

The connected educator: personal learning networks

Mary RC Haas¹ , Kellen Haley², Bella S Nagappan¹, Felix Ankel³ , Anand Swaminathan⁴ and Sally A. Santen⁵ 

¹Department of Emergency Medicine, University of Michigan Medical School, Ann Arbor, Michigan, USA

²Virginia Commonwealth University School of Medicine, Richmond, Virginia, USA

³Department of Emergency Medicine, Regions Hospital, HealthPartners Institute, University of Minnesota Medical School, Minneapolis, Minnesota, USA

⁴Department of Emergency Medicine, St Joseph's Regional Medical Center, Paterson, New Jersey, USA

⁵Department of Emergency Medicine, Virginia Commonwealth University School of Medicine, Richmond, Virginia, USA

Editor's note: This toolbox article focuses on the importance of being connected and the power of connections to enhance learning, collaboration, the dissemination of one's work and career satisfaction. The authors advocate for the development of personal learning networks (PLNs), particularly as tools for personal and professional development, at all stages of an educator's journey. The article looks at the underlying educational theory and includes practical ways to help in the developments of one's own PLN, as well as those of one's junior colleagues. Theories considered are connectivism, constructivism and, unsurprisingly, the concept of communities of practice. To develop and use PLNs optimally the authors recommend: setting specific goals and developing an action plan; harnessing Web 2.0, and social media in particular (when being mindful of the potential problems); and recognising the potential of PLNs to promote research collaborations, share expertise and foster relationships, both locally and globally. The two figures are particularly helpful in illustrating an example of a PLN and strategies for using the web and Twitter. Appendix S1 is a useful PLN worksheet for identifying goals and formulating an action plan.

INTRODUCTION

An educator's impact is amplified through the power of connections. Connections foster learning,

collaboration, the dissemination of content and career satisfaction. Personal learning networks (PLNs) are informal networks connecting people and organizations that allow for

individualised learning and engagement in personal and professional development. Faculty members must develop and manage their own PLNs when guiding trainees (i.e. students,

Connections foster learning, collaboration, the dissemination of content and career satisfaction

Connections that occur in person or via technology-facilitated venues can drive the formation of PLNs

residents and fellows) to do the same.

Connections that occur in person or via technology-facilitated venues can drive the formation of PLNs. Web 2.0, which refers to the social use of the web, can accelerate PLN development through platforms that facilitate collaboration as well as the creation, curation, sharing and consumption of educational content.¹ These tools include blogs, Twitter, Facebook, Instagram, LinkedIn and other social media networking sites. With the increased connectivity offered by these tools, learning and relationships are no longer limited by time and space.² PLNs that take advantage of the interconnectedness allotted by Web 2.0 allow individuals to connect and learn anywhere, anytime, from nearly anyone.²

In this toolbox article, we describe the education theory underlying PLNs and provide practical steps for faculty members to develop their own PLNs and to mentor trainees through the same process.

EDUCATION THEORY UNDERLYING PLNS

The PLNs draw upon several concepts in education theory.³

Connectivism, originally attributed to George Siemens, is one prominent theory around which PLNs are centred.^{3,4} Connectivism postulates the following: learning can reside outside of oneself; learning requires the connection of various specialised information sets; and connections enable us to move beyond our current state of knowing.^{3,4} Accordingly, PLNs allow for learning to occur through the process of connecting with others.

Constructivism, attributed originally to Lev Vygotsky, also

relates to PLNs in that it emphasises the role of context and social interaction on knowledge acquisition.^{3,5,6} In contrast to theories that assume that there is one objective truth, constructivism assumes that learners construct knowledge subjectively as they interact with their environment and attempt to make meaning of experiences.^{3,5,6} The interactions that occur between members of a PLN can thus drive an individual to construct new knowledge.

Another foundation to the social aspect of learning is known as communities of practice (CoPs). Originally described by Jean Lave and Etienne Wenger, CoPs refer to social learning systems that exist within broader social systems.⁷ Within CoPs, group members come to an agreement about group norms, build interpersonal relationships, determine the focus of the group's work and share resources.⁷⁻⁹ Although originally developed to describe individuals who interact in person, Web 2.0 has facilitated the formation and development of CoPs online.⁹ There is often significant overlap between one's PLN and CoP, although members of a PLN do not necessarily share the same focus or trade, whereas members of a CoP often do.

DEVELOPING AND USING PLNS FOR FACULTY MEMBERS AND TRAINEE DEVELOPMENT

The PLNs can be conceptualised in practice by expanding upon the theory of connectivism, which employs the metaphor of a network with nodes and connections.⁴ A node is any unit that can connect to another unit, such as an individual or organisation. Learning occurs through the process of creating connections and expanding the complexity of the network.⁴

The quality of the ties between one node and another within a

network can be categorised as strong, weak or absent. Weak ties, which refer to relationships with the nodes farthest outside of one's immediate domain, can be mistakenly interpreted to be less valuable than strong ties; however, leveraging weak ties can fuel significant development in unique and unexpected ways.¹⁰ Although the strongest ties share much of the same knowledge and perspectives, more distant acquaintances (weak ties) often provide exposure to new ways of thinking and opportunities.¹⁰ PLNs are fluid, with weak ties becoming strong ties and with new nodes constantly entering the network. For an example of a PLN, see Figure 1.

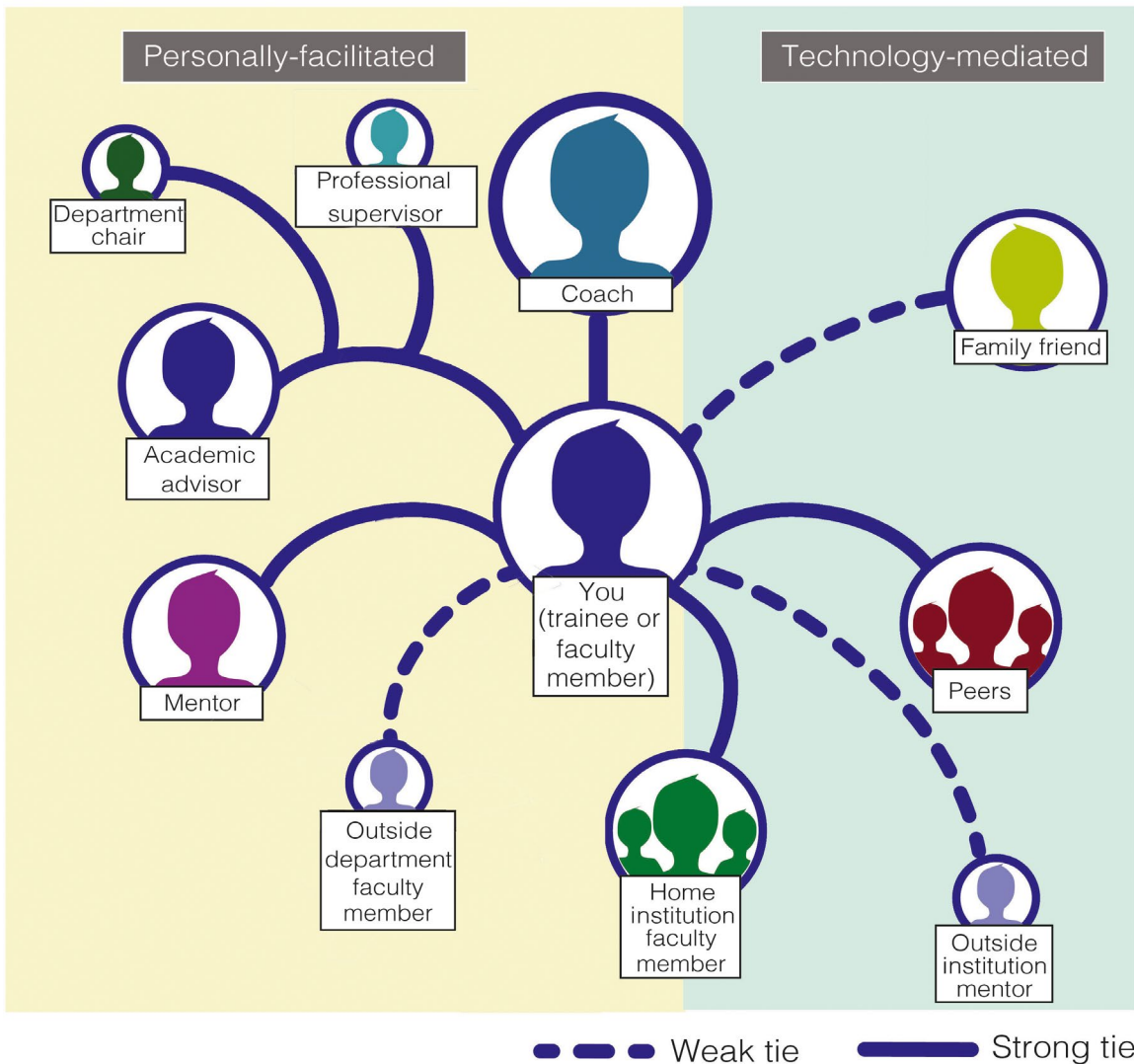
The expansion and maintenance of PLNs can benefit both trainees and faculty members. Trainees should begin developing PLNs early to accelerate career advancement through networking, collaboration on projects that fuel scholarly work and the identification of new opportunities. Faculty members should maintain healthy PLNs in order to drive their own development through the same mechanisms. Additionally, faculty educators should use their own PLNs to augment their ability to mentor, sponsor and coach trainees, who can benefit from their faculty member's connections.

Although PLNs require a significant investment of time and energy, they can generate major return in terms of learning, productivity and career advancement. Outlined below are some practical recommendations for developing and using PLNs.

Set specific goals

Developing a PLN requires direction, and must be based on personal goals.¹¹ Example goals can include the following: to learn more about particular areas; to expand an educator's portfolio; to generate additional scholarly work; to serve in a leadership role; to develop a presence within

Example of a personal learning network



... leveraging weak ties can fuel significant development in unique and unexpected ways

Figure 1. Example of a personal learning network (PLN), including both personally-facilitated and technology-mediated connections. The PLN incorporates a variety of individuals with both strong ties (represented by solid lines) and weak ties (represented by dotted lines).

a community of individuals who share a particular interest; to identify a mentor; coach or sponsor, and to improve one's ability to coach, mentor or sponsor trainees through linking them with members of their PLN. Intention and authenticity will strengthen the relationship with ties and maximise the likelihood of achieving goals.

Harness the power of Web 2.0 and social media with a professional Twitter profile

Web 2.0 allows for connections with new nodes, despite geographical distances, through social media platforms.² Twitter, in particular, provides an easy way to follow individuals, current issues, conference updates and/

or timely topics pertinent to one's career or topic of interest. For specific strategies, see Figure 2. Although social media can accelerate PLN development, users must diligently avoid pitfalls with potentially devastating consequences, such as sharing protected patient information or posting unprofessional or inaccurate content.¹²

Use PLNs to collaborate on research and scholarly work

Nurture relationships with the nodes in your PLN. Maintain communication with both strong and weak ties, updating them on your research and offering assistance. Consider connecting people within your PLN to help

foster the expansion of their networks.

Intentionally foster relationships with international nodes in addition to local, regional and national nodes

Reciprocal, generative relationships can rapidly emerge between educators operating in similar but unique contexts. Networks that transcend geographical limits have the potential to enrich international CoPs, address challenges facing health professions education across the globe and beget broad-based impact.

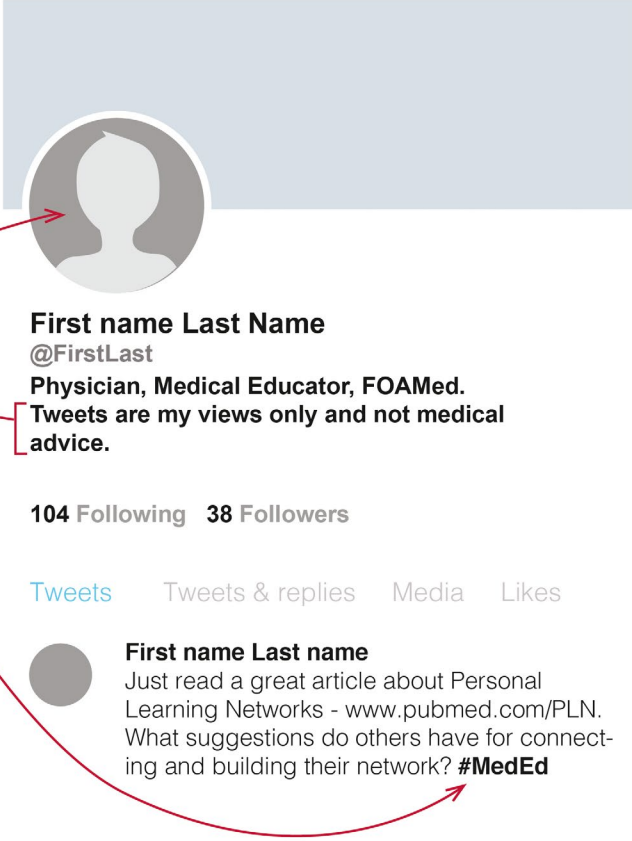
Recognise the power of weak ties

Weak ties often bloom from unexpected and unique arenas.¹⁰

Web 2.0 allows for connections with new nodes, despite geographical distances, through social media platforms

Harnessing the Power of Web 2.0 and Twitter

1. Create a professional Twitter profile
2. Choose a professional photo
3. Comply with your institution's social medial policy
4. Use Twitter at conferences
5. Incorporate the conference or topic hashtag to join conversations
6. Focus on quality over quantity
7. Remain respectful in all of your interactions



First name Last Name
@FirstLast
Physician, Medical Educator, FOAMed.
Tweets are my views only and not medical advice.

104 Following 38 Followers

Tweets Tweets & replies Media Likes

First name Last name
Just read a great article about Personal Learning Networks - www.pubmed.com/PLN. What suggestions do others have for connecting and building their network? #MedEd

Figure 2. Strategies for harnessing the power of Web 2.0 and Twitter: example professional Twitter profile with recommendations for using Twitter to cultivate both strong and weak ties.

Intentionally seek opportunities to form new relationships with weak ties. Leverage weak ties to foster innovation and creativity.

Draw upon the expertise of others in the PLN to answer clinical and non-clinical questions

Twitter users can poll a panel of experts within a PLN to generate discussion about a particular topic or clinical controversy. Prior to incorporating information gained via this mechanism into clinical practice, however, ensure that it meets the same standards as textbooks and peer-reviewed resources. Ask for references wherever possible.

Generate a virtual, asynchronous journal club

The PLNs can provide a forum to interpret and discuss the implications of emerging research via an online journal club.¹³ If you encounter a potentially practise-changing journal article, use a PLN

to generate a Twitter discussion about its implications, strengths and limitations. This conversation can occur asynchronously and will remain accessible for later reference.

Participate in the 'backchannel' and share content presented at live conferences asynchronously

Twitter can also connect individuals who are physically present at a particular conference, or who follow conference content asynchronously.¹⁴ Often, members of an audience during a presentation will tweet thoughts, pearls and questions about the presentation content, thereby generating the Twitter 'backchannel'.¹⁴ Participating in these conversations can catalyse a connection with another individual present at the conference, or with an individual not present at the conference but with a shared interest that has brought you both to the same conversation.

Access, contribute and share helpful resources developed by others

Share resources such as educational blog posts and practise-changing or thought-provoking journal articles with members of your PLN. Review the content shared similarly with you by members of your PLN.

Find mentors, coaches and sponsors for yourself and your trainees

A sponsor is someone within your field, usually at a higher professional level, who works intentionally to advance your career by assigning new leadership roles, advocating for promotions, and encouraging and guiding riskier career choices.¹⁵ Draw on the resources of strong ties to identify individuals to fill these roles. Seek out colleagues or trainees in need of a mentor, coach or sponsor and use your connections to help them.

Develop an action plan

Appendix S1 provides a worksheet for educators to use for themselves and for teaching trainees the concept of a PLN. In this worksheet, list goals, map out an existing PLN and plan specific actions to further expand a PLN.

CONCLUSIONS

PLNs are informal networks connecting people and organisations that allow for individualised learning and engagement in personal and professional development. Education theories underlying PLNs include connectivism, constructivism and CoPs. The most robust PLNs incorporate connections developed both in person and via technology-facilitated experiences. Several strategies, including the professional use of social media, can assist faculty educators and trainees with creating and maintaining PLNs.

REFERENCES

1. Grosbeck G. To use or not to use web 2.0 in higher education? *Procedia-Soc Behav Sci* 2009;**1**(1):478–482.
2. McLoughlin C, Lee MJW. Personalised and self-regulated learning in the Web 2.0 era:

international exemplars of innovative pedagogy using social software. *Aust J Ed Tech* 2010;**26**(1):28–43.

3. Couros A. Developing personal learning networks for open and social learning. In: Veletsianos G, ed. *Emerging Technologies in Distance Education*. Edmonton, Canada: AU Press; 2010.
4. Siemens G. Connectivism: a learning theory for the digital age. In: West R, ed. *Foundations of Learning and Instructional Design Technology*. PressBooks, 2017. Available at <https://lidtfoundations.pressbooks.com/chapter/connectivism-a-learning-theory-for-the-digital-age/>. Accessed on 1 November 2019.
5. Wilson B, Lowry M. Constructivist learning on the web. *New Directions for Adult and Continuing Education* 2000;**2000**(88):79–88.
6. Vygotsky L. *Mind in Society*. Cambridge, MA: Harvard University Press; 1978.
7. Wenger E. *Communities of Practice: Learning, Meaning, and Identity*. Cambridge, UK: Cambridge University Press; 1999.
8. Lave J, Wenger E. *Situated Learning: Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press; 1991.
9. Yarris LM, Chan TM, Gottlieb M, Juve AM. Finding your people in the digital age: virtual communities of practice to promote education scholarship. *J Grad Med Educ* 2019;**11**(1):1–5.
10. Granovetter MS. The strength of weak ties. *Am J Sociol* 1973;**78**(6):1360–1380.
11. Ankel F, Swaminathan A. Personal learning networks: a hack to maintain competence. ICE Blog, 2015. Available at <https://icenetblog.royalcollege.ca/2015/10/02/personal-learning-networks-a-hack-to-maintain-competence/>. Accessed on 19 November 2019.
12. Kind T, Patel PD, Lie D, Chretien KC. Twelve tips for using social media as a medical educator. *Med Teach* 2014;**36**(4):284–290.
13. Radecki RP, Rezaie SR, Lin M. Global emergency medicine journal club: social media responses to the November 2013 Annals of Emergency Medicine journal club. *Ann Emerg Med* 2014;**63**(4):490–494.
14. Ross C, Terras M, Warwick C, Welsh A. Enabled backchannel: conference Twitter use by digital humanists. *J Document* 2011;**67**(2):214–237.
15. Hewlett SA. *Forget a Mentor, Find a Sponsor: The New Way to Fast-Track Your Career*. Boston, MA: Harvard Business Review Press; 2013.

PLNs are informal networks connecting people and organisations that allow for individualised learning and engagement in personal and professional development

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. Personal Learning Network Worksheet

Corresponding author's contact details: Mary RC Haas, 1500 E. Medical Center Drive, Ann Arbor, Michigan 48109, USA. E-mail: calderom@med.umich.edu

Funding: None.

Conflict of interest: None.

Acknowledgements: None.

Ethical approval: Not required.

doi: 10.1111/tct.13146