



Developing teachers' interdisciplinary expertise

**An ecological framework for
professional learning**

2023

Prepared by:

Teresa Swist, Lina Markauskaite, Peter Goodyear, Cara Wrigley, and Genevieve Mosely

The University of Sydney

The University of Queensland

Developing Teachers' Interdisciplinary Expertise Project

Webinar: 12 December 2023

Strategic Research Scheme Leveraging Project,
funded by NSW Education

We acknowledge the tradition of
custodianship and law of the Country on which
the University of Sydney campuses stand.
We pay our respects to those who have cared
and continue to care for Country.



This webinar will be video recorded

Participant Information Statement

(3) What will the study involve for me?

We are inviting you to participate in a webinar in which we will be presenting some initial outcomes from the study and collecting feedback from webinar participants.

The webinar will be conducted online (via Zoom).

This webinar will be video recorded, and collected data will be used for further development of the framework to articulate the main aspects of teachers' interdisciplinary expertise and resources for embedding the development of teachers' interdisciplinary expertise in pre-service teacher education and in-service professional development.

You are free to keep your video camera switched off if you do not want to be video recorded. You are also free to decide how much feedback you give and contribute to webinar discussions.

Overview

1. Project overview
2. Framework overview
3. Your feedback, discussion
4. Summary and next steps

Aims

- Share what we have done and next steps
- Hear your ideas about interdisciplinary cases

Who we are

Research team

- Prof Lina Markauskaite
- Prof Peter Goodyear
- Prof Cara Wrigley
- Dr Teresa Swist
- Genevieve Mosely
- Melinda Pratt

The University of Sydney, The University of Queensland

Funding

- ARC DP
- NSW Department of Education

Reference group

- Prof Judy Anderson, The University of Sydney
- Franco De Joya, The University of Sydney
- Matthew Esterman, Our Lady of Mercy College, Parramatta
- Dr Erez Nusem, NSW Department of Education
- Prof Michele Simons, Western Sydney University

Mapping Interdisciplinary Expertise

Learning to co-create knowledge across disciplinary boundaries in laboratories and courses

[ABOUT](#) [RESOURCES](#) [BLOG](#)



Understanding the culture, learning and resourcefulness needed to work in interdisciplinary teams

[Join the discussion](#)

Developing teachers' interdisciplinary expertise

About

This leveraging project, funded by the [NSW Department of Education](#), 2023-2024, will extend our collective understanding of interdisciplinary expertise, and how to enhance its development for pre- and in-service teachers and, through that, how to strengthen students' capabilities for interdisciplinary work. This project will produce an overarching framework that articulates the main constituents of teachers' interdisciplinary expertise and co-create a set of practical reusable design resources for embedding the development of teachers' interdisciplinary expertise in pre-service education and in-service professional development.

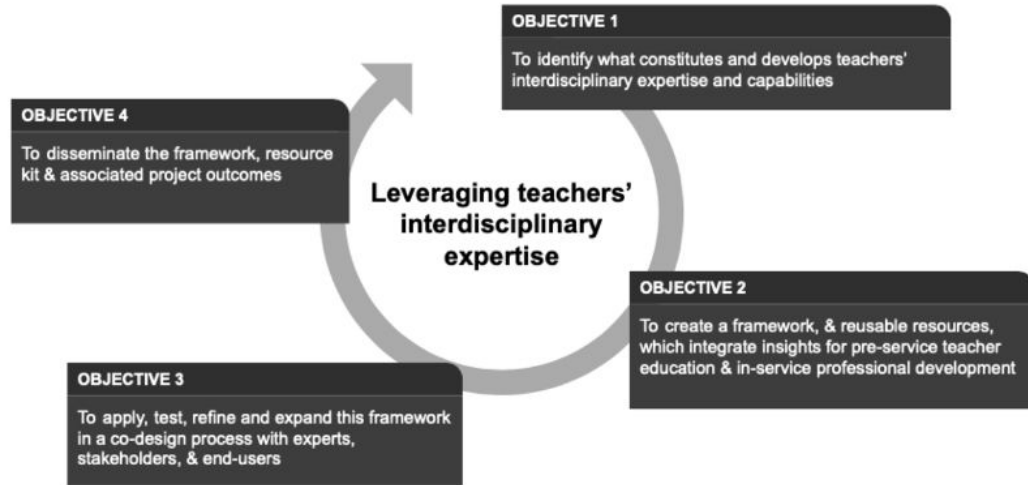


Purpose: Developing teachers' interdisciplinary expertise in a complex society

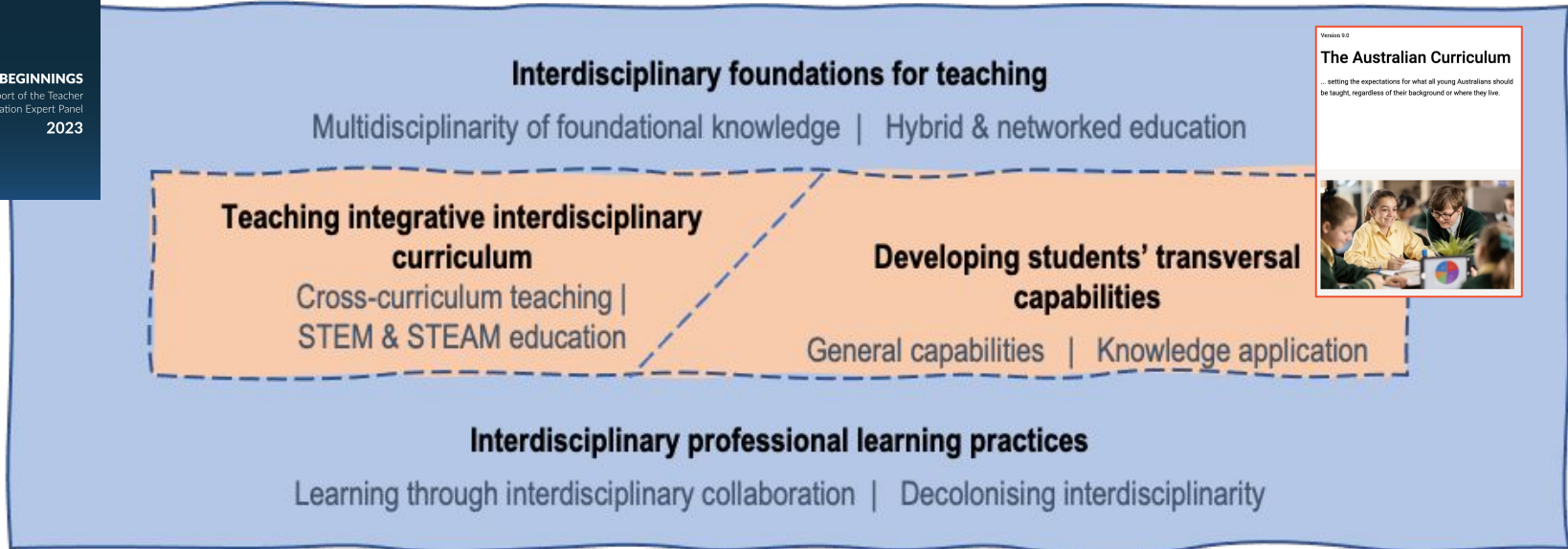
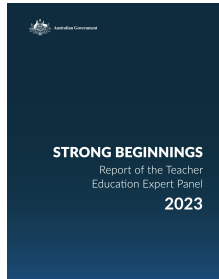
The aim is **to help prepare teachers** for teaching in an increasingly interconnected, dynamic and unpredictable world, so that they can help their future students build on firm disciplinary foundations *and* integrate different areas of knowledge and ways of knowing.

Objectives

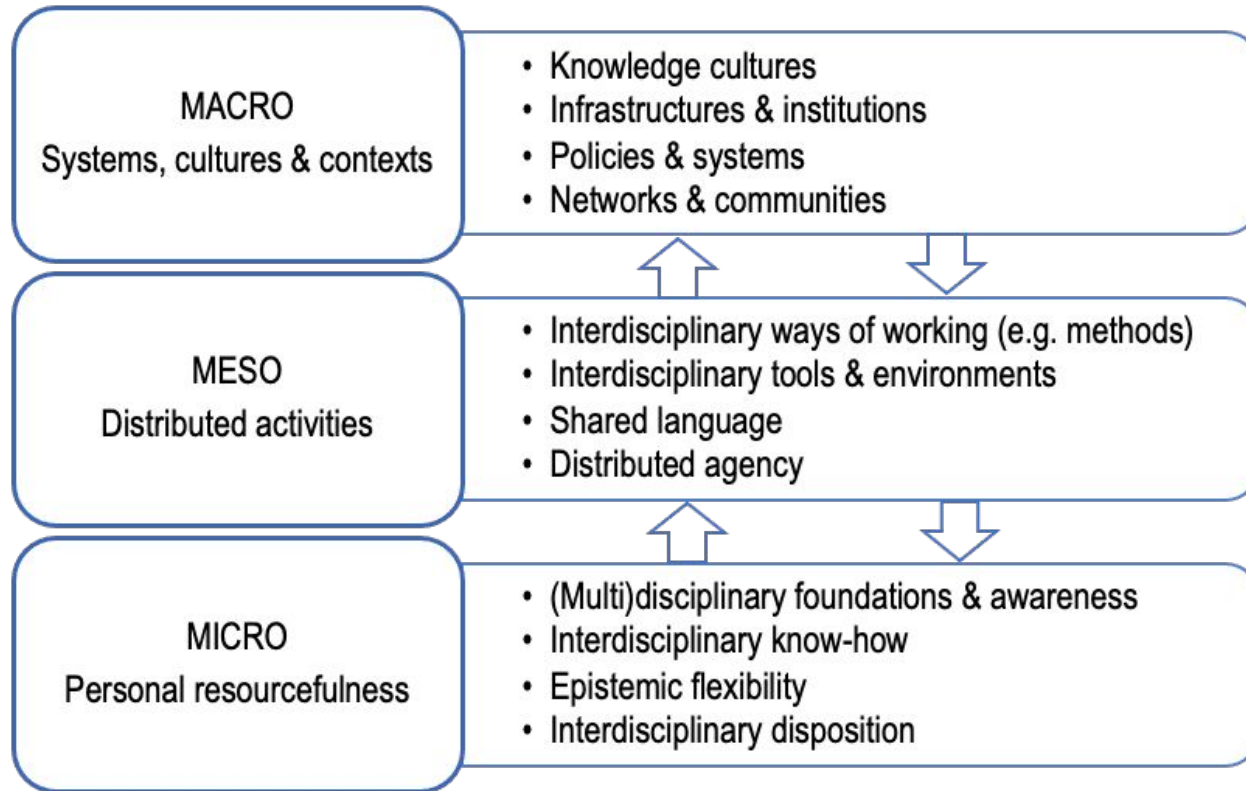
- To identify what constitutes teachers interdisciplinary expertise
- To co-create a framework with shareable resources for pre- and in-service teacher educators



Main facets of teachers' interdisciplinary practices



The ecology of interdisciplinary practices



The framework



Developing teachers' interdisciplinary expertise

An ecological framework for professional learning

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A knowledge translation process

- Consultation paper
 - Scoping literature review
 - Interviews-consultations
 - Open online webinar
 - Design workshop
- ***a multilayered approach*** for the development of interdisciplinary expertise for teaching across diverse pre-service and in-service teachers' education contexts;
 - ***research-practice insights*** from this knowledge translation study in relation to micro, meso, and macro levels; and
 - ***explore, share and build activities*** to assist pre-service and in-service teachers' educators and other stakeholders to use the presented in ideas in the design of preservice and in-service teacher education.

Framework scope and use

This framework is activity- and system-oriented; it focuses not only on the outcomes but also on the process of teachers' professional learning and situates teachers' interdisciplinary practices within a larger educational ecosystem.



We expect that pre-service and in-service teacher educators and other stakeholders will use this framework as a *compass* that helps them navigate the diversity of interdisciplinary teachers' education purposes and approaches by integrating theory and research in practice.

A compass

LEVELS of interdisciplinary expertise	ASPECTS of interdisciplinary expertise	RESEARCH-PRACTICE INSIGHTS from the knowledge translation	EXPLORE, SHARE AND BUILD activities for co-design
MICRO	(Multi)disciplinary foundations and interdisciplinary know-how	Prioritise epistemically sound, authentic teachers' interdisciplinary learning experiences tailored to specific purposes and contexts, which expand over time.	Main facets of teachers' interdisciplinary practices
	Epistemic flexibility and interdisciplinary dispositions	Build safe, playful professional learning opportunities to engage with uncertainty and develop flexibility and teacher-as-learner confidence.	Dispositions for interdisciplinary teaching
MESO	Interdisciplinary ways of working, tools and environments	Engage teachers and other stakeholders in co-creating inquiry-specific resources and environments.	Interdisciplinary pedagogical approaches
	Shared language and distributed agency	Make space and time to co-create shared purpose and language.	Interdisciplinary terminology and meanings
MACRO	Interdisciplinary knowledge cultures, infrastructures and institutions	Build interdisciplinary culture and leadership capacity by bridging research, theory and practice through institutional partnerships.	Infrastructures for interdisciplinary teaching and learning
	Interdisciplinary policies, systems, networks and communities	Navigate and shape interdisciplinary policies, strategies and curricula by engaging in interdisciplinary networks and communities.	Navigating interdisciplinary policies and strategies
SYNTHESIS	Creating an interdisciplinary ecosystem	Integrate interdisciplinary practices across the micro, meso, and macro levels with specific aims and contexts.	A vision of an interdisciplinary ecosystem
	Considerations for policy and decision-making	Broaden the reach of interdisciplinary education and equity through system-level policies and support measures.	Broadening the reach of interdisciplinary education

MICRO LEVEL

(Multi)disciplinary foundations and interdisciplinary know-how

Research-practice insights: Prioritise epistemically sound, authentic teachers' interdisciplinary learning experiences tailored to specific purposes and contexts, which expand over time.

Explore activity: Main facets of teachers' interdisciplinary practices

Figure 3 summarises the main facets of teachers' interdisciplinary practices related to teaching and professional learning (Markauskaite et al., 2023). Table 2 offers some examples. Explore this figure and table. Consider the following questions:

1. What other facets are important to consider?
2. How are these facets interrelated?
3. What are the potential benefits and limitations of embedding them in teachers' professional learning separately vs. integrating with each other?

Discuss broad ideas of how this could be done.

Share and build activity: Main facets of teachers' interdisciplinary practices

Use the research-practice insights above and the prompts in Box 3 to explore how interdisciplinary foundations and know-how are currently developed in your teacher education program or context. Discuss how this focus could be extended or re-imagined.

Facets	Exemplars
<i>Interdisciplinary foundations for teaching</i>	
Multidisciplinarity of teachers' foundational knowledge	Integrate research advances from neuroscience, the developmental and learning sciences on how people learn into teacher education (Darling-Hammond et al., 2022).
Hybrid and networked education	Develop teacher digital capabilities by integrating curriculum-related, ethical and professional uses of digital technologies (Falloon, 2020).
<i>Interdisciplinary professional learning practices</i>	
Learning through interdisciplinary collaboration	Create opportunities for professional learning in interdisciplinary teachers' communities (Grossman et al., 2001) and with experts beyond traditional disciplines, such as Aboriginal cultural educators (Burgess & Harwood, 2021).
Decolonising interdisciplinarity: social, environmental, and epistemic justices	Develop teachers' understanding and commitment to justice by embracing critical pedagogies toward contemporary disciplinary and interdisciplinary knowledge (Quan et al., 2019).
<i>Teaching integrative, interdisciplinary curriculum</i>	
Cross-curriculum teaching and	Embed sustainability in teacher education through

MICRO LEVEL

Epistemic flexibility and interdisciplinary dispositions

Research-practice insights: Build safe, playful professional learning opportunities to engage with uncertainty/and develop flexibility and teacher-as-learner confidence.

Explore activity: Dispositions for interdisciplinary teaching

Teachers' dispositions to engage in interdisciplinarity are often understood as being associated with motivation. However, dispositions extend beyond motivation. For example, Perkins et al. (1993) propose a triadic conception of dispositions which emphasises 1) *inclination*, the intention to engage in a particular behaviour; 2) *sensitivity* to occasion, the chances that a person will notice an opportunity for engaging in this behaviour, and 3) *abilities* themselves to engage in this behaviour.

Figure 4 presents some interdisciplinary dispositions important for teachers. They are based on a synthesis of consultations with various experts and stakeholders about teachers' interdisciplinary expertise. Explore this figure and Box 4 and consider the following questions:

1. What other dispositions are critical?
2. What kind of inclination, sensitivity, and ability are necessary for each disposition?
3. How these dispositions could be developed in teacher education?

Discuss the role of various stakeholders, such as university and school communities, professional networks, and other partnerships in developing teachers' dispositions.

Share and build activity: Dispositions for interdisciplinary teaching

Use the insights above and the prompts in Box 5 to explore how interdisciplinary dispositions are currently developed in your teacher education program or context. Discuss how this could be further extended or re-imagined.

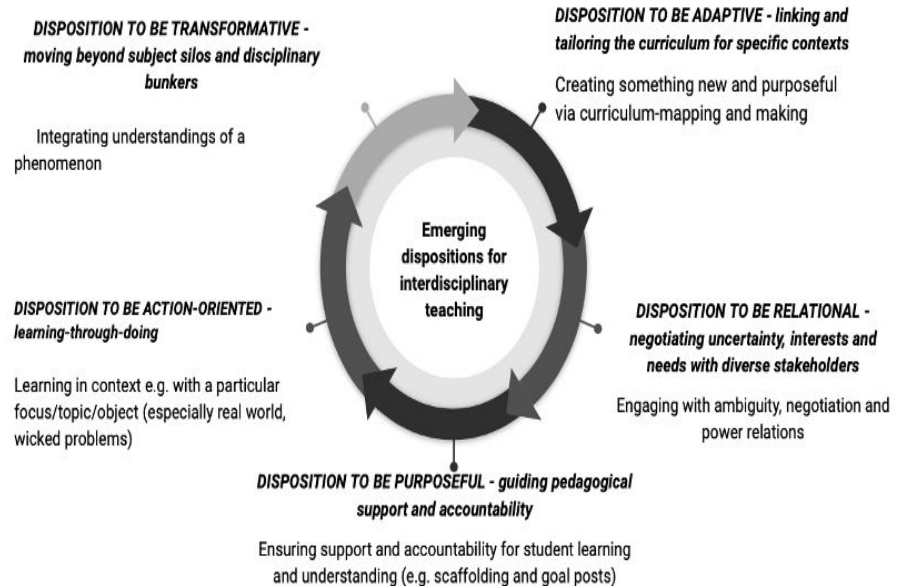


Figure 4: Emerging dispositions for interdisciplinary teaching

SYNTHESIS LEVEL

Creating an interdisciplinary ecosystem

Research-practice insights: Integrate interdisciplinary practices across the micro, meso/ and macro levels with specific aims and contexts.

Explore Activity: A vision of an interdisciplinary ecosystem

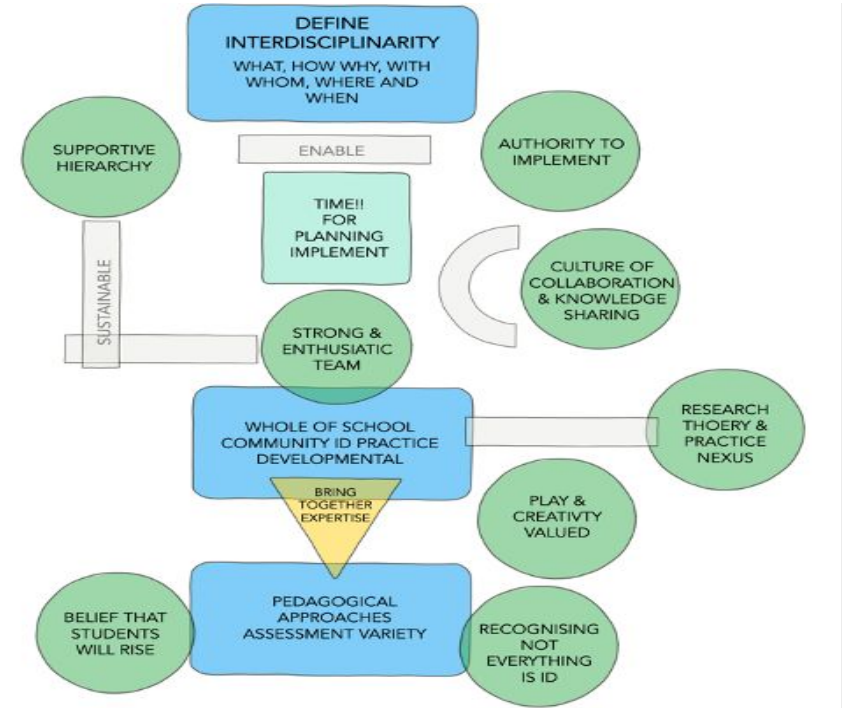
Figure 5 presents an example of an ecosystem for developing expertise for interdisciplinary teaching in a school based on a model co-created by the experts in this study. Explore this model and consider the following questions:

1. Which aspects of each model resonate with you most and why?
2. Which elements of each model would you align to a micro, meso, or macro level of teachers' interdisciplinary learning?
3. What elements would you add, remove or change?

Discuss how such a model could support the development of a shared vision within a school and how it could be translated into a concrete institutional strategy or plan, including specific professional learning activities. Consider how such a model of an ecosystem might look in a pre-service teacher education context.

Share and build activity: A vision of an interdisciplinary ecosystem

Use Figure 5 and the prompts in Box 12 to create a model of an ecosystem for developing interdisciplinary expertise in your teacher education program or context. Identify the most significant barriers and discuss possible changes.



SYNTHESIS LEVEL

Considerations for policy and decision-making

Research-practice insights: Broaden the reach of interdisciplinary education and equity through system-level policies and support measures.

Explore Activity: Broadening the reach of interdisciplinary education

Table 7 summarises some system-level measures critical for broadening the reach of interdisciplinary education reported in the literature (Timmerman, 2019; Warkentien et al., 2022). Explore this table and consider the following questions:

1. What other aspects of policy and decision-making are important for broadening the reach of pre-service and in-service teachers' interdisciplinary education in the NSW context?
2. Which system-level aspects are already conducive to teachers' interdisciplinary education?
3. Which aspects still require change to enhance the reach of teachers' interdisciplinary education?

Discuss actions that can be taken to make changes happen.

Share and build activity: Broadening the reach of interdisciplinary education

Literature on interdisciplinary education recognises that either system-level policies must change to encourage and support the broader reach of teachers' interdisciplinary education or teacher education institutions and schools must find creative ways to broaden teachers' interdisciplinary professional learning within the current policy context (Warkentien et al., 2022). Use the research-practice insights above and the prompts in Box 13 to explore system-level decisions affecting teachers' interdisciplinary learning in your teacher education context the most. Discuss what kind of institutional decisions have been taken in your teacher education context to seize opportunities for teachers' interdisciplinary learning within this policy context and how this could be further extended.

Measures	Description
System-level curriculum	National, state and other system-level curriculum “can shift the focus of instruction, quickly reach all students, and signal to educators the educational priorities.” (Warkentien et al., 2022, p. 11-27); and “curricula should stay flexible enough to keep the autonomy of teachers when they implement cross-curricular teaching” (Timmerman, 2019, p. 10).
Accreditation	Accreditation requirements for schools, teachers, initial education programs, and professional development programs can support interdisciplinary education (Warkentien et al., 2022).
Accountability policies	“what gets tested is what gets taught” (Warkentien et al., 2022, p. 11-27). Accountability policies (e.g., standards, high-stakes tests, exams) must encourage schools and teachers to incorporate interdisciplinary education.
Evidence base	Interdisciplinary teaching and learning should be assessed with appropriate evaluation tools (Timmerman, 2019). Diverse indicators and modes of assessment that include traditional assessment and incorporate indicators relevant to the purposes and outcomes of interdisciplinary learning are required (Warkentien et al., 2022).
Resourcing	Resources and support to implement interdisciplinary education across multiple areas and across pre-service and in-service education are needed (e.g., funding, access to courses and curriculum resources, and time allocation) (Timmerman, 2019; Warkentien et al., 2022).

How can this framework be used in different interdisciplinary cases?

The purpose of this framework is to inform the co-creation of professional learning opportunities to support the development of teachers' interdisciplinary expertise (and associated specific resources)

Possible case studies

- STEM
- Sustainability
- AI
- Indigenous knowledge systems
- Integrating the core content in initial teacher education
- Ethics
-

Exemplars to support professional learning to demonstrate framework applicability to different interdisciplinary professional learning cases

Discussion:

How can this framework be used in different interdisciplinary cases?

Lina Markauskaite • 1m



Webinar 2: Teachers' interdisciplinary expertise

How could cases illustrating this framework look like: 1) **WHY:** Which policies motivate this focus of teachers' interdisciplinary expertise and learning? 2) **WHAT:** What are the main opportunities and challenges to develop this focus of teachers' interdisciplinary expertise in your school or university context? 3) **HOW:** What is needed to make this happen? Add your discussion notes, additional points, feedback, suggestions, examples, etc., to the padlet.

- **WHY?** Which policies motivate this focus of teachers' interdisciplinary expertise and learning?
- **WHAT?** What are the main opportunities and challenges to develop this focus of teachers' interdisciplinary expertise in your school or university context?
- **HOW?** What is needed to make this happen?



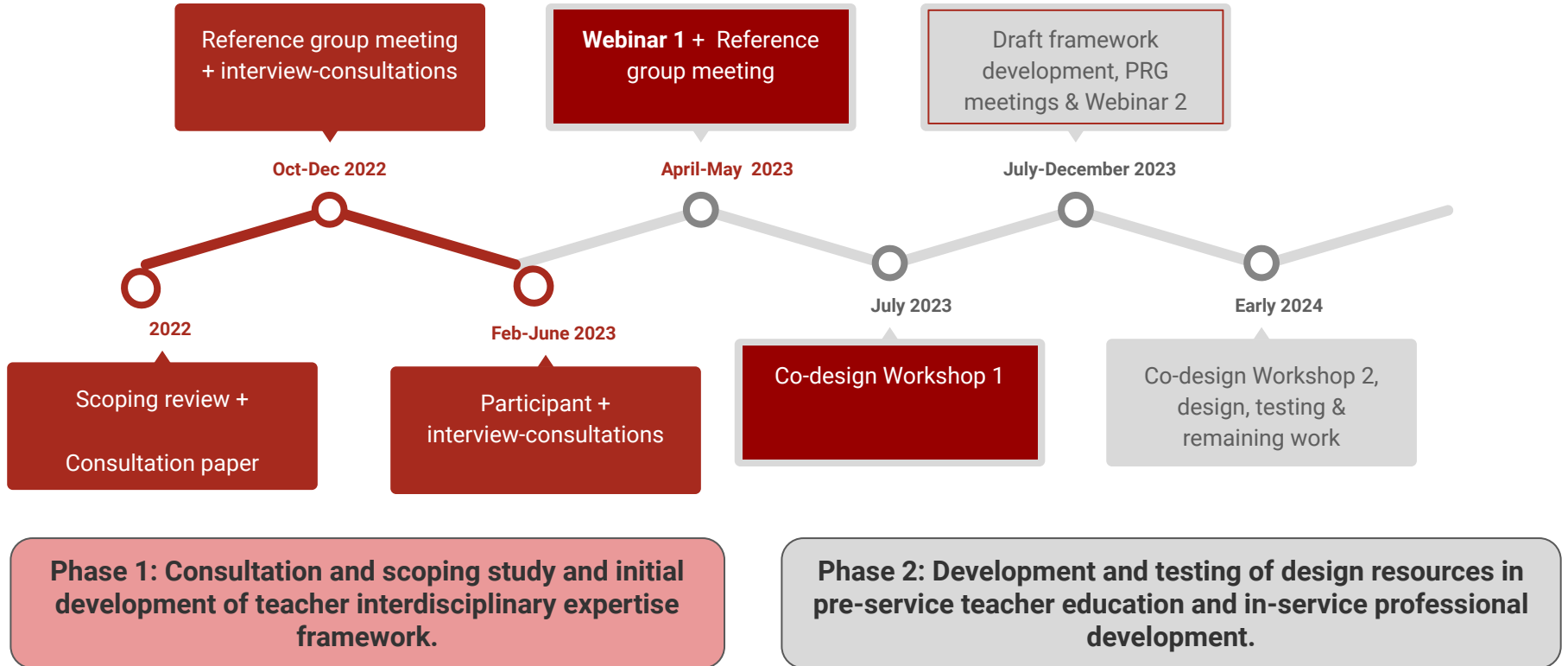
THE UNIVERSITY OF
SYDNEY

URL: <https://sydney.padlet.org/LinaMarkauskaite/webinar-2-teachers-interdisciplinary-expertise-imu9maf41z14cq4>

Synthesis

Reporting back from breakout

Project phases and next steps



Design phase 2: Expressions of interest

- **Opportunity:** How could you utilise this this framework to develop a specific interdisciplinary case for your professional learning context?
- Small funding available
- Design activities
 - In-person workshop: 23 Feb or 8 March
 - Follow-up activities: March - mid April
 - Development & testing: April-May
- EOI: Email Teresa Swist
teresa.swist@sydney.edu.au
- EOI deadline: 15 January 2024

Teachers' interdisciplinary learning could be organised and embedded in other professional learning activities and teaching practices in various ways, summarised and illustrated in Box 11. These options offer ideas for structuring interdisciplinary teaching but do not reveal a focus, and what teachers should learn and how.

Standalone interdisciplinary modules or courses to develop teachers' interdisciplinary capabilities for integrative cross-curriculum teaching, such as the CrossCUT online course (Timmerman, 2019), *Interdisciplinary Curriculum, Pedagogy and Assessment in the Primary Classroom* unit for pre-service teachers at ACU, *Designing for Interdisciplinary Learning* professional learning program at Flinders University and many sustainability-oriented programs (Imara & Altinay, 2021).

Embedding interdisciplinary focus and connections within or across existing subjects, for example, making connections to mathematics in science courses and connections to science in mathematics courses (Watanabe & Huntley, 1998).

Embedding interdisciplinary focus in professional learning community activities, for example, joint discussions of history and English literature readings to create an interdisciplinary humanities curriculum (Grossman et al., 2001).

Project-based courses or modules, where pre-service or in-service teachers learn through practical hands-on projects, such as co-creating integrated curricula and co-teaching (ACARA, 2016; Ryu et al., 2019).

Short experiential, interdisciplinary learning opportunities, such as hackathons for planning interdisciplinary curriculum modules or expert-modelled integrated days (Harvey & Reid, 2001; Milara et al., 2020).

Professional learning alongside students' interdisciplinary project-based learning, for example, when students' projects involve partnerships with experts from research organisations, museums or zoos.

Different combinations of the above and other models, such as participatory action research with university partners (Hunter, 2020) or intensive professional development sessions combined with teaching and ongoing mentorship (Anderson & Tully, 2020).

Box 11: Models for teachers' interdisciplinary professional education (after Markauskaite et al., 2023)

Thank you sharing your valuable ideas and expertise with us.

Website

<https://interdisciplinaryexpertise.org/developing-teachers-interdisciplinary-expertise>

X/Twitter

@InterdiscExpert

Contact us

teresa.swist@sydney.edu.au



We look forward to connecting with you again soon.

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118 Tweets



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Researching knowledge co-creation across disciplinary boundaries in research laboratories and learning settings, supported by an ARC DP and NSW DoE grants.

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Extra slides

Design workshop 2: Expressions of interest: 5 quest

• How could you utilise this framework to develop a specific ID case for your professional learning and teaching activities?

- Opportunity: How could you utilise this framework to inform and inspire PL opportunities for a specific case (e.g. STEM)
- Design workshop 1: late Feb
 - Fri 23 Feb
 - Fri 8 March

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● Follow up activities (April)

Next steps

- Early Nov:
 - Project reference group insights
- Early Dec/TBC
 - Open Webinar
- Early 2024
 - Resource co-design workshops
 - Dissemination

MESO LEVEL

Shared language and distributed agency

Research-practice insights: Make space and time to co-create shared purpose and language.

Explore activity: Interdisciplinary terminology and meanings

There is no one universal definition of interdisciplinarity and related terms. Therefore, it is important to make teachers aware that these terms are used differently by different people and communities and develop their capabilities to engage proactively in the construction of shared meanings. Box 7 offers some simple definitions of the main terms related to interdisciplinarity. Table 4 offers a more detailed description of different models in which disciplines could be brought together in teaching across curricula. Explore these definitions and the table and consider the following questions:

1. What other terms could be added?
2. How could teachers be helped in constructing a broad and flexible understanding of these terms?
3. How could teachers develop a shared language when engaging in interdisciplinary teaching collaborations?

Discuss what teachers should learn in advance and what should be left for teachers to co-construct during their collaborative interdisciplinary work.

Share and build activity: Interdisciplinary terminology and meanings

Use the research-practice insights above and the prompts in Box 8 to explore how interdisciplinary language and agency are currently developed in your teacher education program or context. Discuss how this meso-level focus could be further extended, adapted or re-imagined.

Disciplinary refers to a body of knowledge or branch of learning with particular characteristic features (concepts, theories, methods, objects, etc.). English Literature, History, Biology, and Physics are examples of disciplines. Disciplines are organised in broader disciplinary areas or disciplinary fields, such as Humanities and Science.

Interdisciplinarity, in a broad sense, refers to all forms of engagement and collaboration across disciplines and with other non-academic knowledge fields and activity spheres (private, community, industry, etc.).

It is used as an 'umbrella' term that includes different degrees of interaction across the fields, from *crossdisciplinarity*, which involves exploration of the same topics from several perspectives without integrating them, *multidisciplinarity*, which involves the concurrent use of multiple disciplinary perspectives to address a common problem, to *transdisciplinarity*, which involves integration and transcendence of existing knowledge fields and the emergence of new worldviews.

Interdisciplinarity, in a narrow sense, is a midway between multidisciplinary and trans-disciplinarity. It refers to the integration or synthesis of concepts and approaches from several disciplines to arrive at new integrated knowledge and solutions.

The Sustainability cross-curriculum priority "explores the knowledge, skills, values and world views necessary for people to act in ways that contribute to a sustainable future. Designing solutions and actions for a sustainable future requires an understanding of the ways environmental, social and economic systems interact, and an ability to make balanced judgements based on present and future impacts" (ACARA, 2023, p. 1).

STEM (Science, Technology, Engineering and Mathematics) education "refers collectively to the teaching of the disciplines within its umbrella – science, technology, engineering and mathematics – and also to a cross-disciplinary approach to teaching that increases student interest in STEM-related fields and improves students' problem solving and critical analysis skills" (ACARA, 2016, p. 4).

General capabilities are "knowledge, skills, behaviours and dispositions to live and work successfully" (ACARA, 2023).

MESO LEVEL

Interdisciplinary ways of working, tools and environments

Research-practice insights: Engage teachers and other stakeholders in co-creating inquiry-specific resources and environments.

Explore activity: Interdisciplinary pedagogical approaches

Table 3 summarises pedagogical approaches for interdisciplinary teacher education suggested by the consulted experts and their recommended examples. They also can be used later by teachers in their teaching practice.

Explore this table and consider the following questions:

1. What other approaches should be included?
2. What other examples could be added?

Discuss the strengths and weaknesses of each approach in developing teachers' capabilities to co-create interdisciplinary resources and environments.

Share and build activity: Interdisciplinary pedagogical approaches

Use the research-practice insights above and the prompts in Box 6 to explore how teachers' capabilities to engage in interdisciplinary ways of working and to co-create resources and environments for interdisciplinary learning are currently developed in your teacher education program or context. Discuss how this could be further extended or re-imagined.

Approach	Examples
<p><i>Problem-based learning</i> Focussed on important themes that can be explored across local and global contexts.</p>	<p>Examples of topics are sustainability, pollution, climate change, food scarcity, complex politics, and the use of artificial intelligence. There are a range of resources to support problem-based approaches. For example, Interdisciplinary Teaching on Climate and Sustainability offers teaching resources arranged by topic plus ideas for specific subject areas. The AdaptNSW website produced by the NSW Government has climate change education resources with teacher guides, maps, case studies, stories and syllabus links to various subject areas.</p>
<p><i>Project-based learning</i> Focussed on a particular project, which could involve engaging with a local community or external partners.</p>	<p>Teachers could benefit from experiencing and learning to develop projects in association with community or industry partners, such as theatres, museums, universities, and sporting and transport organisations. For example, the Powerhouse Museum offers a range of professional learning events which could inform project-based learning design.</p>
<p><i>Physical and virtual site visits</i> Focussed on placed-based experiential learning in virtual and physical spaces.</p>	<p>Teachers could benefit from experiencing various approaches to learning beyond the classroom and how to design cross-curriculum lessons that use these pedagogical approaches, such as audio walks and 'soundscape' (Smith 2021). There is also a range of virtual learning resources available, which are curated in a central repository by DART Learning (an initiative for Distance and Rural Technologies by the NSW Department of Education)—with a range of STE(A)M opportunities, such as exploring the intersection of arts and sciences to tell stories of biology.</p>

MACRO LEVEL

Interdisciplinary knowledge cultures, infrastructures, and institutions

Research-practice insights: Build interdisciplinary culture and leadership capacity by bridging research, theory, and practice through institutional partnerships.

Explore activity: Infrastructures for interdisciplinary teaching and learning

Table 5 offers examples of various interdisciplinary organisations supporting interdisciplinary learning, including teachers' capacity building. Explore these examples and consider the following questions:

1. How could this institutional infrastructure be used for building teachers' interdisciplinary capacities in pre-service or in-service teacher education?
2. What are examples of other organisations that offer intellectually rich environments for teachers' interdisciplinary learning that could be added to this list?

Discuss the main limitations and benefits for teachers' learning by engaging in interdisciplinary partnerships.

Share and build activity: Infrastructures for interdisciplinary teaching and learning

Use the research-practice insights above and the prompts in Box 9 to explore how interdisciplinary cultures and partnerships are currently developed in your teacher education program or professional learning context. Discuss how this macro-level focus could be further extended or re-imagined.

Table 5: Examples of interdisciplinary organisations and knowledge hubs for educators

Knowledge hub	Description
The Australian Education for Sustainability Alliance	An alliance of organisations for sustainability education, including networks and resources for teachers.
Environmental Educator Networks	Regional and local sustainability education networks across NSW.
Sustainability Resources, NSW	The NSW Department of Education curates a range of resources for sustainability education.
The STEM Academy	A year-long professional learning program for school teams to collaboratively design integrated STEM curricula.
Inspiring Australia, NSW	NSW Regional Science Hubs develop STEM events that connect researchers to external audiences.
STEM Professionals in Schools	CSIRO's national skilled volunteering program for STEM professionals and classroom educators.
STEM Education, NSW	The NSW Department of Education curates a range of resources for STEM education.
Young Change Agents for Education	YCA offers educators professional development to integrate entrepreneurial learning into the school curriculum.
Think Forward Educators	A community of teachers and school leaders interested in the Science of Learning.

MACRO LEVEL

Interdisciplinary policies, systems, networks, and communities

Research-practice insights: Navigate and shape interdisciplinary policies, strategies, and curricula by engaging in interdisciplinary networks and communities.

Explore activity: Interdisciplinary strategies

Table 6 provides an overview of the key strategic and policy documents related to teachers' interdisciplinary practices in the NSW and broader Australian contexts. Explore these documents and consider the following questions:

1. What other documents related to interdisciplinarity should be included?
2. What do teachers need to be capable of doing to navigate this strategic policy and curricula landscape flexibly?
3. How can teachers' capabilities to navigate and shape this strategic and policy landscape be developed?

Share and build activity: Navigating interdisciplinary policies and strategies

Use the research-practice insights above and the prompts in Box 10 to explore how teachers' capacity to navigate interdisciplinary policies, strategies and institutional structures is currently developed in your teacher education program or context. Discuss how this could be further extended or re-imagined.

Document	Interdisciplinary focus
Australian national curriculum (ACARA, 2023)	General capabilities: literacy, numeracy, information and communication technology capability, critical and creative thinking, personal and social capability, ethical understanding, and intercultural understanding. Cross-curriculum priorities: Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia's engagement with Asia, and sustainability.
Australian national STEM school education strategy 2016–2026 (Education Council, 2015)	Development of students' skills in cross-disciplinary, critical and creative thinking, problem solving and digital technologies. Effective partnerships with tertiary education providers, business and industry. Increasing teacher capacity and STEM teaching quality.
NSW curriculum (NESA, 2023)	Capabilities: literacy, numeracy, digital literacy, critical and creative thinking, ethical understanding, intercultural understanding, personal and social capability. Priorities: Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia's engagement with Asia and sustainability, civics and citizenship, diversity and difference, work and enterprise.
The Australian Professional Standards for Teachers (NESA, 2014/2018)	The standards mainly focus on teaching specific subjects. Three main areas related to teachers' interdisciplinary expertise: 1) ability to make the content meaningful for a diverse range of students; 2) use of a range of effective teaching strategies, including encouraging problem solving and critical thinking; 3) ability to use ICT in teaching. There is a strong focus on the teachers' abilities to plan, create resources, take initiative, be flexible, and use research.
Strong Beginnings	Requires higher education providers to integrate the core