridge, 2019; Trust et al., 2016). Each of the university educators interviewed had initiated their PLNs prior to the global pandemic. Their responses to whether and how the pandemic had influenced their PLN generated unexpected results. As discussed below, the findings relate to *changing spaces and configurations within the PLN and privacy, authenticity, and identity*.

Changing Spaces and Configurations Within the PLN

COVID-19 incited rapid technology evolution to meet newly created needs. A surge in uptake of communications platforms such as video conferencing and messaging applications occurred as people sought to connect digitally in lieu of face-to-face (Kemp, 2020, 2022). Participant Peyton observed this trend, saying:

Zoom is actually pretty good for just creating a little space with colleagues with different channels, where you can invite external partners and individuals to certain channels Before the pandemic, I didn't know about this. Since the pandemic, I'm all Zoom and like it a lot ... video calls, meetings, but also the chat channel.

Flynn echoed this sentiment, commenting that greater use of digital discussion tools improved their ability to find and connect with people sharing a common interest, regardless of their location. They tempered this by saying that although these connections were easier to make, maintaining them could be a challenge, as, in their experience, many prefer in-person communication. These observations highlight the complex and interrelated nature of people and the technologies that enable connections for learning. While the capacity to connect continues to proliferate, the success and longevity of these connections cannot be assumed.

Another impact of the global pandemic upon PLNs described by some research participants was a desire for closer and more purposeful connections. As a long-time user of a PLN, Oakley reflected that when they initially engaged online with others, they were more positive about open scholarship and complete transparency. They observed that “for a while I was totally open online and lately I've been thinking that it's better to have smaller tighter connections.” This was in response to their personal experiences, where “some of the spaces have become so toxic that it's like is it worth it?” These negative experiences have shifted

Oakley's position, and they commented, "I think there's a need for a mix of public and private"—that university educators might continue to maintain a digital presence, but also interact within small private spaces where critical feedback from trusted others could be sought.

Having a nuanced approach to the PLN where spaces of varying openness exist was also highlighted by Bodhi and Manning, who each described a configuration of the PLN which included private direct messaging (DM) groups or channels on instant messaging (IM) applications. Research conducted prior to the pandemic focused on individuals connecting openly using applications such as Twitter and Facebook (Oddone, 2019). While Twitter continued to be a commonly mentioned tool in the visual depictions during this research, nodes in the network that consisted of small groups who met in private DM groups or IM channels were also a part of several participants' PLNs.

Co-Existing Communities and Networks. A differentiating characteristic of learning networks is that actors (the nodes in the network) may not know each other and are often connected through weak ties—relations or connections which are infrequent, serendipitous, and sometimes temporary (Haythornthwaite & de Laat, 2010). Weak ties within a PLN have previously been cited as a strength of learning through a network—creating an open structure potentially allowing access to a wider range of information, resources, and individuals than possible in a learning community dominated by strong ties (Dron & Anderson, 2014).

The emergence of strong ties within the PLN in contrast to a previous preference for openness may reflect shifts due to context collapse hastened or altered by the increased reliance upon online communication during the COVID-19 pandemic and ongoing. Context collapse refers to the blurring of boundaries which enables people, information, and norms to blend or merge so that different contexts are literally collapsed into a single space (Boyd, 2002; Marwick & Boyd, 2011). The potential for context collapse increased during periods of lockdown and social distancing, as students and teachers video-conferenced from their homes rather than in the public lecture theatre. The private environment of the home became visible in ways not previously experienced (Bjursell et al., 2022). While the ideals of open, connectivist approaches encourage the widest possible engagement (Siemens, 2007), it is possible that the blurred boundaries between professional and personal, exacerbated by the pandemic, created a desire for greater levels of control over spaces in which interaction occurred. This may have resulted in participants' reflections about privacy, authenticity, and identity, as outlined next.

Privacy, Authenticity, and Identity

Associated with changes in the configuration of the PLN, some of the educators interviewed discussed ways in which their beliefs about privacy, authenticity, and identity had altered in recent times. Learning by openly sharing thoughts and opinions created new concerns for Oakley, who commented that fear of reprisal had made them rethink the spaces in which they engaged. This reflection has had a flow-on effect to their teaching. While Oakley maintains that students should develop a digital identity, they encourage students to be more mindful about the degree of openness with which they share. Oakley thus sees digital identity as multi-layered across different spaces, while Peyton describes having a "split in my academic personality", using different platforms to meet different needs that reflect their learning goals and the requirements of their position. Bodhi, on the other hand, says, "I like to think that I'm the same online as I

am in person.” Bodhi acknowledges open sharing requires a level of vulnerability, but that, in their experience, the risks to privacy and safety are like those in offline settings. They acknowledged that they are in a privileged position and that this might not be the case for everyone.

Shifting Spaces for Informal Networked Learning. The idea of different identities or different levels of visibility according to the purpose and place of interaction aligns with the visitors and residents model (White & Le Cornu, 2011). This model suggests that individuals interact online at different points along a continuum, from visitor to resident. Visitor behaviour is goal or task directed, generally leaving minimal traces as they use Internet resources, rather than engage in group membership. Conversely, residents engage, share information, and generally “belong”, developing and expressing their digital identity through interactions and publications. This model can demonstrate the shift in how spaces within the PLN are viewed. While value persists in “visiting” open spaces, such as Twitter, to discover and distribute, it is within more private spaces that some educators may be taking up “residence.” Desires for more efficient and trustworthy privacy infrastructure (Beduschi, 2021) may be impacting upon how some university educators manage their own privacy and digital identity while engaging with informal networked learning.

The PLN and Evolving Digital Pedagogies

Each participant highlighted benefits of having established connections with others for informal learning through their PLN. In addition, they experienced authentic and sustained opportunities for *developing digital pedagogies through the PLN*.

Developing Digital Pedagogies Through the PLN

Although each educator interviewed mentioned different digital pedagogies, some highlighted how their PLN engagement had influenced how they embedded digital technologies in their pedagogy. Flynn highlighted how their experience with curation and information discovery informs resource development and scaffolding students' own abilities in information management. They noted this is a vital skill in their rapidly changing discipline. Staying abreast of vast amounts of information and locating this information efficiently are key capabilities Flynn teaches students because of their own PLN experience. They introduce digital curation platforms such as Scoop.it to students and encourage use of these platforms to support research and additional reading.

Manning spoke about how their own experiences of learning through the PLN had encouraged the introduction of networked learning experiences to their students, aiming to build students' digital capabilities useful beyond their study. They discussed using the online annotation tool Hypothesis as a way of generating an open discussion among students about readings outside of the learning management system (LMS). Hypothesis is an open-source platform that enables social annotation—annotations are visible to others and can be commented upon (Kalir, 2022). Moving beyond the LMS, Manning hoped to find “a way to move from that kind of traditional discussion forum into something that started to resemble what I think is already happening in some kind of communities online and could happen productively inside of our class.”

Informal Learning to Enhance Digital Pedagogical Practices. These examples demonstrate how university educators' experiences of informal learning through the PLN build their confidence and awareness of the use of different digital tools and platforms in teaching and learning. The thread connecting these examples is that using digital technologies and connecting with others through digital channels builds not only technical skills but also digital pedagogical practices—where technology is viewed as a tool to enable engagement and enhance learning (Prestridge, 2012). Digital pedagogical competencies in these examples of practice are demonstrated by leveraging technology to empower students as active users and creators of information (Prestridge, 2012; Väättäjä & Ruokamo, 2021). The PLN enables university educators to nurture their digital literacy skills, with a flow-on impact upon their digital pedagogy competency. Personalising and enacting agency over informal professional learning through the PLN offers support for educators who are “bruised” from the disruption and forced transition to online created by COVID-19 (Romero-Hall & Jaramillo Cherez, 2023, p. 9).

Limitations of This Study

This research aimed to investigate the lived experience of university educators who engage with a PLN for professional learning. I sought a global reach by recruiting participants via different social network channels, although the number of university educators who volunteered (five) was lower than anticipated. This may be attributable to high workloads and levels of occupational stress as the COVID-19 pandemic has exacerbated already demanding roles (Karatuna et al., 2022; Lee et al., 2022; Watson et al., 2022). However, a relatively small number of participants is appropriate to a qualitative study like this which seeks in-depth insights about a particular aspect of human experience from a range of individual perspectives and disciplinary backgrounds. The qualitative exploratory nature of this study differentiates it from larger scale quantitative research which usually aims to produce generalisations regardless of context (Lincoln & Guba, 2016).

Conclusion

The findings presented in this article present some important implications for further research. When compared to research findings of school teachers' experiences with professional learning through PLNs, the university educators interviewed placed a greater emphasis upon connecting with people and platforms, and information and knowledge management. There is also growing awareness of how the PLN builds information skills and knowledge management, which can be embedded within digital pedagogical approaches with students. The findings suggest that further research is needed to investigate how PLNs might enable educators to further develop their digital pedagogies and more effectively support their students' management of digital information, in order to effectively navigate a complex information environment in times of crisis and information disorder (Anthonysamy & Sivakumar, 2022; Tekoniemi et al., 2022). This article reveals that although engagement with a PLN continually changes, there remains rich potential for informal networked learning to enhance the teaching practices of university educators.

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Appendix

Prompt Questions of the Semi-Structured Interview

The PLN Map

- Could you please explain the design and content of your PLN map?
- Did the process of mapping your PLN surprise you or provide new insights into how you describe the professional learning you undertake when online? Why do you think this may or may not be the case?
- Would you please share any thoughts or feelings you experienced while creating this map of your PLN.

Experience of PLN

- How would you describe the professional learning you undertake when engaging with your PLN?
- To what extent has the COVID pandemic influenced your professional learning experiences? Why do you think this is so?
- How has your engagement with your PLN changed since the beginning of, and during the COVID pandemic?
- What inspired you to begin developing an online PLN?
- How do you develop and maintain and/or extend your PLN?
- How does interacting with your PLN make you feel?

PLN for Professional Learning About Digital Pedagogies

- Would you recommend professional learning through a PLN for improving your understanding of digital pedagogies? Why or why not?
- Please tell me about an example of digital pedagogy that you have implemented as a result of your learning through your PLN.
- What would you consider to be advantages and disadvantages of a PLN for professional learning?
- What are your words of advice for academics considering initiating a PLN for the purposes of professional learning?

