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The Future is Connection:

Collaboration, Creativity and Compassion in a Digital Society

How does a professional learning community strengthen self-efficacy in learning design?

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Learning design practice can vary in response to the strategic demands of organisations. While *professional learning communities* (PLCs) have been widely studied in teaching contexts, less is understood about their role in developing learning designers' confidence and capabilities. The preliminary organisational context of this study was the separation of conceptual and digital learning design functions. The fragmented practice resulted in low confidence among designers to operate across the full learning design cycle. This study investigates the impact of a PLC on a team of digital learning designers' self-efficacy, knowledge and skills across all stages of the ADDIE instructional design process, extending PLC research through the lens of Bandura's four sources of self-efficacy. Using a mixed-methods longitudinal research methodology, data was collected over twelve months. Findings indicate a sustained increase in self-efficacy, with most significant gains in the analysis and design stages of ADDIE, where confidence was lowest. In addition, participation in the PLC supported the integration of technical and conceptual capabilities, reduced variability in task-specific confidence and contributed to a shift in professional identity from specialised producers to holistic learning designers. The study proposes design principles for *professional learning* (PL) based on self-efficacy theory.

Keywords: Learning design, self-efficacy, professional learning, professional learning communities, situated learning, ADDIE model, mixed-methods research

Background

The theory of self-efficacy provides an explanation of how an individual's beliefs in their own capabilities influence their motivation, persistence and performance in professional contexts (Bandura, 1978). Also known as task-specific confidence, self-efficacy is a major basis of action (Artino, 2012). To be able to cope in new or challenging situations, it is not enough for individuals to have the knowledge or skills required to perform, they also need to have the conviction that they can successfully implement their practice (Artino, 2012; Bandura, 1997). Self-efficacy beliefs will influence not only the quantity but also the quality of the effort individuals invest in a task (Artino, 2012; Bandura, 1978). The higher the self-efficacy beliefs, the more motivated an individual is likely to feel in investing the effort to master a behaviour; conversely, low self-efficacy beliefs may bring about self-doubt which may make an individual more prone to failure (Bandura, 1997). Self-efficacy develops through four principal sources of information: performance accomplishments or personal mastery experiences; vicarious experiences or observations of peers; verbal persuasion or feedback; and physiological or emotional states (Bandura, 1978). To enhance self-efficacy, vicarious experiences should involve credible and enthusiastic peer models who demonstrate skills accurately, are perceived as more competent and consistently model the behaviours they promote (Artino, 2012). These sources of information highlight the importance of collaborative and practice-based environments for growth in professional practice and were used as guiding principles in the design of the PLC explored in this study.

Communities of practice conceptualise learning as a process of social participation, where knowledge is constructed through shared activities, mutual engagement and negotiation of meaning within a group (Wenger, 2000). They provide a perfect vehicle to investigate the development of self-efficacy in context. Within educational settings, PLCs have been found to foster sustained collaboration, reflective inquiry, and shared responsibility for practice improvement (Dumandan & Paglinawan, 2025). This perspective is further supported by Situated Learning Theory where learning happens through direct experience in authentic contexts and practices allowing new staff to enhance their expertise through "legitimate, peripheral" participation and social engagement with colleagues (Lave & Wenger, 1991).

When it comes to learning design, many organisations adopt a single model to support consistency, establish a shared language and guide practice. The ADDIE instructional design process is at the core of the organisation's operating model and guides the learning design approaches used by the team in this study. The process provides a clear definition of the actions required at each of its five stages: Analysis, Design, Development, Implementation and Evaluation (ADDIE), enabling efforts to support the self-efficacy beliefs of designers to be task specific. This model has been widely adopted across industries due to its emphasis on iteration, continuous improvement and learner-centred design (Peterson, 2003).

Organisational context

At the commencement of this study, the design of professional learning (PL) programs for teachers and school leaders was divided across two specialist streams. Three learning designers focused primarily on the analysis, design and evaluation, while six digital learning designers focused on the development and evaluation stages of the ADDIE framework. Over time, this division of responsibilities contributed to differences in self-efficacy beliefs, knowledge and skills across the design lifecycle. Subsequent organisational changes demanded a more adaptable workforce, creating an opportunity for the digital learning design team to establish a PLC. This PLC initially focused on strengthening capabilities in the analysis and design stages of ADDIE. The other three learning designers pursued an alternative professional development approach.

The design of the professional learning community

Logistics and learning outcomes: The PLC met fortnightly over a 10-month period. Facilitation and note-taking responsibilities rotated among team members. Facilitators led discussion on learning design strategies used in current programs, while note takers converted insights into resources, guidelines and templates. Learning outcomes focused on establishing a shared, evidence-informed approach to learning design practice, and strengthening professional identity. Based on the list of actions that underpin each stage of the ADDIE process (Table 1 under discussion and results), the team identified core topics to explore.

The PLC design: Bandura's (1978) four sources of self-efficacy informed the PLC design. Vicarious experiences were supported through the rotation of colleagues modelling their practice, with more experienced designers facilitating early sessions to motivate colleagues to join in the endeavour. Verbal persuasion was embedded in fortnightly, semi-structured discussions between the team leader and designers, providing reflection, feedback and support. Mastery experiences were scaffolded through progressively challenging work allocations. Midway through the study, participants were assigned programs requiring expertise across the analysis and design stages of the ADDIE process, supported by a learning buddy system. By the end of the study, each designer was responsible for two programs spanning the full ADDIE process, with buddy support becoming optional. Physiological states were supported by an established culture of trust, collaboration and psychological safety.

Timeline: Planning activities including agreement on logistics, learning outcomes and skill gap analysis occurred over two months. The PLC operated for 10 months with quantitative data collected over a 10-month period, while qualitative data was collected across the full 12 months of the study.

Methods

The study adopted a mixed-methods longitudinal approach to examine the influence of a PLC on digital learning designers' self-efficacy, skills and knowledge across all stages of the ADDIE process. The study was situated within a single organisational team over a 12-month period enabling a contextualised and in-depth exploration of evolving professional practice. Quantitative data was collected through a structured confidence log with a five-point Likert-type scale, which was administered at three different times: the first prior to the first PLC session, the second at the six-month mark, and the final one at the end of the study. These data points were statistically analysed to capture shifts in perceived self-efficacy across core actions that underpin each stage of the ADDIE process. While it is acknowledged that confidence logs present limitations due to their subjective nature, "perceived self-efficacy is often measured using self-report surveys that ask participants to rate the strength of their belief in their ability to execute their requisite abilities" (Artino, 2012 p. 77).

Qualitative data complemented these insights gathered through iterative one-on-one discussions between individual team members and the team leader.

This study involved six digital learning designers, aged between 30 and 55 years old, with one male and five females. All participants were full-time employees at the organisation over the year that this study took place. Informed consent was obtained for the use of de-identified data analysis and conference presentation purposes, in line with the ethical standards and code of conduct as stated by the National Statement on Ethical Conduct in Human Research 2025.

Discussion and results

Changes in self-efficacy beliefs over time, Table 1 below, indicate a steady increase in perceived capabilities to move from digital learning design towards end-to-end learning design. The strongest average or mean (*M*) change (*delta* Δ) occurred in:

- Translating design thinking into learning management system (LMS) prototypes (Δ *M* = +2)
- Using needs analysis to inform design (Δ *M* = +1.58)
- Facilitating design workshops (Δ *M* = +1.25)

These actions align with the analysis and design stages of the ADDIE framework, indicating increased confidence in leading the earlier stages of the design lifecycle. The stronger gains in these stages may reflect the PLC's emphasis on collaboration and the extended focus on developing the adaptive expertise required to identify the design requirements for a program, define learning outcomes, facilitate design activities and create outputs such as prototyping and learning journeys. In contrast, participants' existing responsibilities were already closely aligned to the development and evaluation stages, leaving less scope for growth. The findings suggest a shift from execution or peripheral practice, into holistic practice. By the end of the 12 months, the team had informally adopted the title of "learning architects" to describe this perceived professional transformation.

Table 1
Changes in designers' self-efficacy across the ADDIE stages over three measurement points

ADDIE stage	Learning design actions in focus	Take 1 mean	Take 2 mean	Take 3 mean
Analyse	I am able to use the outputs of the needs analysis to inform the design stage of a program	2.17	3.67	3.75
Analyse	I know what my priorities are during a provider onboarding meeting and know how to communicate them	3.17	3.5	4.25
Design	I understand the aspects of procurement documentation that support my digital learning design functions	2.17	3.17	3
Design	I know how to prepare for and facilitate a design workshop	2.5	3.67	3.75
Design	I can listen to and translate design thinking conversations into an LMS prototype	2.5	3.67	4.5
Develop	I can communicate quality expectations for content development	3.67	3.67	4.5
Develop	I can identify and propose opportunities to enhance activities using digital tools	3.67	3.5	4.75
Develop	I know the pedagogical purpose and effective uses for each digital tool in the organisation's toolkit	3.5	4	4.25
Implement	No statements for this stage were included as the learning designer role shifts to a support role			
Evaluate	I feel confident in my ability to support continuous improvement efforts using formative data	3.5	3.83	4.25

Figure 1 below shows a reduction in task-specific confidence disparities between individual designers. At the beginning of the study, Take 1 (*M* = 3.04, *SD* = 0.73) reflected moderate variation, with some designers reporting low confidence and others high confidence across the learning design actions examined. By the end

of the study, Take 3 (*M* = 4.11, *SD* = 0.35) showed lower variation clustered around higher confidence levels. These findings suggest that self-efficacy increased over time and became more evenly distributed cross the team.

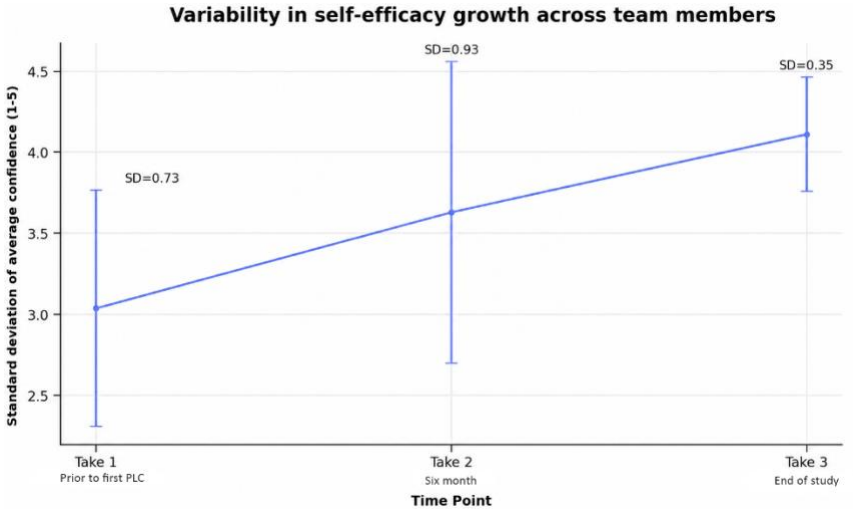


Figure 1: *Standard deviation* (SD) *of growth in perceived self-efficacy of digital learning designers over a year*

Given that procurement is not part of the ADDIE process, but is essential to the organisation's operating model, it remained the lowest-rated competency throughout the study. While further professional development in this domain would be beneficial, provider engagement and purchasing decisions remain outside of the scope of the designer's role. This organisational boundary limited opportunities for direct mastery experiences, which may have constrained self-efficacy development in this area.

By the end of this study, all designers involved had developed the skills and knowledge required to support at least two programs across all stages of the ADDIE process. These findings suggest that designing PLCs around Bandura's (1978) four sources of information, namely performance accomplishment, vicarious experience, verbal persuasion and physiological states, can strengthen task-specific self-efficacy and professional capability.

Rather than operating independently, the four sources appeared to have a cumulative effect over time. Observing colleagues facilitate an exploration of their own practice provided vicarious experiences that increased confidence to undertake unfamiliar design responsibilities. As participants successfully applied these skills in their own programs, performance accomplishment further strengthened self-efficacy. Feedback from peers and the team leader provided verbal persuasion, while growing capability appeared to reduce uncertainty and supported more positive emotional responses to complex design tasks. Together, these interactions may explain the sustained growth in confidence observed across the study.

"Self-efficacy and behaviour can best be achieved by participant methods using powerful induction procedures initially to develop capabilities, then removing external aids to verify personal efficacy, then finally using self-directed mastery to strengthen and generalise expectations of efficacy" (Bandura, 1978).

The design of the PLC also appeared to support motivation to apply learning. Reflecting on Take 1, Participant 2 noted, "I haven't had too much experience with design, but that will change this year!" By Take 3, the same participant reported,

> I have done a lot more design work in the past couple of months and I am slowly getting my head around the whole design process. The PLC sessions are a great help to see what other people are doing and get more ideas from them.

Similar patterns were evident in the confidence log and anecdotal reports of at least three participants. These findings align with Catalano's (2015) conclusion that learners in situated learning environments, such as PLCs, demonstrate greater knowledge transfer and application in authentic workplace contexts.

Based on the correlation of self-efficacy reflections and data in confidence log in this context, this study builds on Artino's (2012) suggestions to enhance self-efficacy. Professional learning, including PLCs, aimed at building self-efficacy, skills and knowledge could be designed around the following principles:

1. The professional learning should involve modelling from colleagues that exhibit a desired capability.
2. The colleagues who facilitate learning have recognised credibility as their modelling aligns with their behaviour.
3. Colleagues willing to model their practice are enthusiastic about their work and serve as role models.
4. Inclusive and safe spaces are created for individuals to receive constructive feedback, identify goals and reflect on their learning.
5. Application of learning is scaffolded with appropriate but consistent increments in complexity.

Limitations of this study

The small participant size (N = 6) limits the generalisability of the findings, requiring further research across professional contexts to assess their transferability. The success of the PLC was also influenced by contextual factors, including an inclusive, positive and collaborative culture, as well as defined processes for learning design that supported the skill gap assessment and targeted development. These conditions may be important enablers for the successful implementation of this professional learning approach.

Conclusion

This study examined the influence of a PLC on digital learning designers' self-efficacy across the ADDIE instructional design process. Extending PLC research beyond its traditional focus on teachers, the findings suggest that a PLC designed around Bandura's four sources of self-efficacy can strengthen both professional capability and confidence in learning design practice. The strongest growth occurred in the analysis and design stages, where confidence was initially lowest, indicating that the PLC was effective in bridging the conceptual and technical knowledge divide within the team. Through observing colleagues, engaging in professional dialogue, receiving feedback and progressively applying new skills in authentic contexts, participants developed the confidence and capabilities to support program across the design lifecycle. Managers would benefit from engaging staff in professional learning that develops not only knowledge and skills, but self-efficacy as a driver to sustained improvements in professional practice and performance.

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