

Mentoring early career teachers

A rapid literature scan prepared by the Australian Education
Research Organisation



Contents

Glossary.....	3
A rapid literature scan	4
1. Background.....	4
2. Method.....	4
3. Understanding the confidence levels in this literature scan.....	5
4. Limitations.....	6
5. What evidence is available?	7
6. The nature of the mentor-mentee relationship	7
7. How mentors should best apportion their time across different activities	10
8. Characteristics of effective lesson observation	11
9. Mentoring in First Nations contexts	13
10. Incidental findings	14
11. Further reading.....	16
References	20
Appendix 1	24
The core elements of effective mentoring models	24
Three high-quality reviews provide evidence of mentoring model effectiveness	25

Glossary

Term	Definition
ECT	Early career teachers
RCT	Randomised controlled trial
QED	Quasi-experimental design

A rapid literature scan

1. Background

The Australian Education Research Organisation (AERO) was asked to conduct a rapid scan of research to ascertain the evidence behind specific aspects of mentoring early career teachers (ECTs). This scan will inform the way in which mentoring is scaffolded and developed as part of the Career Start program. The time available did not permit an exhaustive investigation into all aspects of mentoring, so the Victorian Department of Education requested AERO prioritise exploring evidence related to 3 themes:

- a) The nature of the mentor-mentee relationship
- b) How mentors should best apportion their time across different activities
- c) The characteristics of effective lesson observation.

For each, AERO was asked to not only identify insights from the research available, but to also assess the standard of evidence behind the research conclusions. Inclusion of the findings and judgements on the evidence will enable the Career Start team to determine how best to interpret and apply the findings. Where AERO came across potentially relevant findings that spoke to broader considerations beyond the 3 prioritised themes listed above, these were also noted (see the Incidental findings section).

2. Method

Our scan began with a search for reviews that pooled findings from across multiple individual studies. A range of relevant search terms (Table 1) was used and rules for inclusion were developed. Separate searches were conducted for mentoring and lesson observation research.

Search terms

Table 1 – Rapid literature scan search terms

	Mentoring search terms	Lesson observation search terms
Focus	induction OR mentoring OR coaching	Lesson observation OR lesson study OR classroom observation OR teacher observation
	AND	AND
Population	early career OR beginning OR novice OR newly qualified OR graduate OR first year teachers OR <i>(added later to supplement findings)</i> experienced teachers	N/A

We use 'study' and 'review' throughout to distinguish between the nature of works explored.

- A **study** reports on original research and typically describes an investigation using qualitative or quantitative methods (or both, i.e. a mixed method) to collect and analyse information in answer to specific research questions (e.g., a randomised controlled trial, a program evaluation or surveys and interviews).
- A **review** provides an overview of a subject by examining previously published studies on the topic. Reviews can take many forms, from a relatively unstructured literature review through to a meta-analysis which aggregates estimates of impact or relationships across multiple studies to arrive at an 'average' effect size or other measure of a statistical relationship.

Included reviews

Included reviews were those that:

- had been published in the last 10 years (or appeared in the reference list of an included review)
- had a systematic or transparent methodology
- reported on outcomes (either through qualitative or quantitative data or both) including student achievement, teacher practice, self-efficacy, wellbeing and retention.

Included studies

After examining the findings of reviews, we explored relevant studies cited in the reviews and, where time permitted, checked reference lists for other pertinent studies. These studies span a broader time period (approximately 2000 onwards) than the reviews as the review authors included studies at least 10 years prior to the date of their own publication.

Time did not permit us to explore all cited studies, so we prioritised those that had more relevant findings or which were randomised controlled trials (RCTs) or quasi-experimental designs (QEDs) that included a comparison group.

Exclusions

Studies and reviews were excluded if:

- the limited time available restricted the possibility of accessing the full text publication
- they predominantly focused on a pre-service teacher population¹
- they were purely either theoretical or descriptive (e.g., they were a survey on the frequency of mentoring or lesson observation practices) papers.

3. Understanding the confidence levels in this literature scan

When making empirical claims, we refer to the works reviewed as achieving one of 3 confidence levels with respect to their ability to establish causality (i.e., to say that X causes Y). The confidence levels help us to make consistent and transparent judgements when assessing studies and reviews. They should not be read as a statement of the quality of the works themselves, merely their utility in making the case for a causal relationship to be established. Many valid and high-quality research methods do not attempt this, which limits the level of confidence they can be assigned (e.g., qualitative studies cannot be assessed as high confidence even if they are well-designed and executed).

Table 2 sets out the basis for judgements against these confidence levels for both reviews and studies and introduces the shorthand symbols that we use to denote them throughout the report.

¹ This is due to a different power dynamic in the relationship between mentors and pre-service teachers, with mentors assessing pre-service teachers' skills and suitability for the profession.

Table 2 – Level of confidence (in making causal claims) for reviews and studies

Confidence level	Features required to achieve confidence level	
	Reviews	Studies
 Level 3 – High Allows <i>causal inferences</i> to be made	Meta-analyses drawing only on RCTs and QEDs and which have robust and transparent methods for the search strategy, inclusion / exclusion, data extraction, and analysis.	RCTs or QEDs that benchmark against a control group (using matching or other methods, such as a difference-in-difference design) and which are transparent in documenting their research methodology.
 Level 2 – Medium Associates a strategy or approach and effects (i.e., shows <i>correlation</i> , not <i>causation</i>)	Meta-analyses that include observational studies (e.g., pre-post studies with no control group) using robust and transparent methods for the search strategy, inclusion / exclusion, data extraction and analysis. OR Systematic reviews which have robust and transparent methods for the search strategy, inclusion / exclusion, data extraction and analysis.	Qualitative or quantitative studies using robust and transparent methods. Claims are justified by the empirical data drawn from a range of sources or large sample sizes. ²
 Level 1 – Low Indicates there <i>may</i> be an association between a strategy or approach and effects	Reviews using an adequate research design but providing only minimal detail on the types of studies included or about the processes used for identifying and screening studies, or that rely on a small number of studies.	Qualitative or quantitative studies using an adequate research design but providing only minimal detail on the data collection and analysis methods used to justify claims, or studies that rely on limited data sources or small sample sizes.

Note: that these levels were adapted to suit the purposes of this rapid review from AERO's [standards of evidence](#) and [evidence decision-making tool for policymakers](#).³

We suggest viewing these confidence levels as a starting point for making an assessment as to the likely benefits of the strategies listed in this report. Then we recommend using professional judgement to consider context and weigh the potential benefits, costs and risks of the mentoring program or practice. Where making a substantial change to guidance or program design is being considered we recommend reading underlying or other cited studies and exploring further studies not identified here given the limitations of this rapid review.

Note that where we draw on a study or review to describe an approach to provide a definition, we do not indicate a confidence level (as there is no empirical claim to assess against).

4. Limitations

This literature scan was completed over a 5-week period. A systematic review of literature done in full accordance with rigorous academic processes is estimated to take 18 months.⁴ Accordingly, this scan is best viewed as a summary of the research that is easily identifiable and extracted in a

² In this report, studies assigned a Level 2 (medium confidence level) have a minimum sample size of approximately 30 mentees. However, sample size was not the only factor when considering confidence levels, rather all relevant research methods were considered 'on balance'.

³ Note that AERO's standards of evidence identify a fourth level that describes studies that are rigorous and have been conducted in the specific context of the user. Level 4 has not been included in this report, because, to our knowledge, no study in Australia at this level has been conducted on the features of mentoring and lesson observation over recent decades.

⁴ <https://libguides.ucmerced.edu/systematic-reviews/planning>

very short space of time. There are likely to be several omissions as a result, and our ability to adjudicate between conflicting findings, identify with certainty the rigour with which the studies were conducted, or investigate what might have driven certain findings is also limited by the amount of time available to thoroughly interrogate studies.

Additionally, the team undertook an expedited process for assigning confidence levels for the works used in this scan.⁵ After the initial screen took place and information was extracted, team members met to discuss the criteria used to determine the threshold for confidence levels. Collectively, a sample of studies and reviews requiring confidence level assignment were assessed, discussed and once consensus was achieved, a confidence level was assigned to each. All remaining studies and reviews were individually assessed by a single team member. Where difficulty arose in assigning a rating, a second team member also reviewed, and the team members jointly assigned the rating.

5. What evidence is available?

There is substantial evidence to suggest that:

- the mentoring of beginning teachers is helpful in terms of improving their instructional practice and in some cases, retaining them in the profession
- the way in which mentors work with their mentee can affect the intended outcomes of a mentoring program
- when common mentoring strategies are combined in a single mentoring program there is an increased likelihood of positive effects on teacher practice.

There is very little or no evidence to support:

- a causal relationship between specific mentoring strategies and teacher outcomes
- which mentoring strategies are more effective than others
- which specific combinations of strategies are most beneficial.

Many mentoring and coaching research reviews and studies consider the overall impact of mentoring and induction programs which include a variety of activities and strategies. While we have highlighted individual mentoring strategies and activities under relevant report headings, the impact of these individual activities and strategies cannot be separated from the combination of activities conducted in each mentoring program.

Stevenson et al. (2023), in a rapid evidence review for the National Institute of Teaching, explored the association of specific mentoring features with improved teacher outcomes and pupil attainment. The review conclusion provided here typifies the conclusions reached in many of the examined reviews and studies:

Because of the limited number of included studies within each outcome area, limited variation across studies and the number of cases where there are elements of the programme that are unclear, unfortunately we were unable to explore the influence of programmes features and mentor characteristics on teacher and pupil outcomes quantitatively as planned (p. 74).

6. The nature of the mentor-mentee relationship

Several reviews and studies reported findings about the nature and frequency of interactions between mentor and mentee. Studies and reviews explored the effect of:

- school-based mentors and centrally deployed mentors on teacher outcomes
- placing mentors in an assessing role rather than in a non-judgemental role

⁵ A longer time frame would typically allow a more extensive approach e.g., using checklists or rating tools such as those developed by JBI: <https://jbi.global/critical-appraisal-tools>

- the way in which the mentor relates and guides the mentee
- the frequency of interactions between mentor and mentee
- relational trust and the provision of emotional support.

Further information about the selection of the mentor and the matching the mentor and mentee can be found in the Incidental findings section.

School-based mentors compared to offsite mentors

The merits of a mentor working within the school context (typically with a teaching load) versus a centrally appointed mentor who visits mentees at their school has been explored by 4 research pieces. Three of the studies and reviews suggest that there are advantages to a mentor and mentee working together in the same school, while Fletcher et al. (2008) reports that there were larger student achievement gains when mentees were supported by fully-released offsite mentors.

-  Schmidt et al.'s (2020) evaluation of the implementation and impact of a new teacher mentoring program used a cluster-randomised controlled trial design. As many research sites were unable to implement program components with fidelity, few significant findings were identified in the evaluation. Issues with implementation included low levels of principal engagement, mentors receiving inadequate time for mentoring, mentors not attending the required training and mentors not regularly using the approved formative assessment tools with their mentees. However, when it came to creating an environment of respect and rapport, centrally deployed mentors⁶ had a negative impact relative to teachers with school-based mentors.
-  A quasi-experimental study in one US school district (Fletcher & Strong, 2009) assessed the outcomes of mentees' students that had either an in-school mentor (with a teaching load) or an off-site mentor mentors (with full time release). Regardless of grade or subject, the students of mentees with offsite mentors had greater achievement gains than students associated with site-based mentors. The authors hypothesised that these results may have been due to different levels of intensity of mentoring, cross-school differences, or other unknown factors (p. 340).
-  When measuring instructional practice and self-efficacy, according to Spooner-Lane's (2017) review of 10 studies, 3 of the studies compared the effectiveness of in-school versus off-site mentors. Two of the studies showed improved mentee instructional practice when their mentor was school-based, with one study concluding that in-school mentors were more effective as i) the mentee was able to access more frequent assistance; and ii) the mentor had a personal knowledge of the school and the way it operates. The third study found no consistent differences in the instructional practice of beginning teachers with mentors in-school or mentors off-site.

Mentors not as supervisors or in a judgemental role

-  Over the last decade, Hobson has examined and regularly reported on the practice of 'judgementoring' (Hobson, 2016, 2017; Hobson & Malderez, 2013; Manning & Hobson, 2017). Judgementoring is defined as a mentoring relationship characterised by a mentor who too quickly and too often reveals judgements about the mentee's planning and teaching through feedback, advice and thereby 'compromises the mentoring relationship and its potential benefits' (Hobson & Malderez, 2013, p. 90). Hobson and Malderez (2013) reported that judgementoring is a major obstacle to the potential of mentoring and further, that it is a barrier to continuing education and wellbeing of beginning teachers. They note that it is inevitable that mentors will have judgements, but judgements should be used to guide the mentor's thinking about ways to support and scaffold their mentee's

⁶ Centrally deployed mentors were mentors employed full time by a school district and mentored beginning teachers across multiple schools in their district. This is in contrast to school-based mentors who mentored beginning teachers in their own school, typically in addition to their classroom teaching responsibilities.

learning. The authors also advise that the only time when judgements should be shared with the mentee is in the context of a well-established trusting relationship and when the mentee invites the mentor to do so.

Hobson and Malderez (2013) further noted that their data shows that asking mentors to assess a beginning teacher while supporting their professional learning places them in a conflicting role further threatening the potential of school-based mentoring.



Nedzinskaite-Maciuniene et al. (2021) found that collaborative learning processes situating mentors and mentees as equal partners in learning (regardless of seniority, age, expertise, role or experience) can positively impact teachers' willingness to co-operate and improve their teaching skills.

Nature of interactions



A review of systematic reviews, surveys and meta-analyses (Frederiksen, 2020) found that the mentees associated with improved teacher practice had mentors who did not simply deliver expert advice but rather used an inquiry process contextualised and situated in their mentee's practice which assisted the mentee's reflection on teaching.



According to a review by Shanks et.al. (2022), the use of scaffolding questions, expressed in a clear and balanced way, may combat isolation, foster collaboration, and enhance professional growth.



Allowing the mentee an appropriate degree of autonomy to make decisions was one of 4 effective mentoring strategies across different contexts according to a literature review aimed at identifying the required conditions for successful mentoring (Hobson et al., 2009).



One literature review noted that when mentors conferenced with their mentees using active listening skills and asked probing questions rather than made suggestions, their mentees appeared to be better able to instruct their class and were more organised (Crutcher & Naseem, 2016).

Frequency of interactions



Stevenson et al. (2023), in their review of mentoring programs showing small positive impacts on average on instructional practice and pupil attainment, noted that in most of the 11 studies they examined the mentor interacted with the mentee weekly and documentation of the mentor's work with the mentee was an expectation.



Kraft et al. (2018) failed to find any evidence in support of the hypothesis that coaching must be high dosage to be effective. Their analysis showed that neither the total number of hours of coaching nor the total number of professional development (PD) hours (coaching plus other PD activities) increased or decreased the effect on teaching instruction or student achievement outcomes.



DeCesare et al.'s (2017) RCT of mentoring new teachers by recently retired teachers found that more hours of mentoring was associated with greater teacher retention.



Fletcher et al. (2008), reporting on a quasi-experimental study involving 3 school districts and over 1,000 beginning teachers, found that mentor-based induction may have a positive effect on student achievement if the program allows for weekly contact and if mentors are thoughtfully selected based on their classroom experience.



The meta-analysis from Keese et al. (2023) which drew on 17 studies, supports Fletcher et al.'s (2008) finding. Keese et al. (2023) found that mentees who had more frequent interactions with a mentor showed higher gains across all indices of instructional practice measured.

- In addition, Bastian and Marks' (2017) evaluation of the New Teacher Support Program (NTSP) in North Carolina found that an additional instructional coaching visit each month was associated with higher levels of teacher retention.
- Alongside frequency, some studies identify, implicitly and explicitly (in qualitative interviews with mentees), that the success of a mentoring relationship can be driven by how involved, reliable and accessible the mentor is to new teachers (Kutsyuruba et al., 2019). Similarly, successful mentoring is facilitated where timetabling allows mentors and mentees to meet together during the school day (e.g., Bullough, 2005, cited in Hobson et al. 2009).

Virtual or in-person mentoring

- Kraft et al.'s (2018) review found no difference in effect sizes on teaching instruction or student achievement for coaching programs that were delivered in person as opposed to remotely.

Emotional support and relational trust

- Helms-Lorenz et al. (2013) found that beginning teachers who received a comprehensive induction felt significantly more supported, had fewer stressors and had higher retention rates than colleagues in standard induction programs. In this study, 'comprehensive induction' included reducing workload, supporting effective teaching behaviour in the classroom, stimulating professional development, and facilitating activities to become familiar with school policy, school rules, and with colleagues.
- Kutsyuruba et al. (2019) found that being paired with a mentor who could 'read others' (referred to as part of emotional intelligence) and who could develop a strong mentoring relationship was associated with improved teacher retention.
- In reporting on the failure of some mentors to create safe, trusting relationships, Hobson and Malderez (2013) claimed that the major reason for this is due to the practice of judgementoring.⁷

7. How mentors should best apportion their time across different activities

We noted earlier that there is limited evidence establishing a causal relationship between a specific mentoring strategy and teacher outcomes. We have identified only one study (see the dot point here), which focused on induction programs and beginning teachers. Findings suggest that apportioning additional time to instructional coaching – relative to other program components – may be beneficial.

- Bastian and Marks (2017) found evidence that the instructional coaching component of the New Teacher Support Program (NSTP) may have been more effective than other aspects of the program in low-performing schools, as it was the only program element where higher dosage related to more positive student and teacher outcomes. Specifically, they found that an average of one more instructional coaching visit per month⁸ was associated with significantly higher student achievement in mathematics and improved teacher retention. However, no relationship with the number of visits was found for reading or science achievement, or for teacher evaluation ratings.

⁷ Refer to the section on 'not supervisors or in a judgemental role' for an explanation on judgementoring.

⁸ The NSTP program recruited, hired, and trained practicing and retired master teachers to serve as full-time NTSP instructional coaches to visit schools face-to-face or virtually.

8. Characteristics of effective lesson observation

The findings related to lesson observations were largely general in nature, therefore this section includes an overview followed by some specific findings. The value of lesson observations is largely uncontested. A thematic synthesis (Bond, 2023) examined the conclusions drawn from 19 reviews and 48 theoretical and framework sources; a survey completed by over 1000 school leaders, 1000 mentors and 300 mentees; and a rapid evidence review examining 62 impact evaluations. According to the synthesis, observation and feedback were the most frequently reported activities by leaders, mentors and mentees.

Many studies noted that a variety of models for conducting lesson observations were effective in improving a range of student and teacher-level outcomes. These typically involve goal setting, observation and feedback, modelling or rehearsal, then a repeat of this cycle. However, teasing out which particular aspects of lesson observation are more effective was not possible, nor was it possible to identify one model that stood out as superior. In fact, in their review of over 100 studies on in-service professional development (refer to Table 4), Sims et al. (2021) note that there is no clear evidence to suggest that one model is more or less effective than another. Both models included in Sims et al. (2021) (lesson study and instructional coaching) had similarly sized positive effects on a range of outcomes. These 2 promising models are described below.

Lesson study

Lesson study is a model of lesson observation developed in Japan. It features a cycle that begins with the mentor and mentee setting a goal, then planning the lesson, mentor observation of the mentee teaching, followed by a reflective session. This cycle is repeated until the goal has been achieved and a new one can be set (Nedzinskaite-Maciuniene et al., 2021).

In some models of lesson study, the observation is a group activity rather than 1:1, involving:

- identifying a school-wide research focus
- collaborating in groups to design a lesson plan
- one teacher delivering the lesson while other group members observe
- post-lesson discussions
- input from an outside expert
- knowledge sharing between different groups of teachers (Seleznyov, 2019).

Lesson study may improve teachers' pedagogical knowledge and skills, content knowledge, and attitudes and beliefs (Nedzinskaite-Maciuniene et al., 2021). Incorporating multiple professional learning mechanisms (including those associated with lesson observation) tends to make lesson study more effective (Sims et al., 2021). When implementing lesson study, Seleznyov (2019) advises that the professional learning culture and other systems within the school should be considered.

Instructional coaching

Instructional coaching is a model of lesson observation featuring a similar cycle to lesson study. Sims et al. (2021) found variation among studies about which aspects of the cycle are most important. However, they note 'something of a consensus' (citing 5 studies) that the following core mechanisms should be included:

- goal setting: this is where the mentors and/or the mentees identify an area of focus to improve the mentee's practice
- feedback: this is where mentors reflect on their observation with their mentee to provide feedback

- instruction OR modelling: through instruction or through modelling, mentors identify specific actions for the mentees to improve their practice
- rehearsal: this is where the mentee practices and repeats the technique inside the classroom or outside the classroom.

The following findings are related to effective lesson observation – either with regards to a specific model (such as lesson study or instructional coaching), or generally. They are grouped under 3 headings: goal setting, feedback, and modelling.

Typical lesson observation strategies

Goal setting

-  Mentees using lesson study may benefit generally when provided with the opportunity to self-select their own learning goals and interventions, according to Seleznyov's (2019) review. Findings showed that while lesson study generally did not make a difference to teaching, there was evidence to suggest that it impacted on teacher learning (confidence, subject and pedagogical content knowledge) and teacher reactions (attitudes and enjoyment regarding lesson study).
-  For mentees, according to Hobson et al. (2009), the value in lesson observation may increase when mentors and mentees agree upon the individual goals for the mentee, as well as the objectives of the mentoring relationship.

Feedback

-  In examining the relationship⁹ between instructionally focused mentoring and maths achievement, Schmidt et al. (2020) found that when mentors used this approach with their mentees, student achievement in maths was higher than when mentors did not use this approach. Providing feedback, as well as analysing student work, observing mentee classrooms, and adjusting instruction for diverse learners were the practices associated with these gains.
-  Providing feedback on lesson plans and lessons, modelling effective teaching and supporting reflective practices may improve teacher self-efficacy. Specifically, the provision of feedback on lesson plans may enhance the effects of the intervention above and beyond the other forms of mentoring support noted (Mok et al., 2023).

Modelling

Modelling is sometimes included in a cycle of lesson observation, such as in instructional coaching where modelling or providing specific instruction is recommended. Modelling is where a more experienced teacher demonstrates a behaviour (such as teaching a lesson, part of a lesson or a teaching technique) either in person or through a video performance with the purpose of having a less experienced teacher observe and aspire to imitate the behaviour (Sims et al., 2021).

-  Modelling, especially when combined with other mechanisms of lesson observation, such as rehearsal, feedback, and goal setting benefits pupil achievement (Sims et al., 2021). Sims et al.'s systematic search and screening process identified 104 studies that included modelling as one of the essential professional development mechanisms that impact on student gains.
-  In addition to being observed, teacher practice may benefit when mentees observe their more experienced colleagues teaching, followed by feedback and discussions (Frederiksen, 2020).

⁹ Although we rate the Schmidt et al., (2020) as high confidence, for this particular finding the authors note a methodological limitation which means that only correlational inferences can be made

9. Mentoring in First Nations contexts

The conception and experience of mentoring from a First Nations perspective (both as mentees and mentors) is relatively under-researched (Bainbridge et al., 2014; Larsen et al., 2023; Sawyer et al., 2024). Consequently, it is not possible to definitively answer specific questions of practice to inform guidance or policy drawing on this work, though we can flag some emerging themes.

Two studies and one review provide the key points in our brief canvass of the literature, details about which are given in Table 3.

Table 3 – Three key research pieces with details of research context and participants

Author	Research type	Context	Mentor characteristics	Mentee characteristics	Research details
(Sawyer et al., 2024)	Study	In a health profession in Canada	Indigenous (no more detail provided)	Indigenous early career health professionals	Reports the stories of 6 Indigenous mentees and their successes, struggles, and experiences in health science and in the Indigenous mentoring program
(Bainbridge et al., 2014)	Review	In a range of Australian settings	Unclear	Indigenous school students, young people and adults	The review reports on the state of evidence on mentoring for Indigenous Australians by identifying the quantity, nature, quality and characteristics of mentoring publications
(Burgess & Harwood, 2021)	Study	In Australian schools	Indigenous cultural educators	Non-Indigenous ECTs	ECTs are supported to implement culturally responsive curriculum and pedagogies in their classrooms through building relationships with Aboriginal mentors and students

These studies suggest there may be benefits in:

- ongoing cultural responsiveness training of mentors (Bainbridge et al., 2014)
- privileging First Nations knowledge and culture to develop the mentorship model with First Nations Peoples in a culturally safe way (Sawyer et al., 2024).

More broadly, contextualised mentoring programs that operate in First Nations communities attributed the following qualities to their success:

- They are designed to meet mentee needs, both through implementing the integrated model approach (inclusion of Elders, families and communities) and acknowledging and privileging First Nations ways of being, knowing and doing by ensuring cross-cultural training was provided to non-Indigenous mentors (Bainbridge et al., 2014).
- They are founded on First Nations mentoring practices that have been reported to facilitate cross-cultural learning and support Indigenous individuals (Sawyer et al., 2024).
- They use a systematic, well-supported and sustainable program of cultural mentoring led by local Aboriginal community members (Burgess & Harwood, 2021). This was found to increase

confidence for non-Indigenous teachers and saw their ability to implement culturally responsive curriculum and pedagogy in their classrooms increase, which better met the cultural, educational and social needs of their First Nations students.

- They take a collaborative mentoring approach to improving teachers' understanding and management of 'complex racialised and ethnic differences through critical self-reflection' (Burgess & Harwood, 2021, p. 208).
- They do not position the mentor as an expert who can answer all questions, rather they position the mentor as a collaborator in learning. This sense of collaborative project building reflects Aboriginal protocols as well as the sense of collegiality that generally exists within the teaching profession (Burgess & Harwood, 2021; Sawyer et al., 2024).

More broadly, a review of the Connected Communities Strategy (University of Newcastle, 2024) noted that employing more First Nations Peoples in schools shifted power dynamics and contributed to the development of a more responsive environment for First Nations students and their families. Connected Communities is a strategy developed by the NSW Department of Education which aims to 'provide differentiated, holistic learning underpinned by local First Nations' culture'.¹⁰

10. Incidental findings

This section documents other findings from the identified studies and reviews, not related to the 3 prioritised themes (refer to Background section). These incidental findings should not be considered the result of an exhaustive or deliberate search for relevant studies and reviews under each sub-heading.

Mentor selection



Hobson et al.'s (2009) systematic and narrative review includes the following findings about mentor selection:

- Mentors should want to do the job and be committed to the work of mentoring. Mentoring relationships may be less successful if they result from a 'forced marriage'.
- Mentors may be more effective if they are 'supportive, approachable, nonjudgemental and trustworthy, have a positive demeanour, possess good listening skills and the ability to empathise, as well as the willingness and ability to take an interest in beginning teachers' work and lives' (p. 212).
- Being an experienced and effective teacher could be a necessary condition for being an effective mentor.

Matching the mentor and mentee

There is conflicting evidence about how to best match mentors with mentees with some studies and reviews finding it's best to match based on similarities, and others finding no evidence to support this claim.



Glazerman et al.'s (2010) RCT found that matching early career teachers with mentors according to year levels, race or ethnicity had no evidence of effect on retention, attitudes or student attainment.



Ingersoll and Strong (2011) found that the 3 strongest factors in induction support associated with teacher retention were having i) a mentor in the same subject area; ii) common planning time with other teachers in the same subject; and iii) regularly scheduled collaboration with other teachers.

¹⁰ NSW Department of Education - [Connected Communities Strategy](#)

-  An evaluation of a pilot study (Straw et al., 2020) found, through observations, interviews, and surveys, that successful implementation was related to matching mentors and mentees with similar teaching styles and where mentors had the required expertise to meet their mentees' needs. The pilot involved 40 early career chemistry teachers (with between one and 5 years of teaching experience) paired with 39 external subject-specialist mentors (one mentor to 2 mentees).
-  Matching mentors and mentees based on the school-building they are in, or their physical proximity could increase the level of support if mentors and mentees are in everyday contact (Parker et al., 2009).
-  Spooner-Lane's (2017) review of studies conducted in primary schools found that mentoring was associated with positive effects on student achievement when the mentoring programme provided weekly, one-on-one contact and when the pairing process between mentors with mentees received careful attention.
-  One study by Burris et al. (2006) found that mentors and mentees similar to each other in values, attitudes, working styles and teaching philosophies may lead to a positive mentoring relationship, whereas dissimilar mentor-mentee partners appeared to report more negative experiences.
-  Hobson et al. (2009) found that mentoring may be more effective where mentors teach the same subject as their mentees. This finding is supported by Lee and Feng (2007)  whose non-experimental study likewise highlighted the value of matching based on year level or subject area.

What is the most effective way to develop mentors?

Hobson et al.'s (2009) review  noted, the variability of mentor preparation in nature and quality and that some mentor programs provided little to develop the mentor's ability to support the mentee's professional learning needs. Recognising the variability, we present the 3 studies and a review that refer to how training may support mentor development.

-  Stanulis et al. (2012) found that mentors who received year-long, intensive support outperformed a control group with unsupported mentors in their ability to lead higher-order classroom discussions over the duration of the program. Support included monthly 3-hour study groups structured as professional learning communities; monthly one-on-one coaching with a mentor and university staff member where mentors brought data from their mentoring practice to analyse and discuss; and frequent email communications to resolve any issues that arose.
-  Aspfors and Fransson (2015) found that for mentors to be effective, 'mentor education should be well integrated into the educational context, well balanced with theoretical and practical components, include rich possibilities for interaction and critical reflection and prepare for an evidence-informed mentoring' (p. 85). The authors' qualitative meta-synthesis of 10 mentor training studies found that all included a focus on enhancing mentors' analytical skills and developing their reflective capabilities. Most studies included examples of activities such as reflective writing, conducting an action-research project and peer-observation of mentoring conversations. However, only a few studies drew on independently verified evidence to show that mentor education enhances a mentor's analytical and reflective capabilities; most evidence consisted of mentor self-reports.
-  Evertson and Smithey (2000) compared mentor preparation of 2 groups: a treatment group who received 4 days of workshops and met monthly with other mentors to revise mentoring techniques, and a comparison group who received one to 2 days of mentoring orientation and no formalised support from other mentors. Mentors in the treatment group, when compared with mentors in the comparison group, were rated more highly in

their conferencing skills, active listening skills and ability to ask probing questions with mentees. Further to this, there was a positive association between the treatment group and their mentees' ability to more effectively organise their classrooms, establish routines and provide instruction (Evertson & Smithey, 2000).



Mentors who did not receive adequate formal training found it more difficult to provide direct feedback and instigate changes in the mentee's beliefs and teaching practices. Additionally, the mentors of the more effective beginning teachers had, on average, nearly 3 years of mentoring experience compared to the mentors of the less effective teachers with less than half a year of mentor experience (Roehrig et al., 2008).

11. Further reading

Our exploration of mentoring literature revealed other aspects of mentoring that may be relevant to the Career Start program. These areas and relevant readings are provided here to assist in investigating further (refer to Table 4). Please note that we have not attributed a 'level of confidence' regarding evidence cited, nor attempted to synthesise the entries in this table. References to primary sources in the 'points of interest' column may not have been checked for strength of evidence.

Table 4 – Additional mentoring areas, references and points of interest

Mentoring area	Reference	Point of interest
The value of a broader program i.e. more than just mentoring	Ingersoll & Strong (2011)	The collective impact of receiving several supports was shown to increase teacher retention
	Blazar & Kraft (2015)	Coaching plus group training is associated with 0.31 SD larger effect size on instruction and 0.12 SD larger effect size on achievement. 'For instructional outcomes, pairing coaching with instructional resources and materials (e.g., curriculum) is also associated with greater gains (0.21 SD larger), while providing teachers with a video library is associated with more limited benefits (-0.27 SD smaller)' (p. 564).
	Stevenson et al. (2023)	The added value of coaching on top of other professional development activities results in positive impacts on teachers' instructional practice and in pupil attainment over and above any impacts from group professional development or provision of new resources alone.
	Evertson & Smithey (2000)	In this non-randomised controlled trial, the researchers assert that supports to all the mentors and new teachers through their entry-year programs was important. Both study sites provided professional development activities early in the year for all new teachers and they collected systematic information on weekly planning meetings and on monthly goals from both mentors and protegees. They also assessed the needs of the mentees prior to the start of the school year. 'That systemwide support doubtless had important effects on the entry year teachers' practices and their mentors' abilities to provide needed assistance' (p. 303).

Mentoring area	Reference	Point of interest
The importance of school leadership	Stevenson et al. (2023)	School leaders were shown to: - influence the implementation of mentoring programs - act as a gatekeeper for the quality of mentors. The review cites several studies in support of these findings.
	Glazerman et al. (2010)	This RCT was supplemented with information gathered through interviews with program leaders, district coordinators and mentors, and through direct observations of participants at one program's administrator breakfast briefings. They found that there was a 'wide variation in the level of principal support, ranging from those who were extremely supportive, actively encouraging teachers to make the most of the induction opportunities, to principals who actively resisted participation and would not permit teachers to be released for program activities' (p. 41).
	Shockley et al. (2013)	This qualitative meta-analysis study of the research and literature on the efficacy of teacher induction on the retention of high-quality secondary school teachers concludes that 'sharing responsibility and authority, encouraging collaborative planning and reflection, offering team leadership roles, and building a culture that supports the school as a learning organization all address motivational factors, demonstrate principals' trust in their teachers, and could positively impact teacher retention in secondary schools' (p. 372).
The importance of school culture	Kutsyuruba et al. (2019)	In their systematic review of contextual factors impacting on induction mentoring programs, Kutsyuruba et al. found that success was 'contingent upon being situated within a supportive community which welcomed ECTs established a sense of belonging, provided sufficient time to focus on their needs, and offered longevity of support' (p. 109).
	Kapadia et al. (2007)	Kapadia et al. (2007) reports on the Consortium on Chicago School Research (CCSR) who surveyed new elementary and high school teachers. They found that 3 supports made new teachers more likely to report a good teaching experience and intend to remain in the same school: 'encouragement and assistance from their principal, regularly scheduled opportunities to collaborate with peers in the same field, and participation in a network of new teachers' (p. 30). Kapadia et al. also reports that 'principal encouragement and collaboration' most influenced novices' intention to continue teaching

Mentoring area	Reference	Point of interest
The role of district level coordinators	Stevenson et al. (2023)	Stevenson et al. (2023) cites the following studies which feature programs that use a regional or district level coordinator: • Ault et al.'s (2017) study, which examined how early-career teachers' participation in an Alaskan Statewide Mentor Project (ASMP) impacted: ○ retention as a teacher in Alaska ○ instructional practice ○ student achievement. • Schmidt et al. (2020) describes how a program leader was employed by each district and was responsible for coordinating with the NTC on 'all aspects of local program implementation' (p. 5).
	Glazerman et al. (2010)	Pages 39 – 41 of this RCT examining the impact of comprehensive teacher induction describes the role of a district coordinator (and several other coordination roles). The information they gathered as part of developing their understanding of the treatment programs may be helpful when considering the Learning Alliance Leader. Note: running a search on the term 'coordinator' in this report may be useful.
The mentee's willingness to learn	Hobson et al. (2009)	These authors note that at the time of writing one issue: 'how far, and by what means, mentees' "willingness" to be mentored can be increased' (p. 213) lacks an evidence-base to increase understanding about the conditions for successful mentoring. Despite that, they do pose that 'some studies have also suggested that successful mentoring is dependent on the "willingness" to be mentored on the part of the beginner teacher-mentee (Little, 1990; Roehrig, Bohn, Turner, & Pressley, 2008; Valencic Zuljan & Vogrinc, 2007; Veenman, Denessen, Gerrits, & Kenter, 2001)' (p. 211).
The importance of the mentor workload	Stevenson et al. (2023)	The Stevenson et al. review notes they did not systematically review the implementation and process literature. Therefore, they assert that the workload of mentors, mentees and coordinators, and school leadership may not be the only important factor in the influence of context on implementation of ECT mentoring programs. Nonetheless, they explain 'alongside the generally heavy workload of mentors and ECTs that prevented them from spending the time that they wanted on mentoring participation, programme developers sometimes underestimated the amount of time that it takes for mentors and mentees to participate in such programmes. The issue of inadequate timetable

Mentoring area	Reference	Point of interest
		allowance for mentoring activities was a key finding from Allen et al. (2022)'s survey of current mentoring practice, meaning that this remains a problem for mentors and mentees in many schools in England. To give mentoring programmes targeting ECTs a chance to succeed, mentors need to be given sufficient time off timetable to prepare for and meet with their ECTs' (p. 79).
	Hobson et al. (2013)	This research article reports on the re-analysis of data from 2 major mixed-method empirical studies carried out in England. It focuses on data generated from interviews with beginner teachers and mentors in both primary and secondary schools. In this article, the authors' conclusions detail a failure to provide appropriate conditions for effective mentoring practice at micro- (mentoring relationship), meso- (institution) and macro- (national policy) levels. At the meso-level, 2 points are relevant here: • 'Many schools appear to provide mentors with insufficient time to carry out the role effectively, especially given its associated administrative requirements' (p. 99). • 'Some schools do not timetable mentor/mentee dyads to be "free" at the same time' (p. 99).

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Appendix 1

The core elements of effective mentoring models

The UK National Institute of Teaching's conceptual review (Maxwell et al., 2022), identified elements and activities of mentoring programs based on 19 empirical reviews of mentoring and coaching and 48 sources associated with 18 models and frameworks¹¹. Elements were included where research indicated they are associated with improved outcomes, most frequently positive outcomes for mentees. The provisional theory of change identifies 4 key active ingredients to enacting the mentor relationship which are vital to triggering the causal mechanisms that lead to the intended outcomes. Table 5 lists the 4 active ingredients, aligns them against the mentor expectations in the Mentoring Capability Framework (MCF)¹¹, and provides the location of relevant in this rapid literature scan.

Table 5 – The 4 active ingredients in enacting the mentor relationship aligned to the Mentoring Capability Framework

Active ingredients	Alignment with the mentor expectations in the Mentoring Capability Framework	Location in this document
Mentee goals provide focus for mentoring	Domain 1: Teaching and learning <i>The mentor and mentee engage in ongoing reflective practice, including evaluating data, prioritising and setting goals, [and] developing actions and plans.</i> Domain 3: Communication and interpersonal skills <i>Uses their knowledge and understanding of the Mentoring Capability Framework (MCF) to focus discussions with their mentee.</i> <i>Encourages the mentee to share reflections and viewpoints by asking questions, listening effectively, building on ideas and observations, offering feedback and insights and helping the mentee to articulate connections to professional development goals.</i>	- Nature of interactions - Goal setting
Sustained productive relationship	Domain 4: Collaborative partnerships <i>Supports the mentee to build partnerships that promote professional development. Connects the mentee with other colleagues to achieve professional development goals.</i> Domain 5: Professional generosity and empathy: <i>Schedules regular times for both formal and informal mentoring.</i> <i>Ensures confidentiality and uses protocols consistent with the regulations outlined by the Victorian Institute of Teaching (VIT).</i>	- School-based mentors compared to offsite mentors - Frequency of interactions - Mentoring in First Nations' contexts
Mentor facilitates learning	Domain 2: Professional identity <i>Articulates, models and supports the mentee to demonstrate the standards of professional knowledge, professional practice, and professional engagement.</i>	- Observe lessons and give feedback - Modelling

¹¹ State of Victoria (Department of Education and Training) (2019). [Mentoring Capability Framework](#)

Active ingredients	Alignment with the mentor expectations in the Mentoring Capability Framework	Location in this document
	<i>Raises the mentee's awareness of departmental and school values and supports the mentee to put these into practice.</i> <i>Observes the mentee's practice and provides timely and targeted feedback. Identifies resources to support the mentee's achievement of professional goals.</i> Domain 6: Professional culture and context <i>Demonstrates and shares knowledge and understanding of the school's processes, team structures and cultural norms.</i>	- Mentor selection - What is the most effective way to develop mentors?
Mentor provides emotional and psychosocial support	Domain 3: Communication and interpersonal skills <i>Is eager to develop their emotional intelligence.</i> <i>Is skilled at facilitating reflective and improvement-focused conversations.</i> Domain 5: Professional generosity and empathy <i>Provides emotional and instructional support to enable mentees to manage existing and potential pressures around teaching.</i> <i>Shares expertise, resources and strategies for improving teaching practice while supporting health and wellbeing of mentees.</i> <i>Provides emotional and instructional support to enable mentees to manage existing and potential pressures around teaching.</i> <i>Empowers mentees by recognising improvements in their professional practice (e.g., teaching, collaboration with colleagues, professional learning).</i>	- Emotional support and relational trust - Mentors not as supervisors or in a judgemental role - Matching the mentor and mentee

Three high-quality reviews provide evidence of mentoring model effectiveness

In our scan we identified 3 reviews (Kraft et al., 2018; Sims et al., 2021; Stevenson et al., 2023) that provide high quality evidence about mentoring program features that have been shown to impact teacher practice or pupil achievement or teacher retention. The 3 reviews identify key program features (typically 4 or 5) which are further broken down into explicit mentor, mentee or program behaviours or characteristics. The reviews use these program features as part of the inclusion criteria (Kraft et al., 2018), that is, **all** key features and explicit behaviours were identified in the included studies or were included because selected programs had **some** of the features and the differences in program features were accounted for in the post-hoc analysis (Sims et al., 2021; Stevenson et al., 2023).

Table 6 contains more information on these 3 reviews, including the types of studies included, the program features they considered to be important, the outcomes they examined and the results of their analysis.

Table 6 – Content and findings details of 3 key, high-quality reviews

Feature of review	Stevenson, Kiss, Jørgensen, Maxwell & Hobson (2023)		Sims, Fletcher-Wood, O'Mara-Eves, Cottingham, Stansfield, Van Herwegen & Anders (2021)*	Kraft, Blazar & Hogan (2018)
Type of review	Rapid evidence review		Systematic review	Meta-analysis
Focus group of teachers	All teachers (and may have included ECTs)	Early career	All teachers	All teachers
Types of studies included	47 studies: 41 RCTs 4 QEDs	11 studies: 9 RCTs 2 QEDs	104 studies that could report sufficient data for the calculation of an effect size. The final data set (including 104 papers) reported on 205 effects.	60 studies employed an experimental or quasi-experimental research design capable of supporting causal inferences.
Examined impact on	Teacher practice & pupil achievement (n=27) Teacher practice only (n=12) Pupil achievement only (n=8)	Pupil achievement (n=9) Teacher practice (n=9) Teacher retention (n=4)	Pupil achievement	Instructional practice Pupil achievement
Common features of programs	Sustained and intensive mentoring and coaching, taking place over a least one school year and where there were interactions between coaches and mentors taking place at least every 2 weeks. 16 key features grouped into 4 areas: a. Mentor training - rehearsal - sustained training - communication skills - how to set goals - how to support mentee in developing PCK		14 mechanisms for effective PD. The mechanisms are grouped under 4 areas and programs incorporating one mechanism addressing each area is considered a 'balanced' program. instil insight: manage cognitive load, revisit prior learning motivate goals: goal setting, credible source, praise/reinforce teach techniques: instruction, practical social support, modelling, feedback, rehearsal	We characterise the coaching process as one where instructional experts work with teachers to discuss classroom practice in a way that is: individualized: coaching sessions are one-on-one intensive: coaches and teachers interact at least every couple of weeks

Feature of review	Stevenson, Kiss, Jørgensen, Maxwell & Hobson (2023)	Sims, Fletcher-Wood, O'Mara-Eves, Cottingham, Stansfield, Van Herwegen & Anders (2021)*	Kraft, Blazar & Hogan (2018)
	6. how to support mentee in developing professional behaviours. b. Mentor selection 7. based on their effectiveness as a teacher/practitioner 8. from the same year level/ stage or subject area (if secondary) 9. not the mentee's line manager 10. not conducting formal assessments c. Mentoring enactment 11. mentor and mentee set or agree on a goal/s 12. supports the emotional and psychosocial needs and development 13. models relevant behaviours of interest 14. monitors and provide feedback 15. an opportunity for the mentee to practise behaviours of interest d. Quality assurance 16. monitoring and quality assurance of mentoring relationships (outside of people in the relationship).	4. embed practice: prompts/cues, action planning, self-monitoring, context-specific repetition.	(c) sustained: teachers receive coaching over an extended period of time (d) context specific: teachers are coached on their practices within the context of their own classroom (e) focused: coaches work with teachers to engage in deliberate practice of specific skills.
Overall findings	'A pooled Standardised Mean Difference (SMD) of 0.50 (95% CI: 0.34, 0.66) on overall teacher practice resulting from participating in the included mentoring programmes compared to business-as-usual Small positive impacts on average on teacher practice and pupil attainment. No on average improvements in classroom climate (Stevenson et al., 2023, p.54). At most 0.1 SD	'PD programmes that include more mechanisms tend to have a higher impact on pupil test scores. Programmes incorporating zero mechanisms have effect sizes around zero. Programmes incorporating (almost) all 14 of our mechanisms have effect sizes around .17—equivalent to	'Pooled effect sizes of 0.49 standard deviations (SD) on instruction and 0.18 SD on achievement' (p. 547). Other results are reported in this scan under other mentoring findings.

Feature of review	Stevenson, Kiss, Jørgensen, Maxwell & Hobson (2023)	Sims, Fletcher-Wood, O'Mara-Eves, Cottingham, Stansfield, Van Herwegen & Anders (2021)*	Kraft, Blazar & Hogan (2018)
	professional development' (p. 62). Features of the programs: • almost all 'explicitly involved a process of observation and feedback to mentee teachers' • almost 75% 'involved modelling of effective practice by the mentor' • about 50% 'involved an explicit process for goal setting for mentees' (p. 60).	impact on improvement in instruction. Mentoring programmes 'did not result in average improvements in ECTs' classroom climate and behaviour management or teacher retention compared to business-as-usual' (p. 5). Teacher retention - odds ratio of 1.04 (0.90, 1.21). 'If and how mentoring and coaching influences trainee teacher and ECT wellbeing is an important unknown' (p. 5).	approximately 2 months of additional pupil progress' (p. 6). 'Balanced PD designs (incorporating one mechanism addressing each area have larger average effects. Balanced designs have an average impact of 0.15 SD; while for non-balanced designs, the equivalent figure is 0.05' (p. 6).

* Note that the Sims et al. review focuses on in-service professional development in general rather than specific mentoring programs

