Guide to
Effective Professional Development

Blended Professional Learning

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Foreword

It is my pleasure to share with you this updated *Guide to Effective Professional Development – Blended Professional Learning*.

The pace of technological innovations and evolving learning demands bring about exciting opportunities in the learning and development landscape. The growth in technological innovations has not replaced in-class learning but has provided Professional Learning (PL) designers with a variety of media and instructional design tools. This allows PL to better connect and engage the adult learners influenced by technology. The advancements also signal that an individual will need to take on a larger responsibility in leading his/her learning. As the fraternity gears up to leverage technology, we will have to consider how technology can be used meaningfully to support effective professional learning. The use of technology strengthens the fostering of Teacher Ownership, Teacher Leadership (TOTL), and TOTL should undergird our approach to learning as a fraternity. As we take charge of our learning, we continue to build positive collaborative relationships with our peers and strengthen one another's professional practices.

It is therefore timely to update the codified PL practices in the present *Guide to Effective Professional Development – Blended Learning*. The title has been renamed to distinguish it from Blended Learning for students in schools. The term '**Blended Professional Learning**', i.e., conducting professional learning experiences for learners using the blending learning approach, was adopted. The team surveyed recent literature on workplace learning and the blended approach to professional learning. Through these scans, the guide identified principles and examples for the effective design of Blended PL.

This guide would better support our adult learners in their professional learning to achieve the desired outcomes of education. May we work hand-in-hand to realise the potential of Blended PL for everyone in the education fraternity.

With best wishes,

Chua-Lim Yen Ching (Mrs)
Deputy Director-General of Education (Professional Development) (till 31 Dec 2023)
Academy of Singapore Teachers

THE WHY

Shifts in Learning Habits

Redefined learning experiences and collaboration spaces

ADULTS LEARN BEST WHEN …

PREFERENCES

Empowered by superiors
Mobile work environment
Collaborative work environment
Information on demand

CONTENT IS

- Personalised
- Engaging
- Bite-sized

THEY CAN

- Focus on overall learning experience
- Learn on-the-go
- Learn with others through online interaction, collaboration and meaningful physical interaction

LIMITS

Shorter attention span
Impatient
Overwhelmed

THE WHAT

Blended Professional Learning

An approach that meaningfully integrates different elements (e.g., asynchronous/synchronous and online/in-person) of Professional Learning

0% Online experiences

100% In-person experiences

Activities that generally require the use of manipulatives and/or in-person interaction (e.g. role play, coaching, informal conversation).

Largely in-person experiences: Most of the activities require the use of manipulatives and/or in-person interaction and with a small proportion of the activities done online and usually asynchronously.

Approximately equal proportion of learning experiences: Equal emphasis on learners' autonomy (e.g., self-pace) and for in-person learning activities (e.g., use of manipulatives and/or interactions).

50% In-person & 50% online experiences

Largely online experiences: Activities that give greater emphasis on learners' autonomy (e.g., self-pace). A small proportion for in-person activities (e.g., use of manipulatives and/or interaction) to enhance the online learning.

Activities that give autonomy to the learners. Learners do not need to learn at the same place and it may not be necessary to learn at the same time.

100% Online experiences

0% In-person experiences

Extent of Integration of In-person and Online Learning Experiences

0%
Asynchronous

100%
Synchronous: PL designer has full control of learning (e.g., pace, sequence and the manipulatives used). There is strong emphasis on relationship building amongst the learners. Some examples include in-person activities as well as webinars and conferences.

Immediate feedback
Facilitator and peer support
Building community and rapport

Largely synchronous: PL designer controls most of the learning. There is a small proportion controlled by the learner. Generally, there is a strong emphasis on relationship building amongst the learners and/or the use of manipulatives. Some examples could be a practical workshop and national examination markers' workshop.

Approximately equal proportion:
PL designer gives equal emphasis on learner agency and relationship building. An example could be collaborative learning through online learning communities.

50% Asynchronous & 50% Synchronous

Largely asynchronous:
Learner has most of the control of the learning. There is a small proportion of activities that allows learners to come together for synchronous discussion. An example could be completing a distant-learning module.

Learner has control of the learning (e.g., pace, level of commitment and sequence of the learning). Some examples include engage in research, the use of podcasts, videos, discussion boards or reflection logs.

Deep Reflection
Independent Learning
Flexibility [time, place, path, pace]

100%
Asynchronous

0%
Synchronous

Extent of Integration of Synchronous and Asynchronous Learning Experiences

THE HOW
Design Scaffold for Blended Professional Learning
3 Dimensions to design Blended Professional Learning experiences

LEARNING EXPERIENCE

PROFILE OF LEARNERS

DESIGN SCAFFOLD

LEARNING OUTCOMES

Refers to the needs and readiness of learners which should be prioritised to make the learning relevant and responsive and well-grounded.

Refers to the skills, knowledge, and dispositions to be acquired by the learners, which should be well grounded, concise, easily accessible, and adaptable.

Consists of a range of learning activities that allow the learners to interact purposefully with the content, manipulatives (if any), their peers, and the facilitators for sustained learning through collaboration and active learning.

INTRODUCTION

The *Guide to Effective Professional Development – Blended Professional Learning* (PL) provides readers with the principles and insights into the design and planning of blended professional learni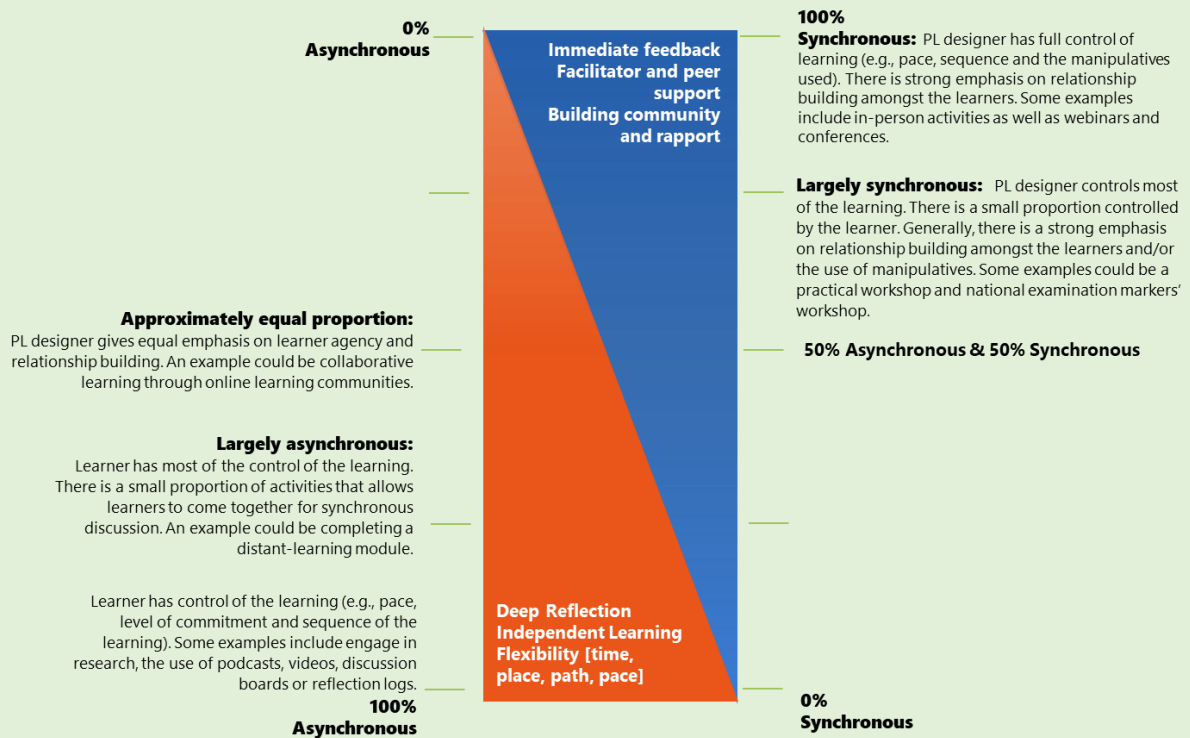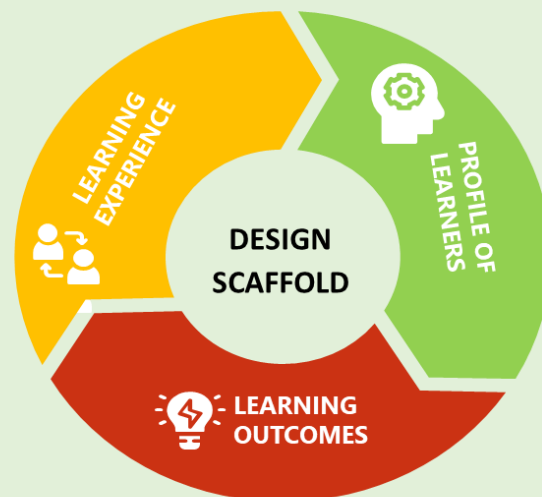ng experiences. Blended PL provides adult learners the flexibility to have professional learning experiences that meaningfully integrate different PL elements (e.g., asynchronous/synchronous and online/in-person). Various studies have shown that learners have different needs and learning styles. This means that adult learners are keen to have greater agency of their own learning (i.e., in terms of pace, sequence, and content).

The learning environment is changing significantly in the digital era and the COVID-19 global pandemic has catalysed research and development in technology. The pandemic has also swiftly changed the routines and habits of individuals, facilitating an acceptance and inclination for the use of technology in everyday needs. This shift is supported by the findings of a 2022-2024 study conducted by the National Institute of Education (NIE) on online professional learning (OPL), which revealed that Singaporean teachers perceive it as an effective and convenient approach to learning. These findings underscore the positive attitudes towards OPL and signify an increasing openness to leveraging technology for educational purposes[1]. The possibilities for the transformation of learning experiences through Blended PL are abundant. Through thoughtful design considerations and technology, our PL designers can create meaningful and connected learning for MOE staff.

Through this guide, we hope to develop a shared understanding among our fraternity of what Blended PL entails, focusing on harnessing different PL elements (e.g., asynchronous/synchronous and online/in-person) for effective professional learning.

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[1] Lee, S. S., Tay, L. Y., Pereira, A., Ho, C. & Ramachandran, K. (2021). An Inquiry into Instructors' and Teachers' Perspectives and Experiences of Online Professional Learning. The findings were derived from (a) an online survey of 1,622 teachers across 37 Primary and Secondary schools, and (b) observations of 11 PL courses for teachers, followed by interviews with course facilitators and participants. Data collection took place in 2022. See Appendix E for more details.

CHAPTER 1
KNOWING THE ADULT LEARNER

Principles of Andragogy and Characteristics of the Adult Learner

Generally, adult learners are practical learners who are driven by their desire to learn and are self-directed when given the appropriate opportunities. They bring with them rich and diverse life experiences and knowledge to their learning. *The Guide to Effective Professional Development Volume 1 - Workshops and Learning Programmes*[2] explains how the principles of adult learning can inform PL designers to conceptualise and facilitate PL experiences.

The advancement of technology has reshaped our habits and environment, and it has also redefined the learning experiences and the collaboration spaces of adult learners. Technology not only allows the learners to have easy access to a huge library of information but has also increased the modes for collaboration. These modes are not limited by time and space.

Our understanding of adult learners influenced by technology is summarised in Figure 1 and it is synthesised from the different studies [3,4,5,6,7].
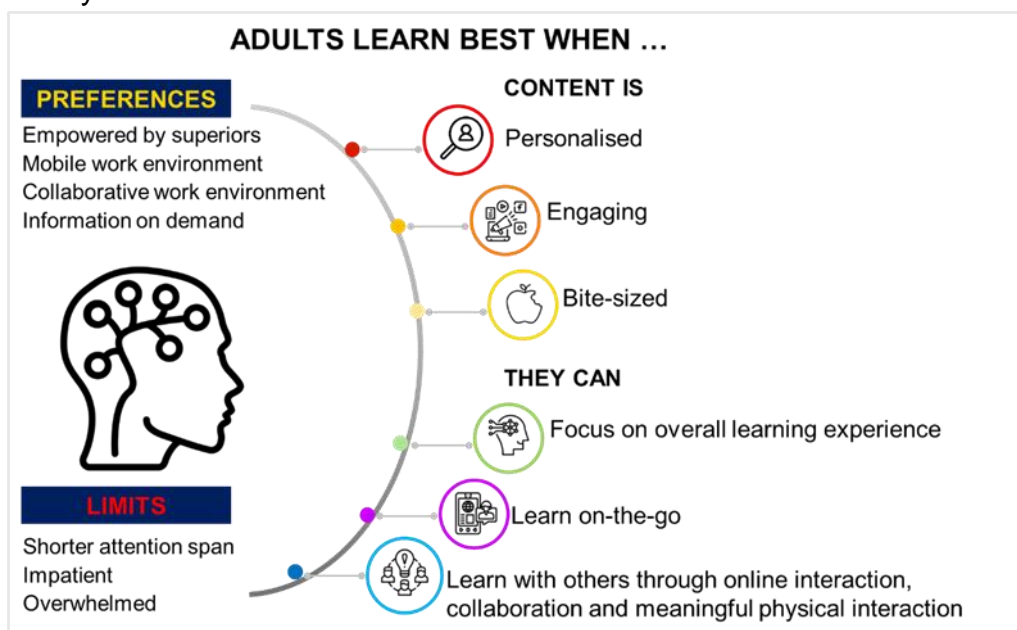

FIGURE 1 Understanding of adult learners influenced by technology

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[2] https://www.opal2.moe.edu.sg/app/learner/detail/digitalcontent/cf8323e0-5e7b-48d7-828e-a364ba8805a6 (require signing into OPAL 2.0)

[3] Tauber, T., & Wang-Audia, W. (2014*). Meet the Modern Learner: Engaging the Overwhelmed, Distracted, and Impatient Employee.* Oakland, CA: Deloitte Development LLC.

[4] LinkedIn's Workplace Learning Report 2019

[5] Udemy 2021 Workplace Learning Trends Report

[6] https://nationalpost.com/news/canada/canadians-now-have-shorter-attention-span-than-goldfish-thanks-to-portable-devices-microsoft-study

[7] https://www.gnowbe.com/blog/portrait-of-the-modern-learner

The earlier mentioned studies showed that the increased demand for autonomy and empowerment resulted in a preference to toggle between online platforms and in-person learning. This allows for greater control of the pace, the sequence, the mode, and the content of learning. This change in behavioural patterns have resulted in an increased preference for Blended PL: Research has shown that 79% of Learning and Development (L&D) professionals expected organisations to move from in-person and instructor-led training to blended online learning[8]. Additionally, the NIE study on OPL revealed that teachers perceive themselves to have high readiness and self-efficacy for online learning due to the autonomy to control their pace of learning and the availability of opportunities for reflection[9].

Design Principles for Effective Professional Learning

Professional Development Planning Office (PDPO) has developed a set of Design Principles for Effective Professional Learning to guide PL designers in designing intentional learning experiences for adult learners. The 5 principles form the acronym SCALE, and these principles help PL designers to SCALE up the PL design.

Our approach to professional learning as a fraternity is guided by the philosophy of Teacher Ownership, Teacher Leadership (TOTL). As self-determined adult learners, MOE educators are committed to the development of their professional practice, and appreciate learner agency, supportive learning environments, and active learning experiences.

1. Learner Agency: Driven by a sense of mission, educators take ownership of their professional learning, stay abreast of emerging trends in teaching and learning, keep their professional skills current, reflect on their practice critically, deeply with an open mind, seek ways to apply the learning at work and engage in purposeful professional dialogue.

2. Supportive Learning Environments: Leaders prioritise and champion professional learning in their team by actively creating and sustaining a learning culture that meets the needs of the learners.

3. Active Learning Experiences: Adult learners construct knowledge, including with their peers, as learning is informed through socialisation and cultural cues.

The Design Principles for Effective PL (Figure 2) guide the design of learning experiences in a landscape that is heavily dependent on the use of technology.

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[8] LinkedIn's Workplace Learning Report 2021
[9] Lee, S. S., Tay, L. Y., Pereira, A., Ho, C. & Ramachandran, K. (2021). An Inquiry into Instructors' and Teachers' Perspectives and Experiences of Online Professional Learning.

Sustained

PL ensures continuous learning by empowering learners to improve their practices over time.

Evidence-Based

PL deepens learning by integrating theories, professional knowledge, models of effective practice, as well as student and staff data.

Leverage Technology

PL enables active and customised learning by harnessing the affordances of technology.
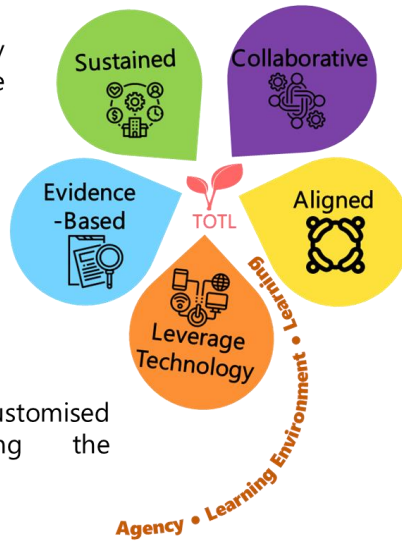
Collaborative

PL fosters a culture of collective learning and innovation, by enabling learners and key partners to interact meaningfully and collaborate actively in a supportive environment.

Aligned

PL takes into consideration learners' ethos and beliefs, school and system priorities and broader educational goals, and hence it is relevant and responsive to the needs of the learners and system.

Figure 2 Framework on Design Principles for Effective Professional Learning

The Design Principles for Effective Professional Learning aim to build the "Teacher Ownership, Teacher Leadership" philosophy in our learning. To achieve this, organisational leaders (e.g., leaders in MOE Divisions and school leaders) play an important role in facilitating the application of the Design Principles for Effective Professional Learning. They would need to prioritise and champion professional learning that will meet the learning needs of our staff. In Chapter 2, this set of design principles is featured in the design of Blended PL.

CHAPTER 2
WHAT IS BLENDED PROFESSIONAL LEARNING?

Defining Blended Professional Learning

Blended PL is an approach that meaningfully integrates different elements (e.g., asynchronous/synchronous and online/in-person) of PL to optimise opportunities for active learning and co-construction of knowledge to address professional learning needs. It is guided by the principles of andragogy to design personalised learning.

Blended PL[10] as an approach has been practised with many definitions and interpretations. Several authors had earlier described Blended PL as an integration of the strengths of face-to-face instruction and computer-mediated instruction or online learning[9,10]. In view of how adult learners are influenced by the use of technology, there is merit to adopt a broader view of Blended PL beyond the integration of in-person and online learning.

Integration of In-person and Online Learning Experiences

Various studies[11,12] emphasised that Blended PL is defined by the effective integration of in-person learning experiences with online learning experiences. This is one way of blending. Figure 3 summarises the extent of integration of in-person and online learning experiences[13,14,15,16,17,18].

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[10] Blended PL is distinct from Blended Learning for students, in which students' educational experiences are guided by pedagogical, curriculum and assessment principles. Blended Learning enables students to benefit from greater learning experiences through a wider spectrum of lesson design considerations throughout their schooling journey, which would better prepare them for the future and seed the foundation for lifelong learning. Refer to Appendix A for further detailed distinctions between Blended Learning and Blended PL.

[11] Garrison, D. R., & Kanuka, H. (2004). Blended Learning: Uncovering its Transformative Potential in Higher Education. Internet and Higher Education, 7, 95−105.

[12] Moore, Michelle & Robinson, Heather & Sheffield, Anneliese & Phillips, Alana. (2017). Mastering the Blend: A Professional Development Program for K-12 Teachers. Journal of Online Learning Research. 3. 145-173.

[13] Allen, I. E., & Seaman, J. (2010). Study on 100% online PD.

[14] Means, B., Toyama, Y., Murphy, R. F., & Baki, M. (2013). Study on a Blended PD where most of the experience is in-person F2F.

[15] Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). Study on a Blended PD where approximately equal proportion of both online and in-person F2F PD.

[16] Owston, Ron & York, Dennis. (2017). Study on a Blended PD where approximately equal proportion of both online and in-person F2F PD.

[17] Anthony Jnr, Bokolo & Kamaludin, Adzhar & Romli, Awanis & Mat Raffei, Anis Farihan & Phon, Danakorn & Abdullah, Aziman & Ming, Gan. (2020). Study on PD experiences that are largely online.

[18] Smith, B., & Brame, C. (2014). Study on PD experiences that are largely online.

0% Online experiences

100% In-person experiences
Activities that generally require the use of manipulatives and/or in-person interaction (e.g. role play, coaching, informal conversation).

Largely in-person experiences: Most of the activities require the use of manipulatives and/or in-person interaction and with a small proportion of the activities done online and usually asynchronously.

Approximately equal proportion of learning experiences: Equal emphasis on learners' autonomy (e.g., self-pace) and for in-person learning activities (e.g., use of manipulatives and/or interactions).

50% In-person & 50% online experiences

Largely online experiences: Activities that give greater emphasis on learners' autonomy (e.g., self-pace). A small proportion for in-person activities (e.g., use of manipulatives and/or interaction) to enhance the online learning.

Activities that give autonomy to the learners. Learners do not need to learn at the same place and it may not be necessary to learn at the same time.

100% Online experiences

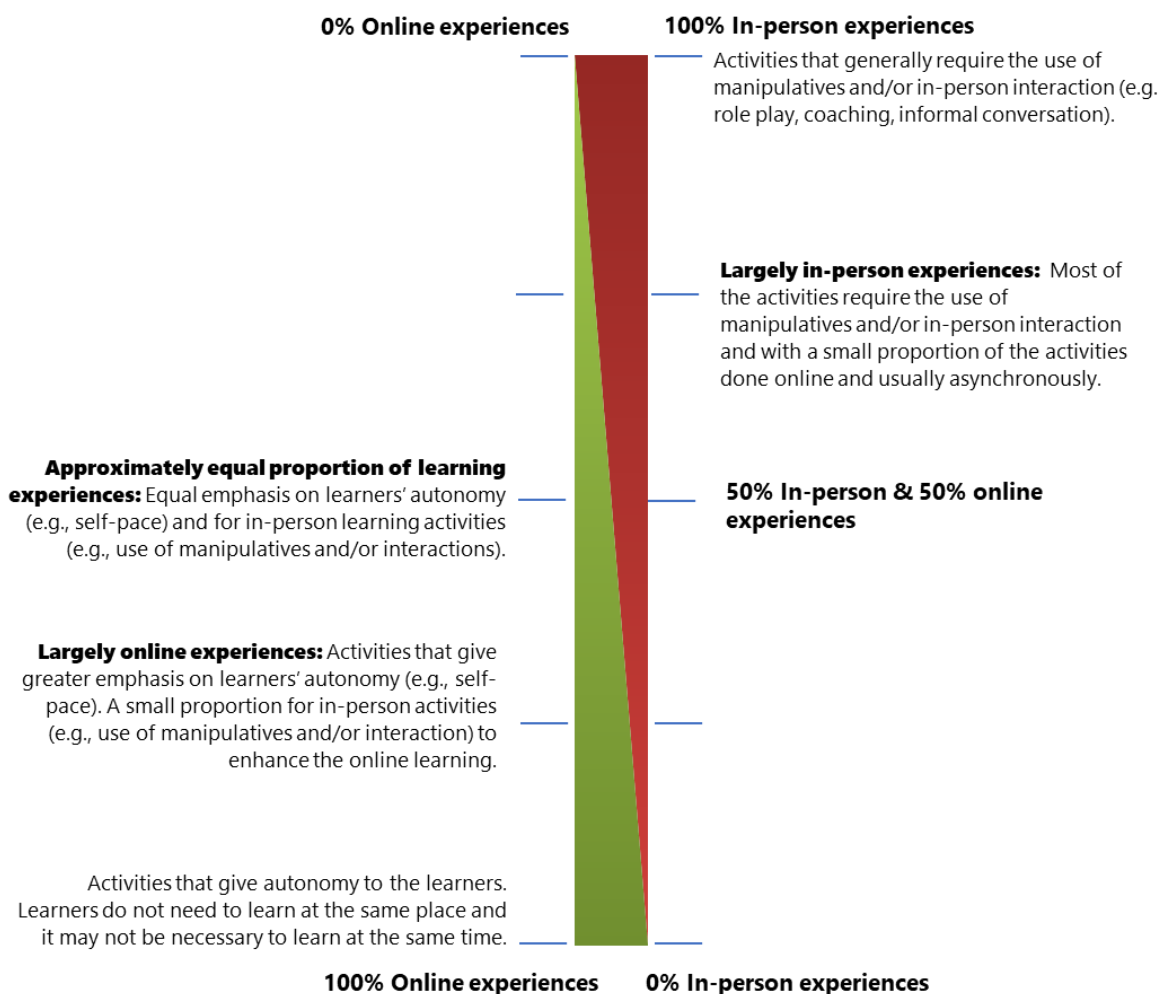**0% In-person experiences**

FIGURE 3 Extent of integration of in-person and online learning experiences

From a PL designer's perspective, a meaningful integration of online and in-person learning is realised through in-person collaboration and hands-on learning activities. There is a premium given for in-person experience as learners reserve specific time slots for the learning, while online learning is generally designed to allow learners to learn from digital materials at their own schedule and convenience. Based on the findings from the NIE study on OPL, teachers express a preference for a combination of different learning modes, due to their distinct affordances. The online mode is valued for its facilitation of content-based learning, convenience and the opportunity to learn from the practical applications demonstrated by others. Conversely, the in-person mode is favoured for its affordances in experiential learning and the opportunities for meaningful interaction and support from peers and instructors[19].

Integration of Asynchronous and Synchronous Learning Experiences

When we invite learners to learn together at the same place in real time, this experience can be interpreted as synchronous learning. If the learning occurs at the learner's preferred time, independent of others, that is interpreted as asynchronous

[19] Lee, S. S., Tay, L. Y., Pereira, A., Ho, C. & Ramachandran, K. (2021). An Inquiry into Instructors' and Teachers' Perspectives and Experiences of Online Professional Learning.

learning. Beyond the integration of online and in-person learning experiences[20], there is a need to understand how a mix of synchronous and asynchronous learning can augment professional learning experiences. Synchronous learning often features delivery of real-time and face-to-face lesson while asynchronous learning could feature the use of podcasts, books, and videos.

The enhancements in technological possibilities, which include rapid improvements in video conferencing software and hardware, have made learning more accessible and flexible without compromising the quality of learning and engagement. This has made the integration of online synchronous and online asynchronous learning more meaningful. Generally, the synchronous component facilitates collaboration and real-time interactions. Figure 4 below is adapted from various studies[21,22,23,24,25,26], and it shows the proportion of synchronous and asynchronous learning based on identified learning goals.

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[20] It is pertinent to note that Blended PL is not the same as Hybrid learning. In Hybrid learning, learners have the option to take part in the same learning experience via either online or in-person. Often in Hybrid learning, the online component substitutes the in-person component rather than to supplement it.

[21] Balancing Synchronous and Asynchronous Activities. Teaching Commons, Retrieved February 16, 2022, from https://teachingcommons.stanford.edu/explore-teaching-guides/remote-teaching-guide/learning-activities/balancing-synchronous-and.

[22] Balancing Synchronous and Asynchronous Teaching: Effective Strategies for Enhancing Flexibility without Losing Student Engagement. Office of Teaching and Learning, Retrieved February 16, 2022, from https://otl.uoguelph.ca/remote-teaching-strategies/balancing-synchronous-and-asynchronous-teaching-effective-strategies.

[23] Blended learning @ SMU. Centre for Teaching Excellence. Retrieved February 17, 2022, from https://cte.smu.edu.sg/blendedlearning

[24] Hrastinski, S. (2008, November 17). Asynchronous and synchronous e-learning. EDUCAUSE Review. Retrieved February 17, 2022, from https://er.educause.edu/articles/2008/11/asynchronous-and-synchronous-elearning

[25] Martin, F., Polly, D., & Ritzhaupt, A. (2020, September 8). Bichronous online learning: Blending asynchronous and synchronous online learning. EDUCAUSE Review. Retrieved February 17, 2022, from https://er.educause.edu/articles/2020/9/bichronous-online-learning-blending-asynchronous-and-synchronous-online-learning

[26] Farmer, Heather. 6 Models for Blended Synchronous and Asynchronous Online Course Delivery. EDUCAUSE Review, 18 Aug. 2020, Retrieved February 16, 2022, from https://er.educause.edu/blogs/2020/8/6-models-for-blended-synchronous-and-asynchronous-online-course-delivery.
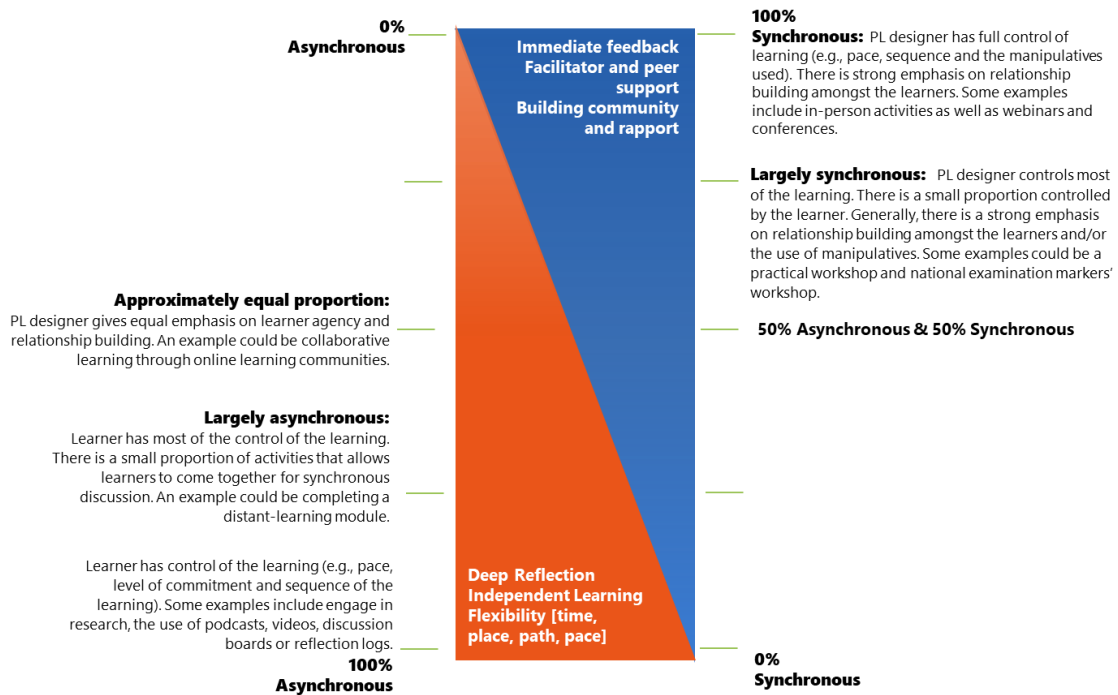
FIGURE 4 Extent of integration of synchronous and asynchronous learning experiences

Figure 5 below offers examples of learning activities across the asynchronous/synchronous and online/in-person spectrum. Prior to the pandemic, when technology was not as pervasive or most developed, online learning was largely asynchronous. PL designers use online discussion forums to facilitate collaboration and interaction amongst the learners outside the in-person session(s). With the experience from the pandemic, PL designers are able to use the different platforms and tools to mix the different learning activities into their Blended PL. The example on page 17 will illustrate this.
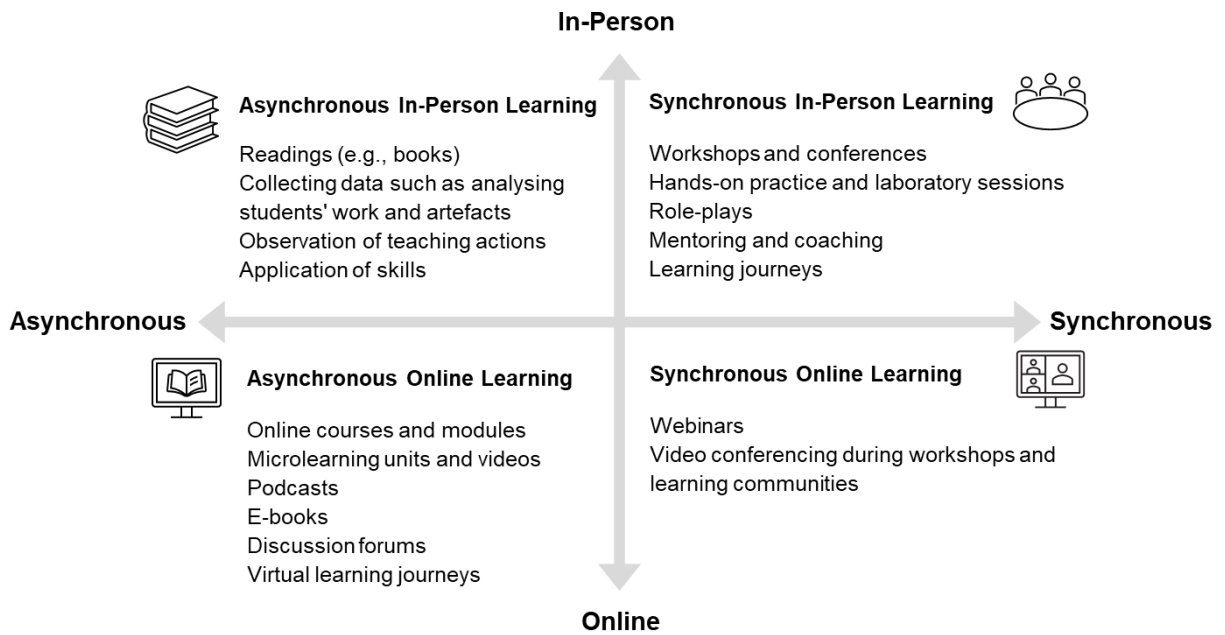
In-Person

Asynchronous In-Person Learning

Readings (e.g., books)
Collecting data such as analysing
students' work and artefacts
Observation of teaching actions
Application of skills

Synchronous In-Person Learning

Workshops and conferences
Hands-on practice and laboratory sessions
Role-plays
Mentoring and coaching
Learning journeys

Asynchronous ← → **Synchronous**

Asynchronous Online Learning

Online courses and modules
Microlearning units and videos
Podcasts
E-books
Discussion forums
Virtual learning journeys

Synchronous Online Learning

Webinars
Video conferencing during workshops and
learning communities

Online

FIGURE 5 **Illustration of different learning activities**

Affordances of Blended Professional Learning

In this guide, we will be looking at different elements of PL — asynchronous/synchronous and online/in-person, and how to integrate them; PL that involves more than two elements can be considered Blended PL.

There are 4 key reasons to support the need for Blended PL.

a) Empowerment

Learners are empowered to take charge of their learning. With on-demand access to online learning resources, learners can control the pace and the sequence of the learning content. This allows for self-directed and non-linear professional learning. Involvement in a range of learning (e.g., individual and collaborative) also allows the learners to have greater control of their participation in the learning, thereby promoting self-directed learning, informal professional learning and supporting learners' self-confidence.

b) Personalisation

Using both online and in-person modes of learning, PL designers are presented with a wider range of instructional tools and methods, enabling them to further customise learning activities to meet the needs of learners.

c) Flexibility
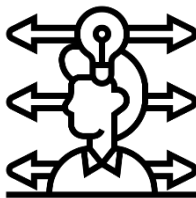
Having multiple PL elements offer more choices for learning. Learners can access asynchronous learning resources even after completion of the learning activities to review or refresh their learning e.g., resources located in the course Wikispace or library. Learning can also happen on the go, using their preferred device. With more choices for learning, the learners are more likely to engage in authentic learning tasks such as role modelling, coaching and the use of online collaboration tools (e.g., Google Doc).

d) Collaboration and Community Building

Blended PL expands the community of learners, and this provides more opportunities for collaboration amongst the learners. With an array of tools used in Blended PL, learners can communicate with their facilitators and their peers through various means (e.g., forum discussions, course's Wikispace). In-person sessions can further strengthen the extent of collaboration and community building. Such sessions allow learners to meet other course members to build connections and trust.

Considerations in Designing Blended Professional Learning

A design scaffold to facilitate effective Blended PL experiences is offered to guide PL designers to:

1. design learning experiences with the different elements of PL (e.g., asynchronous/synchronous and online/in-person) to create continuity and coherent flow of learning; and

2. choose instructional strategies that consider the **profile of learners, learning outcomes, and learning experience**.

The dimensions in the Design Scaffold Framework for Blended PL are as shown in Figure 6 and explained in the accompanying table.
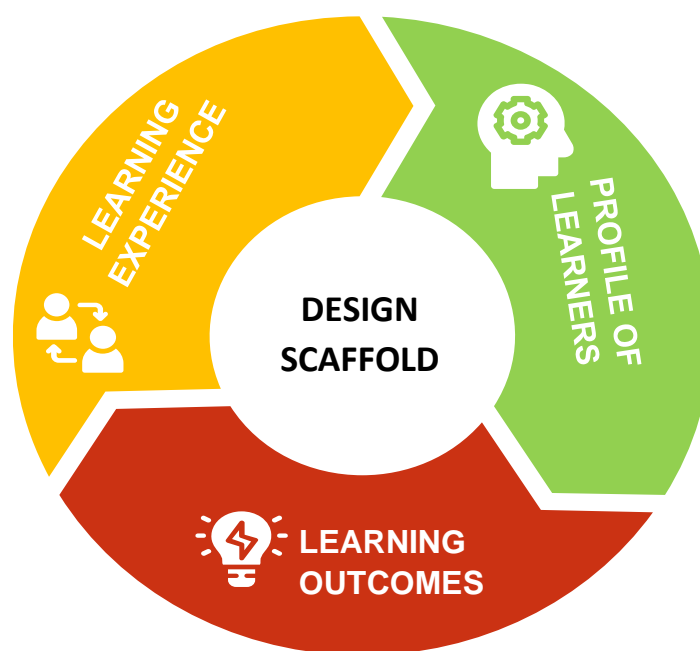
FIGURE 6 Design Scaffold Framework for Blended PL experiences

Dimension	Elaboration (Design Principles for Effective Professional Learning are in bold)
Profile of Learners	Refers to the needs and readiness of learners that should be prioritised to make the learning **aligned** and **evidence-based**. This dimension influences whether learners can interact purposefully with the content, their peers and their facilitators for sustained learning to happen.

Learning Outcomes	Refers to the skills, knowledge, and dispositions to be acquired by the learners, which should be **evidence-based,** concise, easily accessible, and adaptable. PL designers need to be mindful of the demands on the learners when deciding on the learning outcomes.
Learning Experience	Consists of a range of learning activities that allow the learners to interact purposefully with the content, manipulatives (if any), their peers, and the facilitators for **sustained** learning through **collaboration** and active learning. The activities can be synchronous or asynchronous and can be delivered online or in-person. Technology should be further explored as it can facilitate the delivery of the learning activities. PL designers need to be mindful of the demands of the different activities on the learners (e.g., learners may require more time to complete the activity than expected).

The following appendices provide further information and elaboration of the concepts featured earlier in Chapters 1 and 2:
- Refer to Appendix B for the practices in support of the Design Principles for Effective Blended Professional Learning
- Refer to Appendix C for the affordances of online and in-person learning.

Designing Blended Professional Learning Experiences

Figure 7 in page 16 illustrates the Design Scaffold for Blended PL. It offers a set of questions to scaffold the design of Blended PL experiences. Extending from this scaffold, is a Decision Matrix found on page 17 to further support PL designers to clarify if a learning experience could be featured in-person, online synchronous or/and online asynchronous.

This decision matrix that was adapted from different studies[27,28] uses a 3C-model of didactical components, which consists of (i) a content component that makes learning material available to a learner; (ii) a communication component that offers interpersonal exchange between learners or learners and tutors; and (iii) a constructive component that facilitates and guides individuals on participating in cooperative learning activities with different degrees of complexity from the multiple choice type to projects and/or problem-based learning.

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[27] Kerres, Michael & De Witt, Claudia (2003) A Didactical Framework for the Design of Blended Learning Arrangements, Journal of Educational Media, 28:2-3, 101-113.
[28] McKenna, Kelly & Gupta, Kalpana & Kaiser, Leann & Lopes, Tobin & Zarestky, Jill. (2020). Blended Learning: Balancing the Best of Both Worlds for Adult Learners. Adult Learning.
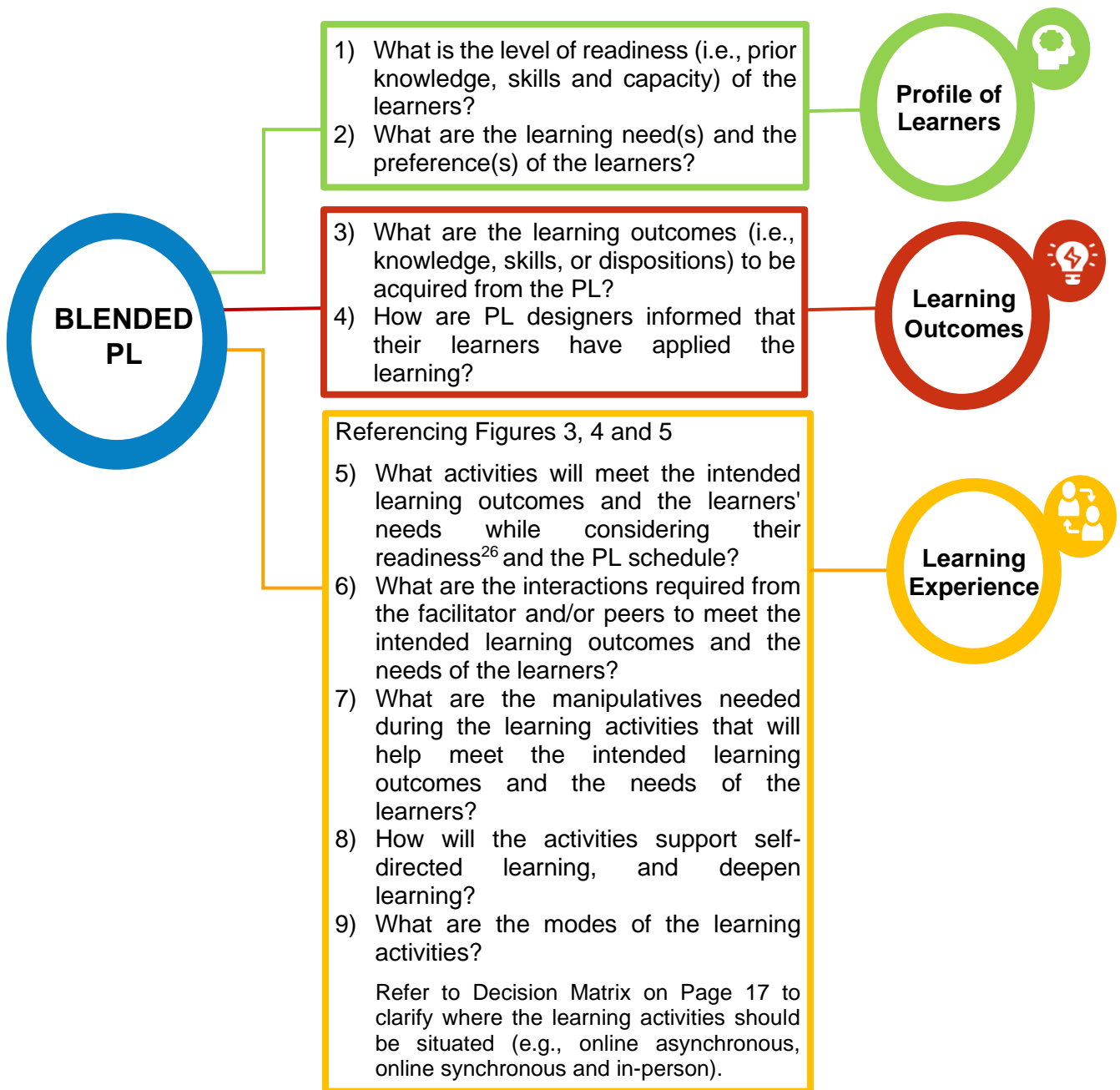
FIGURE 7 Design Scaffold for designing Blended PL experiences.

The figure contains the following elements:

BLENDED PL

Profile of Learners
1) What is the level of readiness (i.e., prior knowledge, skills and capacity) of the learners?
2) What are the learning need(s) and the preference(s) of the learners?

Learning Outcomes
3) What are the learning outcomes (i.e., knowledge, skills, or dispositions) to be acquired from the PL?
4) How are PL designers informed that their learners have applied the learning?

Learning Experience

Referencing Figures 3, 4 and 5

5) What activities will meet the intended learning outcomes and the learners' needs while considering their readiness[26] and the PL schedule?
6) What are the interactions required from the facilitator and/or peers to meet the intended learning outcomes and the needs of the learners?
7) What are the manipulatives needed during the learning activities that will help meet the intended learning outcomes and the needs of the learners?
8) How will the activities support self-directed learning, and deepen learning?
9) What are the modes of the learning activities?

Refer to Decision Matrix on Page 17 to clarify where the learning activities should be situated (e.g., online asynchronous, online synchronous and in-person).

PL designers can refer to Appendix D for further understanding of how different dimensions of the design scaffold could help them in their Blended PL experiences.

Decision Matrix

Component	Does the learning experience require learners to have...[29]	If yes, then…		
		In-Person	Online	
			Synchronous	Asynchronous
Content	content mastery as its goal?	✓	✓	✓
	content engagement as its goal?			✓
	additional and/or immediate explanation of content?	✓	✓	
	additional and/or in-depth resources?			✓
	prior understanding?			✓
	a deeper understanding?	✓	✓	✓
Communication	frequent or synchronous communication?	✓	✓	
	minimal discussion when engaging with and understanding content?			✓
	peer review/comment of their work?			✓
	rapport building?	✓	✓	
	immediate feedback?	✓	✓	
	time to discuss at their own pace and convenience?			✓
Construction	collaborative work?	✓	✓	✓
	technology-mediated practice?	✓	✓	✓
	independent time to practise tasks set?			✓
	time to engage with discussions and projects?	✓	✓	
	time to reflect upon and organise content and ideas?			✓

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[29] The questions are adapted from the Decision-Making Matrix offered by McKenna et al. (2020).

Let us apply the concepts outlined earlier in Chapters 1 and 2 in a Blended PL programme on Inquiry-Based Learning (IBL). The Design Scaffold for Blended PL and Decision Matrix are used (i.e., in the left column below) to illustrate this example to help us to understand the value of this learning experience.

Learning Outcomes
Develop learning outcomes.

Preamble
This Inquiry-Based Learning (IBL) Blended PL is planned for teachers who want to strengthen their practices in enacting IBL lessons. In this programme, learners will (i) understand the concepts to design IBL lessons; (ii) acquire and apply facilitation skills to better enact IBL lessons; and (iii) design, enact and evaluate IBL lessons.

Learning Experience
Use figures 3 and 4 with the decision matrix to clarify the learning experience.

This is an 8-hour IBL Blended PL; the PL designer considers having approximately 75% of the learning online (i.e., 6 hours) and 25% of the learning in-person (i.e., 2 hours). Greater proportion is given to online mode to promote self-directed learning. The online component is divided to about 75% asynchronous (i.e., 4.5 hours) and the remaining is synchronous (i.e., 1.5 hours). In-person learning is planned to facilitate role modelling and informal professional discussion.

Asynchronous (Pre-programme)

Profile of Learners
Identify learning needs, preferences, and level of readiness.

Learners are surveyed through the course's OPAL 2.0 Wikispace, which is used as a platform for notifications, questions, access to pre-readings and MLUs, and a repository of resources after the course. The survey identified their learning needs, preferences and schedule. With the information gathered from survey, the PL designer customises a series of MLUs to 8 minutes in total and prepares a set of bite-sized pre-readings that has 3 pages, in view that the programme is conducted in the middle of a term. After completing the pre-readings and MLUs, there is a short check-out quiz. This package would take about 2.5 hours of the learner's time. Additional resources such as videos and graphics are placed in the Wikispace if more materials are required. Generally, the learners are given the flexibility to determine the sequence and pace of their learning.

Learning Experience
Online learning carried out to promote self-directed learning. In-person learning carried out for session involving the use of manipulatives and nature of interactions.

In-person
This session focuses on role modelling the use of facilitation techniques for enactment of IBL lessons. Common misconceptions gleaned from the check-out quiz are addressed at the session by the PL designer, who is the facilitator of this session. The quiz and survey also confirmed the key focus of the in-person session — to pay attention to visual cues, an important component of the facilitation techniques. Time is also reserved for the facilitator to give real-time feedback to learners when they demonstrate the facilitation techniques in their groups. After each demonstration, the facilitator generates discussion and consolidates the points to reinforce the learning for the learners. The Wikispace allows the learners to provide their reflection after each segment of the in-person session. An online parking lot is also present for the learners to share their questions at any time during the session.

Learning Outcomes
Application of learning

Asynchronous (post-programme)
Learners are informed to set aside about 2 hours within the next 6 weeks to apply their learning through developing an IBL lesson plan. Their customised lesson plan is submitted on the course Wikispace for the facilitator for feedback and review, if needed. Learners can follow up with the facilitator if they require support.

Learning Experience
Online learning carried out to deepen learning and to facilitate formation of a learning community.

Synchronous:
After 6 weeks, the learners return for a 1.5 hour online synchronous session to discuss their experiences with their peers. The peers could see the different lesson plans prior to the session. The session is facilitated by the PL designer who takes the learners through a discussion on the different lesson plans to consolidate their learning and helps them to refine their actions further. PL designer encourages the learners to continue their learning through an online community initiated by previous learners who attended the programme.
Post-course feedback is elicited at the end so that the PL designer can see if this PL offering is well received by the learners.

CHAPTER 3
BLENDED PROFESSIONAL LEARNING EXPERIENCES

This chapter features examples of Blended PL experiences[30], illustrating how the Design Scaffold for Blended PL and Decision Matrix are used in the planning and design of Blended PL experiences.

The format used to present each example facilitates PL designers to:
▪ visualise the beginning-to-end learning experience;
▪ think further to how the learning (i.e., knowledge, skills, or dispositions) could be acquired from different learning activities to ensure coherent flow using Blended PL; and
▪ consider include learning activities and opportunities for adult learners to take charge of their learning, build positive collaborative practices and strengthen one another's professional practices.

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[30] Learning sessions in the mentioned examples can vary with different runs of the course.

Addressing Students' Alternative Conceptions (Primary Science)

Contributor

Primary Science Chapter, AST

Learner Profile

Primary Science Teachers

Learning Outcomes

At the end of the programme, learners are able to:
- Use and design formative assessment probes to elicit students' alternative conceptions in primary science;
- analyse authentic data gathered through formative assessment probes to identify students' alternative conceptions, and
- design learning experiences that address students' alternative conceptions.

Considerations for Extent of Integration

- Approximately 60% of the learning takes place online and 40% of the learning takes place in-person. Online component is divided to about 75% asynchronous and the remaining synchronous. The main consideration behind the time allocation is the provision of time and space for learners to contextualise the course content for better use of formative assessment probes, which better informs the design of learning experiences in the classroom.

- In-person learning is designed to demonstrate pedagogies that require the use of manipulatives. It is also planned for learners to experience the possibilities and applications of taught content and skills.

Overview of Blended PL Experience

Time	Modality		
	Online Asynchronous	**In-Person (Synchronous)**	**Online Synchronous**
Pre-session	1 week prior to session 1 ▪ PL designer administers a pre-course survey to understand the learners' goals from the programme and the science topics that they will be teaching. The survey findings will be used to customise learning resources and for group formation.		
Learning Session 1			1 hour in a session ▪ PL designer who is the course facilitator shares with the learners with an overview of the course objectives and outlines learning tasks (e.g., administration of formative assessment probes and analysis of student responses). ▪ Learners are aware of the selected resources (e.g., curated assessment probes, process of administering the probes and analysis of collected data)in OPAL2.0 course space to contextualise their learning. ▪ In groups, learners discuss possible customisation of provided resources to cater to their students' learning.
Learning Session 2	2 hours over a one-week period ▪ Learners refer to the resources in OPAL 2.0.		

Time	Modality		
	Online Asynchronous	**In-Person (Synchronous)**	**Online Synchronous**
	▪ Learners administer a formative assessment probe related to a science topic that they will be teaching to collect data of their students' alternative conceptions. ▪ Learners analyse their collected data and share their observations and findings in a community forum in OPAL2.0. ▪ Course facilitator models a safe online environment for learners to express different perspectives and divergent views; using a forum to connect with the learners.		
Learning Session 3		Full-day Workshop ▪ Using the learning points gleaned from the online forum, facilitator facilitates group discussions on strategies for addressing alternative conceptions to consolidate learning and sustain continuity of learning experiences. ▪ This in-person session allows learners to experience the same pedagogies that will be used in the classrooms, such as, modelling pedagogical strategies involving the use of physical manipulatives and sense of touch. ▪ Learners participate in group discussion on how their lessons could be planned using the formative assessment probes. They record their sharing on the forum.	

Time	Modality		
	Online Asynchronous	**In-Person (Synchronous)**	**Online Synchronous**
Learning Session 4	2 hours over a 1-month period ▪ Learners refine their designed lesson plans and upload on the online forum for facilitator to feedback on considerations for design of lesson activities. ▪ Learners enact their lesson plan and gather evidence of their learning (e.g., video snippets of the lesson, students' work). They reflect on their learnings and share in on the online forum.		
Learning Session 5			2 hours in a single session ▪ Facilitator summarises the group's learning and gets each learner to share their insights and reflections of their lesson enactment, with artefacts collected from their students. The insights were connected to the key ideas from the course to consolidate the learning.
Post Programme	▪ Learners complete a post-programme feedback where they share their key learnings. ▪ Learners can access the community forum for resources that are produced during the course. This further supports the learners after the course has ended.		

ICT-Based Music Making

Contributor

Singapore Teachers' Academy for the aRts (STAR)

Learner Profile

All Music teachers (primary teachers for primary class and secondary/JC teachers for secondary/JC class)

Learning Outcomes

At the end of the programme, learners are able to:
- Design blended-learning and hybridised pedagogy for music teaching
- Deconstruct music
- Facilitate collaborative music-making using ICT
- Facilitate technologically mediated live performance
- Assess ICT-based music arrangement/performance

Considerations for Extent of Integration

- Approximately 50% of the learning online and 50% of the learning in-person. In the online mode, there are elements of synchronous and asynchronous aspects to promote self-determined learning, and flexibility for self-paced learning. The proportion of online learning and in-person learning can be further adjusted based on the needs of the learners.

- In-person learning is planned to facilitate role modelling of how music-making can be facilitated and to use manipulatives (i.e., music equipment software) provided at the venue. Learning can be abstract and difficult to understand if learners do not have access to practice with the right tools.

Overview of Blended PL Experience

Time	Modality		
	Online Asynchronous	**In-person (Synchronous)**	**Online Synchronous**
Pre-session	2-3 weeks prior to following session ▪ Learners complete a survey on OPAL 2.0 to identify the knowledge and skills (in identified music software tools) which they would like to acquire from the programme. ▪ PL designer uses the collected data to plan and design the content and learning activities that allowed for differentiated learning. This allows the content of the course to be pitched appropriately. ▪ The data informs the PL designer that the class has differing knowledge and competencies in music software. Hence, a repository of self-paced resources (e.g., prepared screencasts and video-presentations) is provided learners as a resource.		
Learning Sessions 1 and 2		Full-day workshop ▪ PL designer who is also the course facilitator models a series of hands-on, bite-sized music-making experiences with iPads for learners to experience live collaborative music making ensemble work and handling of hardware equipment. Live music-making should be conducted in-person	

Time	Modality		
	Online Asynchronous	**In-person (Synchronous)**	**Online Synchronous**
		rather than online due to latency issues when conducted online. In-person music-making allows facilitator to provide relevant and timely feedback to learners (e.g., to modify practices and reinforce right application). ▪ Facilitator brings the learners through a discussion of their observations and applications in their own classrooms. He/she then relates their reflection and clarification to the key ideas of the programme and draws connection between both hands-on sessions.	
	▪ After each session, learners can access a repository of resources in OPAL 2.0 and reflect their learning. Facilitator looks through their reflections which enables him/her to know the progress of the learners and addresses questions before the next session.		
Learning Session 3			Full-day workshop ▪ Via video conferencing, facilitator models how song writing can be taught online using open-source music-making tools (e.g., BandLab, Chrome Song Maker). Learners experience how to provide scaffolding and collaboration work with Google documents during the process of music composition. This

Time	Modality		
	Online Asynchronous	**In-person (Synchronous)**	**Online Synchronous**
			session is recorded so that learners can refer to the video as a resource. ▪ Facilitator connects the consolidated learnings to key ideas of the programme and facilitates learners' discussion on their reflection. ▪ Learners work collaboratively online and apply their learning from the learning activities to their task. They present their tasks to the class and allows for a class discussion.
Post programme	▪ Learners complete post-programme feedback to elicit their views on what he/she had gleaned from the learning activities and peers. ▪ The WhatsApp group which was set-up is maintained post-programme for learners to share their exploration with new instructional strategies and to leverage this informal network for support. They can also access the developed resources in OPAL 2.0 to further support their learning.		

Inquiry Approach to Make Thinking Visible in Physical Education

Contributor

Physical Education and Sports Teacher Academy (PESTA)

Learner Profile

Qualified PE teachers from Primary Schools

Learning Outcomes

At the end of the programme, learners are able to:
- Understand the need to make students' thinking visible,
- Codify the intended cognitive outcomes specific to the learning experience,
- Ascertain the place and function of questioning to make thinking visible,
- Design tasks to support critical thinking, and
- Structure the appropriate thinking routines.

Considerations for Extent of Integration

- Approximately 60% of the learning online and 40% of the learning in-person; a greater emphasis on learner's autonomy. The designed activities provide learners time and space to self-pace the content, making sense of it by reflecting on their current practices.

- Online component is 100% asynchronous; PL schedule allow learners opportunities to apply new strategies, enact the planned lesson with their teaching classes, collect results from their enactment and reflect on its effectiveness.

- In-person learning is designed for discussion with peers and facilitator through micro-teaching and allow facilitator to demonstrate the routines as real-time feedback is provided to learners.

Overview of Blended PL Experience

Time	Modality	
	Online Asynchronous	**In-person (Synchronous)**
Pre-session	2 weeks prior to following session ▪ PL designer administers a learning needs survey to identify learners' prior knowledge and practices in Inquiry Based Learning (IBL) and to understand their learning needs. ▪ PL designer uses the collected information (such as familiarity with the content) to design appropriate engagement and facilitation approaches for the in-person session.	
Learning Session 1	2 hours within a 2-weeks period ▪ PL designer scopes the learning materials (i.e., videos, slides and reading articles) based on the surveying findings. The customised learning materials is uploaded on OPAL 2.0 ▪ Learners reflect their current practices and shares their thoughts and ideas on a Padlet board (with guiding questions).	
Learning Session 2	2 hours within a 2-weeks period ▪ Learners apply the pre-readings to the design of their PE lesson. Visible Thinking Routines (VTR) is used to enhance learning of physical skills and games concepts. The designed lesson plan (and relevant artefacts) is used in session 3. ▪ PL designer who is also the facilitator supports the learners during the asynchronous learning sessions. For example, he/she responds to queries and addresses misconceptions that are posted on the Padlet board.	
Learning Session 3		Half- day workshop ▪ Facilitator plans an in-person session to allow learners to micro-teach their designed lesson and demonstrate the thinking routines, followed by feedback from peers and facilitator. The choice of strategies and facilitation approaches featured are based on the survey findings.

Time	Modality	
	Online Asynchronous	**In-person (Synchronous)**
		▪ Facilitator generates interactive discussion with the class after each micro-teaching and offers suggestions for modification of practices and better use of VTR. Facilitator also addresses misconceptions and issues that are surfaced on the Padlet board. ▪ Learners refine their initial lesson plans based on in-person suggestions from the facilitator and peers.
Learning Session 4	1 hour within a 2-weeks period ▪ A self-paced activity for learners to analyse and reflect their learning experiences with their instructional practices and teaching beliefs on the Padlet board. ▪ Learners enact their lesson plan and thinking routines with their teaching classes and share their experiences and reflections on the Padlet board. Other learners provide feedback, and the refined lesson plan is posted on the Padlet board, which serves as a repository of resources for the learners during and after the PL programme.	
Post Programme	▪ Learners complete a post-course feedback where they share their key learnings. ▪ Facilitator encourages learners to form a Network Learning Community (NLC) with peers in the class or school for continued learning and inquiry in their teaching practices. They can approach the facilitator for professional support in these initiatives.	

GLOSSARY

Term	Description
Asynchronous Learning	Learning that can take place at the learner's preferred time, and in different locations, online or offline, and allow learners greater autonomy to learn at their own pace, online or in-person.
In-Person	Involving someone's physical presence[31].
Learners	MOE officers receiving professional learning programme.
Learning Activity	A learning activity enables learners to interact with facilitator or peers to acquire the skills, knowledge, or dispositions to achieve at least one of the intended learning outcomes.
Online	Interactions between and among facilitators, peers and content during learning which are mediated by technology. Online learning takes 2 forms: synchronous and asynchronous, depending on whether the learners access the instructions and content at the same time.
Professional Learning	Comprises all formal and informal learning experiences – including job assignments, developmental relationships, and courses – which develop educators' knowledge, competencies and dispositions, enabling them to improve student and organisational outcomes.
Programme	A coherent series of learning activities designed to sustain and embed good practices.
Professional Learning Designers	MOE staff who design and facilitate professional learning experiences, in any capacity and for any duration. Individuals may include school leaders, school staff developers, teacher leaders, HQ officers, teachers and other MOE staff.
Synchronous Learning	Happens when learners access the same content and activities at the same time but from different locations. Learners may influence the pace of their learning by appealing to the facilitator, but they do not control of the time scheduled for the learning.

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[31] https://dictionary.cambridge.org/dictionary/english/in-person

APPENDIX A: Distinctions Between Blended Learning and Blended Professional Learning

MOE[32] defines 'Blended Learning' for students as the "re-imagination of our students educational experience by providing them with a more seamless blending of different modes of learning" (p.2), guided by pedagogical, curriculum and assessment principles. This concept of blended learning enables students to benefit from greater learning experiences through a wider spectrum of lesson design considerations throughout their schooling. Blended PL, on the other hand, is premised on principles of adult learning and focuses on the different learning experiences, which could be a PL programme. Importantly, PL designers are guided to consider the possible meaningful integration of different elements of PL to complement and enrich each other to impact the professional learning of adult learners.

	Blended Learning	Blended PL
What Does it mean in the MOE Context?	Re-imagination of our students' educational experience by providing them with a more seamless blending of different modes of learning, throughout their schooling.	Blended PL is an approach that meaningfully integrates different elements (e.g., asynchronous/ synchronous and online/in-person) of PL to optimise opportunities for active learning and co-construction of knowledge to address professional learning needs. It is guided by andragogy to design personalised learning.
Target Group	Students	Adult Learners
Focus	Different learning experiences	Different learning experiences
Underlying Principles	Pedagogical, curriculum and assessment principles	Principles of adult learning
How to Blend?	Seamless blend in terms of: a) Structured/Unstructured learning b) Synchronous/Asynchronous learning c) Within-curriculum/Out-of-curriculum learning d) Distance/In-person learning e) ICT-mediated/non-ICT-mediated learning	Meaningful integration of different elements of PL in terms of the following dimensions to meet professional learning needs: - Profile of Learners - Learning Outcomes - Learning Experience

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[32] Ministry of Education (2020). *The Singapore Blended Learning Guide for Educators*. Singapore: Ministry of Education

APPENDIX B: Practices in Support of the Design Principles for Effective Blended Professional Learning

The following practices related to the Design Principles for Effective Professional Learning (i.e., SCALE) are to guide the quality of Blended PL.

<u>Sustained</u>
- Develop useful protocols to sustain and extend online interaction to in-person mode of learning and vice-versa so as sustain continuity of learning activities. Some examples of the protocols include:
  - Plan a schedule of sessions/meetings to discuss issues and resolve challenges which is recommended for interactions to be regular and connected.
  - Schedule regular meetings which are not too far apart between the sessions. This is to develop long-term relationships and trust among learners.
  - Encourage learners to participate in decision-making, collaborative discussions, and reflections about their learning for greater ownership (e.g., expectations for group discussion and postings on discussion board).
- Create mutual accountability structures among learners to maximise productivity during in-person and synchronous online sessions and facilitate learners to adopt self-regulation habits such as:
  - co-construct norms for communications and deadline information,
  - create a schedule on the tasks to be done; and
  - push notifications for announcements and reminders.
- Provide supporting mechanisms (i.e., connection to facilitator and peers) to give learners space and time to experiment new ideas. The following are some suggestions.
  - Individualised coaching and scaffolding support by the facilitator or identified knowledgeable others via in-person or online synchronous mode.
  - Assigned practices with feedback and scaffolding support via asynchronous discussion chat board.
- Schedule sessions within a meaningful time frame for learners to apply acquired knowledge and practices and reflect on their application; task loads should reflect the realities of their schedules.
- Encourage learners to continue professional learning through initiated communities of learning (outside the formal setting).

<u>Collaborative</u>
- Leverage technology for connectivity; tap user-friendly platforms designed to support collaboration which will enable learners to focus their energy and attention on the cognitive demands of the task itself.
- In-person and online synchronous sessions interactions can mutually reinforce the development of relationships, understanding and building of knowledge and practices among learners leading to continual learning during and after the PL programme. For example,

- in-person interactions for the facilitator and learners to encourage social interaction, to establish group norms for learning together, to learn from one another through role play, and
- synchronous online collaboration and reflection to encourage collective participation.

Aligned
- Design tasks that are related to learners' job roles and provide opportunities to demonstrate learning in application. These allow learners to:
  - assess their knowledge and skills and track learning progress, and
  - reflect on the transfer of content and practice to their own work practices and educational beliefs.

Leveraging Technology
- Select appropriate digital platform and technological tools, since quality of experience on any platform and tool has been found to be key to engagement, motivation, and persistence. The following considerations help to identify the appropriate digital platform and technological tools:
  - Perceptions of quality, reliability and ease of operation and interface (such as sign up, onboarding and navigation) by learners;
  - Accessibility e.g., through various devices, learners with learning requirements, for instance cognitive assistance and diverse imagery; and
  - Ongoing and accessible technology support resources e.g., guides, troubleshooting in the form of personalised support/chat/bots.
- Employ a single digital platform (e.g., Wikispace) to provide ongoing and accessible support to learners. The platform can function as a feedback channel, a repository of resources, and address questions during and post learning.
- Upload clear and consistent content design which allows the learner to focus on learning the content and reduce the cognitive load imposed by the platform or technological tools.
- Inform learners through push technology such as email notifications and group chat messages to inform and remind them of course interactions and/or events. Avoid providing too much information at one go or flooding learners with messages.

Evidence-Based
- Build a safe and constructive environment and climate of trust and openness for learners to express ideas (e.g., no single right or wrong position about different perspectives) and encourage divergent views.
- Integrate Instructional strategies, including demonstration, deliberate practice, and feedback, in the PL programme to create a meaningful learning environment.
- Apply critical reflection to surface learners' beliefs for misconceptions, and re-frame existing models of practice.

APPENDIX C: AFFORDANCES OF ONLINE AND IN-PERSON LEARNING

Affordances of Online Learning

Online learning allows learners to have more flexibility in the following areas:

Time

Not restricted to formal learning hours. Asynchronous learning allows learning to take place at any time, resulting in more learner-control. Learners choose the time to learn, process their thoughts and respond to discussion or providing a more thoughtful reflection. Learners are required to take responsibility for their learning experience.

Place

Not limited by physical space. Learners can access digital course content and resources on their technological devices anytime, anywhere, as when needed. With the advancement of video conferencing technology and processing power of the hardware (e.g., laptop, mobile devices), synchronous online learning can also be readily accessible, occurring at the same time at different locations.

Pace

Not restricted by facilitator's pace. Asynchronous learning activities allow learners to download learning materials and they can make sense of the content at their own pace and time without being dominated by the thoughts of either their facilitator or peers. Time and space are provided to learners to read and process the content information.
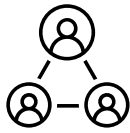
Path

Not restricted to a prescribed sequence of content. With its range of asynchronous and synchronous options and resources, a learning path can be personalised to suit the range of learning styles. Learners are provided with the tools and control to co-create learning.

Affordances of In-Person Learning

Build Human Connections

Interpersonal communication, and social presence enable learners to learn about one another's background, experiences, and areas of expertise. These made it easier for facilitator and learners to promote cohesion and form better relationships which is especially needed for team building, establishing group norms, and resolving conflict.

Visible Social Cues and Non-verbal Communication

The facilitator can draw on eye contact, body language and/or facial expressions from the learners to gain immediate feedback and make immediate adaptions to their instructional strategies when needed. Learners too, can experience and decipher the facilitators and peers' reactions in response to the learners' feedback and actions. This can be challenging with an online session when some learners opt to mute their microphone or disable their camera.

Greater Capacity for Hands-on Experiences

Modelling and practising with the appropriate manipulatives (e.g., tools and equipment) facilitate learning and immediate follow-up can be done after physical demonstration of practical skills. The facilitator can also use other manipulative materials or tools to clarify the doubt or misconception that has arisen.

Spontaneity

Moments of inspiration and breakthrough that emerge in impromptu casual interactions and group activities can generate rapid chains of associated ideas and serendipitous discoveries, leading to creative and innovative ideas. For such moments to happen, it requires trust, support, and openness among learners. It is difficult to recreate impromptu interactions and spontaneous conversations in an online setting when meet-ups are planned and there is limited interpersonal bonding among learners.

APPENDIX D: FURTHER ELABORATION ON THE CONSIDERATIONS FOR DESIGNING BLENDED PROFESSIONAL LEARNING

Dimension	Consideration[33]	Possible Follow-Up Actions (The list is not exhaustive.)
Profile of Learners	Do learners have the <u>prior content knowledge</u> that is needed for the PL programme?	- Administer online survey to identify learners' current content knowledge. - Assign online asynchronous MLUs, audio podcast or interactive eBook to refresh their knowledge; and online quizzes to identify knowledge gaps. - Follow-up during subsequent sessions (in-person or online) to close the knowledge gaps identified through the survey.
Profile of Learners	Do learners have the <u>relevant</u> skills set that is needed for the PL programme?	- Administer online survey to identify and assess learners' current skills set (based on programme's requirements). - Assign a selection of media online for learners to select such as self-paced MLUs or videos to refresh basic skills and introduce new skills for the training. - Post questions on an online discussion board for learners to share their learning from the assigned online resources. - Follow-up with in-person hands-on sessions to support modelling of right practices by facilitator and offer opportunities for learners to practice under supervision. Immediate feedback would allow learners to quickly modify their practices and reinforce the right application. - Leverage in-person sessions to connect sharing from the online discussion board to the hands-on session and invite learners to share their takeaways.
Profile of Learners	Are learners <u>familiar with the technological tools</u> required for the PL programme?	- Administer online survey that could feature more advanced tools such as simulation-based online tasks to identify learners' proficiency in using technological tools. - Follow-up with synchronous video conferencing to demonstrate use of the tools (such as new software), learners could pose questions on an interactive online platform during the demonstration before they attempt the assignment. - Provide guidance as learners practise in a safe environment through a virtual space (e.g., simulation-based e-learning). Feedback is provided to learners for reinforcement.

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[33] The considerations highlighted are not intended as definitive or prescriptive statements for designing Blended PL. PL designers should select the considerations specific to the learning outcomes of their learning programmes and modify them with their understanding of the content and context of the programme.

Dimension	Consideration	Possible Follow-Up Actions (The list is not exhaustive)
Learning Outcomes	For <u>dissemination</u> or <u>discussion</u>?	▪ Provide online self-paced content, resources, and learning assessments for understanding before in-person session. Include a course map that allows learners to track their progress and view subsequent learning materials. ▪ Connect learners using a virtual platform so that learners can use it to seek assistance or clarification.
Learning Outcomes	What is the <u>difficulty level</u> of the content (i.e., complex, and multifaceted) that make it difficult to understand?	▪ Assign bite-sized online learning materials (e.g., self-paced modules or videos to introduce the content) that allows complex and multifaceted content to be more accessible and adaptable to the learner. Include online pre-assessment to identify learners' knowledge gaps that the facilitator needs to focus on. ▪ Follow-up with in-person sessions for the facilitator to explain the content with short learning videos or infographics along with personal anecdotes from experiences for motivation. ▪ Provide support from the facilitator to help in learning and clarify learners' doubts as soon as they arise to prevent misconception. ▪ Include collaborative activities such as role-play or scenario-based tasks to allow learners to have spontaneous interactions, and the exchange of ideas, understanding and views.
Learning Outcomes	Is <u>engagement of content</u> (i.e., introduction, reinforcement) required before the PL programme?	▪ Harness digital platforms to upload resources with interactive features in the form of short quizzes, games or scenarios with decision-making option that provide feedback on learners' performance. ▪ Leverage asynchronous discussion boards to post discussion questions for learners to respond and comment on peers' views; if needed, provide guidelines for appropriate posts and moderate comments. ▪ Extend the online interaction to in-person settings to address questions, clear misconceptions and address learning gaps.
Learning Outcomes	Do learners require <u>additional or in-depth</u> information and resources?	▪ Provide information and resources on a digital platform where learners can access anytime anywhere; even after completion of the PL programme to refresh or review their learning.
Learning Outcomes	Could the <u>evidence of learning</u> (i.e., demonstration of skills acquired) be done effectively in-person?	▪ Leverage in-person to explain and support modelling of right skill practices by the facilitator. ▪ Include hands-on practice under the supervision of the facilitator to give real-time feedback on skills development and immediate correction of mistakes.

Dimension	Consideration	Possible Follow-Up Actions (The list is not exhaustive.)
Learning Experience	How important is in-person social interaction for the PL programme?	▪ Leverage in-person time for the facilitator and learners to introduce and know one another, develop trust and establish rapport. ▪ Provide opportunities during in-person session for newly formed groups to interact, set up group norms, assign roles and plan for assignment.
Learning Experience	Do learners need time to engage in discussions and complete a project?	▪ Set up a digital platform for learners to continue to exchange ideas, share questions, collaborate on assignments, etc. after the initial in-person discussion. ▪ Schedule synchronous online sessions with group members to clarify doubts, motivate and support one another.
Learning Experience	Do learners need time to reflect and internalise the content and ideas?	▪ Utilise online journaling and reflection; self-paced activities allow learners to make sense of content at their own space and time, allowing time to carefully consider and review and provide a deeper reflection.
Learning Experience	Do learners need support from the facilitator during and/or after the PL programme?	▪ Harness digital platforms with asynchronous discussion board or chat function to park their questions for the facilitator or peers to reply. ▪ Follow up with synchronous online sessions for further clarification or in-person session to observe enactment of skills. This allows for the facilitator to provide feedback to the learner. ▪ Encourage learners to sustain and continue their professional growth through initiated community of learning (outside the formal setting), after completion of the PL programme. A shared vision, supportive and collaborative community environment encourages knowledge and skills application and exchange of ideas on learning.

APPENDIX E: Key Findings from NIE-AST Research Study on Online Professional Learning (OPL)

Background

The AST-NIE OPL study took place between January 2022 and February 2024. Data collection took place between February and September 2022.

Research Questions:
  a. What are the forms (including modes, platforms, activities and resources) of OPL and how are these implemented by instructors?
  b. What aspects of OPL support and/or challenge teachers' professional learning from instructors' and teachers' perspective?

Methodology: The study made use of both quantitative and qualitative data.
  a. Quantitative data: Online survey of 1622 teachers across 37 Primary and Secondary schools on their perspectives and experiences of OPL.
  b. Qualitative data: Observation of 11 AST courses across subjects, followed by semi-structured interviews with course facilitators (15 MTTs and OneAST staff) and participants (26 teachers).

Key Findings: OPL vis-à-vis Blended PL

Blended PL is increasingly pervasive.
- 53% of the survey participants have experienced Blended PL as a common way to experience online PL.
- Based on the study, there are three ways where OPL is featured in blended PL. It could be a component in a mix of:
    o online synchronous and asynchronous learning experiences;
    o asynchronous and in-person learning experiences; and
    o asynchronous, online synchronous and in-person experiences.[34]

Teachers have embraced the normalisation of online and blended PL.
- 58% surveyed indicated a preference for specific modalities. The most preferred modality was blended (23%), followed by online only (17%), hybrid (14%) and face-to-face only (4%).[35]
- Additionally, 42% indicated that their preferred PL modality depends on course content:
    o Online mode for content learning, enabling teachers to pace their learning.
    o In-person mode for experiential learning, and to provide teachers with an opportunity to apply their learning.

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[34] In this study, asynchronous learning experiences were implemented as online learning.
[35] Blended learning refers to combining in-person and online learning for learners. Hybrid learning refers to where both on-site and remote learners can simultaneously attend activities at the same time.

Modes of online PL attended
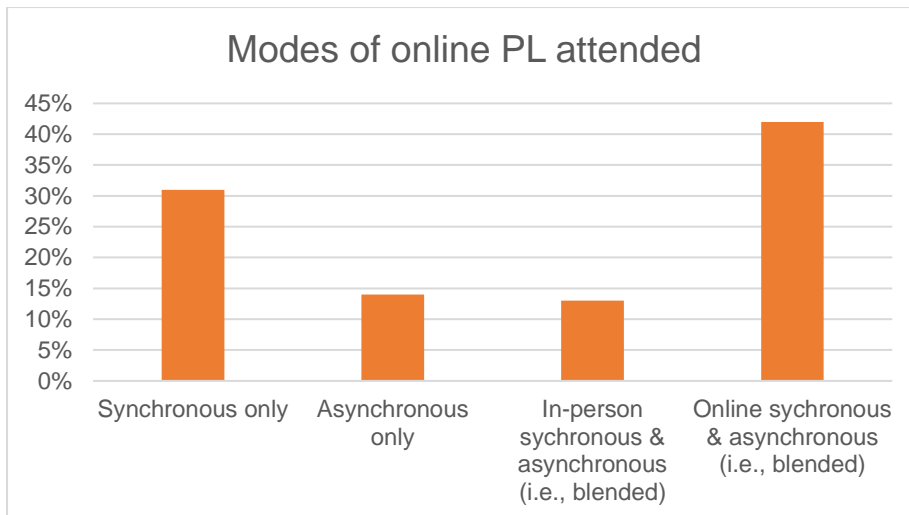
Teachers preferred content learning to be conducted online, experiential and social learning to be conducted in-person.

Teachers' perceptions of PL to be conducted online

Teachers' perceptions of PL to be conducted in-person

Additionally, there are five key ideas about teachers' perception of OPL.

High readiness and self-efficacy for OPL	Positive attitudes and little anxiety	Useful, easy and convenient way of learning	Access to online material any time	Unsure about the need for online interaction
The autonomy allowed teachers to control pace of learning, and gave them more opportunities to reflect.	Teachers were generally familiar with the different tools used, and hence expressed positive attitudes and little anxiety.	Teachers appreciated the convenience of OPL, as OPL reduced commuting and disruption to lessons.	OPL enabled teachers to easily access materials any time, as well as resources unavailable in their schools.	OPL is better for content learning rather than rapport and relationship building.

Though teachers feel supported by OPL and supported in attending OPL, they may require further support in transferring their learning to their teaching practice. Teachers appreciated the provision of asynchronous resources and opportunities for consultation with course facilitators to help them deepen and transfer their learning.

Key Findings: Design of online learning experiences

Teachers' expectations of online and in-person social learning differed.
- "Learning From" was more important in OPL.
  - Teachers' preferred OPL activities included learning from others' experiences of applying learning in their classrooms and seeing Master Teachers demonstrate instructional strategies in classrooms.
  - Teachers and course facilitators also cited effective facilitation as a key enabler of OPL.
- "Learning With" was less important in OPL.
  - Social interaction was only moderately important to teachers' experiences of OPL, as teachers perceived online interaction to be less optimal than in-person interaction.
  - For online synchronous sessions, the majority of teachers suggested that breakout rooms should have no more than 5 participants, last for no longer than 15 minutes, and be used no more than 2 times in a 3-hour session.
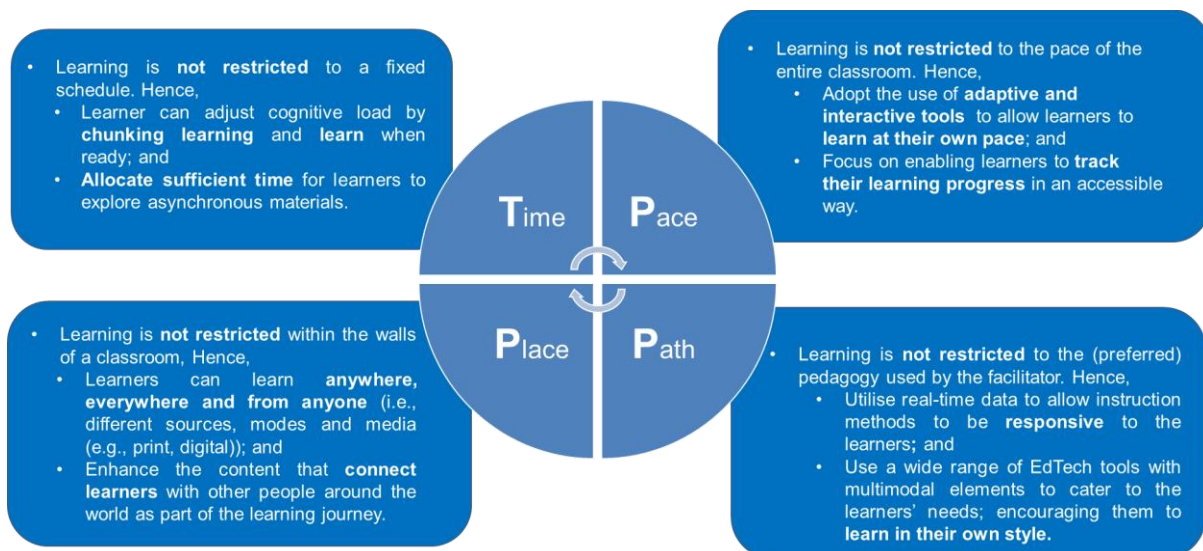
Teachers preferred online synchronous courses to be no longer than 2 hours and held in the afternoon.
- Duration: 82% indicated that online synchronous sessions should be no longer than 2 hours, with a 10-minute screen break. 50% indicated that online synchronous sessions should be no longer than 1.5 hours.
- Timing: Most preferred to attend online courses in the afternoon (49%), compared to morning (29%) and full day (20%).

Ideal duration for online synchronous session with one 10-minute screen break
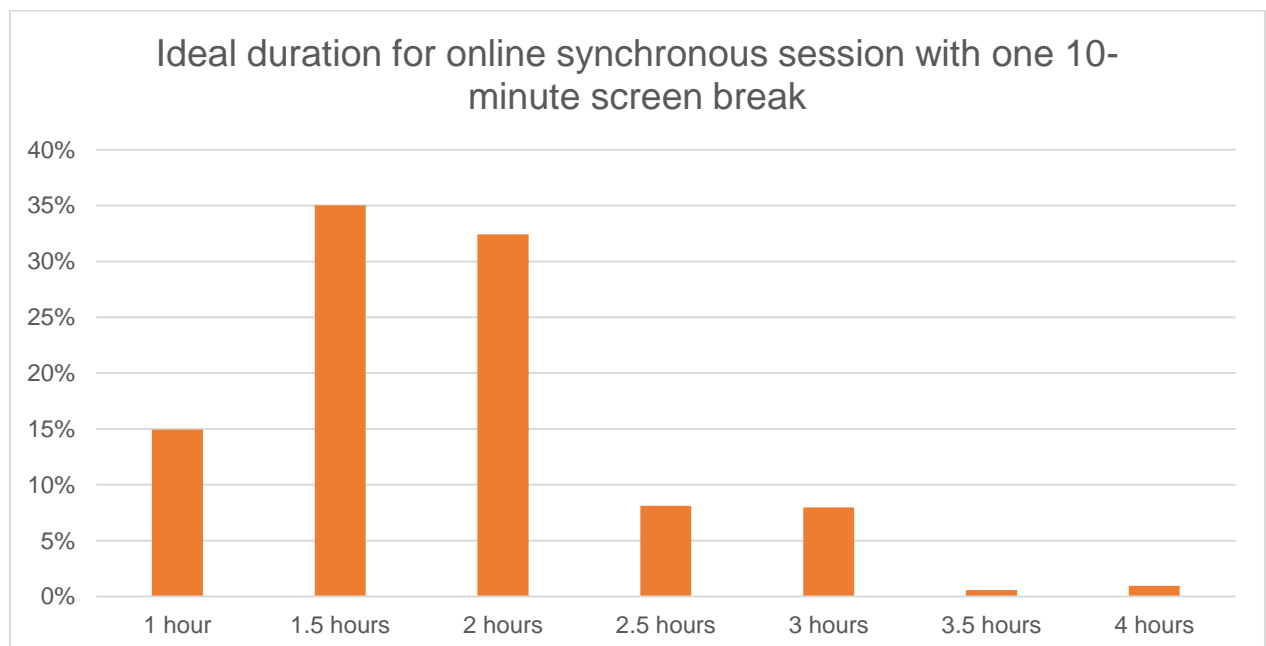
Teachers opined that PL designers need to be mindful of the quantity and quality of the content to make OPL manageable and engaging.

- Quantity of content
  - Teachers appreciate it if the resources, readings, videos and learning tasks are organised in bite-sized segments (e.g., 1 to 2 pages, quick 5-min videos).
  - Additionally, explore chunking content over a series of sessions, so that the learning can become more productive, and bite-sized (e.g., differentiating core and supplementary) rather than cramped.
- Quality of content
  - Generally, content becomes less interesting when the links to teaching and learning are unclear and content is too conceptual and lengthy.
  - De-chunk the content to make it more focused and relevant. Additionally, gather feedback from learners before and after OPL to understand their learning needs.
- The following guidelines help to right-size the cognitive load of OPL:

Time
- Learning is **not restricted** to a fixed schedule. Hence,
  - Learner can adjust cognitive load by **chunking learning** and **learn** when ready; and
  - **Allocate sufficient time** for learners to explore asynchronous materials.

Pace
- Learning is **not restricted** to the pace of the entire classroom. Hence,
  - Adopt the use of **adaptive and interactive tools** to allow learners to **learn at their own pace**; and
  - Focus on enabling learners to **track their learning progress** in an accessible way.

Place
- Learning is **not restricted** within the walls of a classroom, Hence,
  - Learners can learn **anywhere, everywhere and from anyone** (i.e., different sources, modes and media (e.g., print, digital)); and
  - Enhance the content that **connect learners** with other people around the world as part of the learning journey.

Path
- Learning is **not restricted** to the (preferred) pedagogy used by the facilitator. Hence,
  - Utilise real-time data to allow instruction methods to be **responsive** to the learners; and
  - Use a wide range of EdTech tools with multimodal elements to cater to the learners' needs; encouraging them to **learn in their own style.**

Teachers agreed that technology can be further used to better support and enhance OPL beyond courses.

- Structures and processes could be established for teachers to participate in learning communities across schools. Technology could help to:
  - further develop professional working relationships through collaboration
  - provide a virtual space for teachers to convene and learn from each other after online synchronous learning experiences.
- Tap on the unique affordances of different modes to provide blended learning experiences.
- However, if new technological platforms are used to support online learning experiences, steps or orientation guides should be provided. Unfriendly and/or unfamiliar technological platforms will constrain teachers' professional learning.

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