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From Planning to Pedagogical Reasoning: Teacher Educators' Collaborative Autoethnographic Inquiry into Pre-Service Teachers' Learning to Plan in Australia

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Abstract

Learning to plan is central to teacher education, yet producing structured lesson plans does not necessarily demonstrate pedagogical reasoning. This study employed collaborative autoethnography with four teacher educators in an Australian initial teacher education program, drawing on Cultural-Historical Activity Theory and Vygotsky's Genetic Method. Three tensions emerged between assessment completion and purposeful planning, procedural tool use and context-sensitive reasoning, and community support and independent judgement. Teacher educators interpreted pedagogical reasoning development as uneven and recursive, shaped by these tensions. The findings suggest that such development involves increasingly purposeful engagement with planning tools and social support, highlighting the need to look beyond completed lesson plans when evaluating and supporting pedagogical reasoning.

1. Introduction

Pedagogical reasoning (PR) can be broadly understood as the professional thinking through which teachers interpret teaching situations, draw on relevant knowledge, make instructional decisions, and justify those decisions in relation to learners, content, and context (Horn & Campbell, 2015; Morrison-Love & Patrick, 2025). It is central to learning to teach and extends beyond knowing pedagogical principles or applying prescribed teaching strategies (Horn & Campbell, 2015). Effective PR requires teachers to connect different forms of professional knowledge and make context-sensitive judgements about what to teach, how to teach it, and why particular approaches may support learning (Durksen et al., 2024; Morrison-Love & Patrick, 2025). Developing this capacity is therefore an important dimension of learning to teach.

For pre-service teachers (PSTs), however, PR is particularly challenging for two related reasons. First, they are simultaneously acquiring professional knowledge and learning how to use that knowledge to inform practice. Their reasoning requires them to draw on and bring into relation different forms of disciplinary, pedagogical, experiential, and reflective knowledge when making decisions about teaching (Morrison-Love & Patrick, 2025). It may also draw on tacit understandings developed through previous experiences, which PSTs may not yet be able to articulate explicitly (Oo et al., 2021). Second, their PR develops in relation to multiple influences within the contexts in which they learn to teach. Their instructional decisions are shaped by teacher education coursework, practicum experiences, personal beliefs and preferences, interactions with teacher educators, experienced teachers and peers, and research evidence (e.g., Carter et al., 2015; Durksen et al., 2024; Horn & Campbell, 2015; Ryan et al., 2026). PR is therefore situated within the social and institutional contexts of learning to teach, with its development shaped by both individual cognitive processes and broader contextual conditions (Nilsson, 2009; Oo et al., 2021; Ryan et al., 2026).

Lesson planning provides an important site in which this process can be examined. Planning requires PSTs to transform knowledge of curriculum, subject matter, learners, pedagogy, and assessment into

decisions about anticipated classroom practice (Colley et al., 2021). Studies of PST planning have consequently examined PR through decisions about the selection, sequencing, adaptation, and justification of instructional activities and content (e.g., Colley et al., 2021; Hughes et al., 2020). Yet a technically complete lesson plan does not necessarily demonstrate well-developed PR. PSTs may follow established structures or employ appropriate pedagogical terminology without being able to explain why particular choices are suitable for particular teaching purposes. Research has identified discrepancies between PSTs' conceptual knowledge and its enactment in practice (e.g., Hughes et al., 2020; Oo et al., 2021), while work concerned with making professional knowledge explicit has similarly highlighted the importance of helping novice teachers articulate the often tacit "how and why" underlying instructional decisions (e.g., Oo et al., 2021).

The development of PR is also unlikely to be linear. PSTs may reason differently across situations as they encounter changing pedagogical purposes, expectations, resources, experiences, and constraints (Horn & Campbell, 2015; Ryan et al., 2026). These different demands may create tensions, requiring PSTs to reconsider existing understandings and negotiate possible courses of action (Gotwalt, 2023; Greiner et al., 2024). Such tensions may become visible as PSTs make planning decisions, justify their choices, interact with others, and respond to feedback. Teacher educators (TEs) are closely involved in these processes and are therefore well positioned to observe and make sense of how PSTs are learning to reason pedagogically and where support may be needed. However, because PR itself is not directly observable, TEs necessarily interpret it from what PSTs make visible in these activities. Their interpretations therefore provide an important perspective for understanding how PR develops within the social, cultural, and institutional conditions of learning to teach.

Although existing research has identified a range of influences on PSTs' PR (e.g., Carter et al., 2015; Hughes et al., 2020), less attention has been given to TEs' situated interpretations of PSTs' learning to plan, particularly the tensions they identify and how they interpret the development of PSTs' PR they observe over time. Collaborative autoethnography (CAE) provides a means of examining this situated perspective by bringing teacher educators' individual experiences and interpretations into dialogue for collective questioning and reconsideration. In this study, CAE enables the four of us working within the same initial teacher education (ITE) context in Australia to collaboratively examine our observations of PSTs' learning to plan. A sociocultural perspective (Vygotsky, 1978) further provides a way of understanding these observations in relation to the social, cultural, and institutional conditions within which planning occurs. Together, these perspectives inform the following research questions:

1. What contradictions do teacher educators identify in pre-service teachers' learning to plan within an Australian initial teacher education context?

2. How do teacher educators interpret the development of pre-service teachers' pedagogical reasoning over time through their engagement in learning to plan?

By foregrounding our situated and collaboratively interrogated interpretations, this study makes both empirical and practical contributions. Empirically, it provides an account of how PR becomes visible

through the everyday activity of learning to plan. Changes in PR may become apparent not only in what PSTs produce, but also in how they articulate pedagogical purposes, use and adapt planning tools, respond to feedback, and justify their decisions. Practically, the study offers TEs insights into how they can recognise and respond to PSTs' emerging PR while reflecting on the nature and level of support they provide. In doing so, TEs may better support PSTs in moving beyond procedural planning towards more purposeful, context-sensitive, and independently justified professional judgement.

2. Literature review

2.1. Pedagogical reasoning in learning to teach

Pedagogical reasoning concerns how teachers draw on professional knowledge to interpret teaching situations, make instructional decisions and justify their pedagogical choices. Building on Shulman's (1987) model of PR and action, subsequent scholarship has emphasised the thinking underpinning instructional practices (Loughran, 2019; Morrison-Love & Patrick, 2025). While pedagogical content knowledge (PCK) concerns what teachers know about teaching particular content, PR involves mobilising such knowledge alongside understandings of learners, contexts and pedagogical purposes (Loughran et al., 2008; Pang, 2016). PR is also closely associated with pedagogical judgement when teachers weigh competing considerations in complex situations (Greiner et al., 2024; Horn & Campbell, 2015; Loughland & Bostwick, 2023). Similar instructional practices may reflect different pedagogical intentions and understandings (Hughes et al., 2020; Kavanagh et al., 2020).

Research has therefore sought to make PR visible through different forms of evidence, including lesson plans (Land & Rubin, 2020), instructional artefacts (Colley et al., 2021; Ma et al., 2024), written justifications (Hughes et al., 2020), interviews (Hutner et al., 2021), reflective accounts (Nilsson, 2009), and observations or video analyses of teaching practice (Hutner et al., 2021). Other studies have employed pedagogical dilemmas and structured judgement tasks to examine how PSTs interpret teaching problems and justify possible responses (Durksen et al., 2024; Greiner et al., 2024). These approaches offer different insights into PR, capturing intended decisions, explanations, reflections, or reasoning during teaching. However, PSTs' expressed pedagogical understandings may not align with classroom enactment (Hutner et al., 2021). Understanding PR therefore requires attention to how PSTs explain, evaluate and reconsider their decisions.

Research has also identified challenges in developing PR, including applying educational theory to teaching decisions (Olson, 2007), translating subject matter knowledge into purposeful curriculum design (Colley et al., 2021), and articulating pedagogical rationale underlying instructional activities (Hughes et al., 2020). Morrison-Love and Patrick (2025) highlighted similar challenges of integrating professional knowledge. These findings suggest that PR develops through opportunities to connect knowledge, pedagogical purposes and situated experiences (Horn & Campbell, 2015; Loughran, 2019). Understanding its development requires examining how PSTs negotiate and justify decisions within the activities through which they learn to teach.

2.2. Lesson planning as a site for pedagogical reasoning

Lesson planning provides a context for developing PSTs' PR by connecting curriculum knowledge, pedagogical purposes, learner needs and instructional decisions (Pang, 2016). Studies have examined how PSTs select curriculum content (Colley et al., 2021), design technology-supported activities (Hughes et al., 2020) and justify instructional approaches (Hutner et al., 2021; Ma et al., 2024). However, coherent lesson plans do not necessarily demonstrate the reasoning underpinning instructional choices. For example, Hughes et al. (2020) found that PSTs often emphasised presentation and engagement when justifying technology use, while Colley et al. (2021) identified difficulties in translating subject matter knowledge into critically informed curriculum decisions. These findings distinguish planning as the organisation of activities from planning as pedagogical deliberation.

This distinction is particularly relevant in ITE, where lesson planning is often structured through templates, assessment requirements and prescribed instructional frameworks. While such tools can scaffold decision-making (Loughran et al., 2008), their use does not necessarily foster understanding of pedagogical purposes. Land and Rubin (2020), for instance, identified tensions between planning for university assessment and classroom teaching. Similarly, Olson (2007) found that PSTs continued to prioritise activities despite opportunities to connect educational theory with instructional decisions. Planning competence therefore involves how PSTs interpret, justify and adapt their choices, beyond completing required components.

Planning can also support PR through dialogue, enactment, feedback and reflection (Horn & Campbell, 2015; Meneses et al., 2023). Studies involving critical incidents (Nilsson, 2009), repeated teaching and reflection (Murphy et al., 2025), and collaborative lesson design (Ma et al., 2024) provide opportunities to reconsider assumptions and refine decisions. These experiences occur within social and institutional conditions, including competing university and school expectations (Clark, 2015; Land & Rubin, 2020) and classroom demands (Land & Rubin, 2020). Lesson planning thus provides an activity through which PSTs negotiate pedagogical purposes, institutional expectations and emerging professional understandings. Examining these negotiations can reveal tensions shaping PR development.

2.3. Teacher educator mediation and learning to reason

TEs mediate PSTs' PR by questioning instructional purpose, modelling reasoning, and helping PSTs articulate the tacit "how and why" informing planning (Loughran et al., 2008; Oo et al., 2021). Kavanagh et al. (2020), for example, examined how TEs engage candidates in reasoning about instructional purposes and pedagogical dilemmas, while Horn and Campbell (2015) described mediated field experience as a means of developing pedagogical judgement. Practice-based approaches similarly involve observation, rehearsal, enactment and feedback to connect pedagogical purposes with instructional decisions (Meneses et al., 2023). These studies establish the importance of TE mediation, although their attention centres primarily on PSTs' learning and responses to support.

Peer interaction and professional dialogue also mediate PSTs' reasoning (Murphy et al., 2025). Discussing and critiquing planning decisions allows PSTs to encounter alternative interpretations and reconsider their choices (Murphy et al., 2025). Collaborative lesson design, for instance, can make reasoning visible as PSTs negotiate decisions (Ma et al., 2024), while structured conversations around teaching, such as pre- and post-lesson conferencing, provide opportunities to anticipate problems, explain choices and revise plans (Murphy et al., 2025). Critical-incident reflection similarly encourages PSTs to reconsider classroom experiences (Nilsson, 2009). These interactions make reasoning available for examination, although less attention is given to how TEs themselves interpret what PSTs reveal.

Despite growing attention to TE mediation, limited research has examined how TEs interpret PSTs' pedagogical reasoning and its development over time. As PR is not directly observable, TEs draw on planning decisions, explanations and responses to feedback when interpreting it (Horn & Campbell, 2015; Morrison-Love & Patrick, 2025). Their sustained involvement in planning activities allows them to notice emerging patterns while raising questions about how their own guidance shapes what they observe. Examining these situated interpretations can offer further insight into how PR development is recognised and supported within ITE.

3. Conceptual underpinnings

This study draws on second-generation Cultural-Historical Activity Theory (CHAT) (Engeström, 2001) and Vygotsky's Genetic Method (GM) (Vygotsky, 1978). CHAT conceptualises human activity as socially situated and mediated. Building on Vygotsky's (1978) account of mediated action and Leont□ev's (1978, 1981) distinction between individual action and collective activity, second-generation CHAT expanded the unit of analysis from individual mediated action to a collective activity system, incorporating the social and organisational dimensions of activity (Engeström, 2001). Engeström (2001) represented an activity system through six interconnected components (Fig. 1): subject, object, mediating artefacts, rules, community, and division of labour. In this study, the subject refers to PSTs learning to plan, while the object concerns the development of pedagogically reasoned planning. Mediating artefacts include planning templates, curriculum and pedagogical resources, examples, and conceptual tools; rules include formal and perceived expectations surrounding planning; community encompasses peers and TEs; and division of labour concerns the roles and responsibilities through which planning and pedagogical support are organised. While PSTs constitute the subject of the activity system, the present inquiry examines this activity through our situated observations and interpretations of PSTs' learning to plan.

A central concept within CHAT is contradiction. Contradictions are historically and socially developed structural tensions within an activity system that may become visible through difficulties, dilemmas, disruptions, or competing demands in practice (Engeström, 2001; Engeström & Sannino, 2021). In this study, tensions refer to such observable manifestations in PSTs' learning to plan, while contradictions refer to the underlying structural relations within the activity system identified through our situated interpretations. From this perspective, challenges encountered as PSTs learn to plan are not treated

simply as individual difficulties but examined in relation to the broader activity system in which PR develops. CHAT therefore informed both data collection and analysis by sensitising the inquiry to relations within and between different elements of the planning activity and to tensions emerging from them.

While CHAT provides a systemic account of the conditions within which PR occurs, Vygotsky's (1978) GM provides a complementary means of examining change in PR over time. From a genetic perspective, PR is understood not as a fixed capacity but as developing through participation in socially and historically situated activity. Development can be examined across interconnected domains, including the cultural-historical domain of broader educational and institutional contexts, the ontogenetic domain of PSTs' accumulated experiences and understandings, and the microgenetic domain of changes emerging through particular learning activities and interactions. In this study, particular attention was given to how we interpreted the development of PSTs' PR across planning activities, tutorial interactions, responses to feedback, and revisions to their pedagogical decisions over the semester.

The two perspectives therefore served complementary analytical purposes. Second-generation CHAT informed the analysis of contradictions we identified in PSTs' learning to plan, primarily addressing the first research question. The GM provided a developmental lens for examining how we interpreted the development of PSTs' PR over time, primarily addressing the second research question. Together, they enabled our interpretation of PR as both socially mediated within an activity system and developmentally constituted through PSTs' ongoing participation in pedagogical activity.

4. Methodology

4.1. Research design and context

This study adopted a CAE design to examine our situated understandings of PSTs' learning to plan within the same ITE context. CAE brings autobiographical experience into dialogue with the sociocultural contexts in which that experience is situated (Chang et al., 2013) and enables individual accounts to be examined alongside collective experience (Lapadat, 2017). This approach was particularly appropriate because we were not external observers of the phenomenon under investigation, but participants in the pedagogical activity through which PSTs learned to plan.

The use of CAE was also important because PR cannot necessarily be inferred from an instructional product or action alone. Previous studies have examined PR by connecting planning and teaching decisions with PSTs' explanations, reflections, interviews, or retrospective accounts (e.g., Nilsson, 2009; Oo et al., 2021). While these approaches provide important insights into how PSTs themselves articulate their reasoning, they primarily foreground PSTs' own accounts. The present study offers a complementary perspective by examining how we observed and interpreted PSTs' PR through our work with them. Our observation was not treated as providing direct access to PSTs' internal reasoning, but as situated interpretations shaped by our participation in the same pedagogical activity. CAE therefore

enabled these individual observations to be brought into dialogue and subjected to collective questioning, comparison, and reconsideration (Chang et al., 2013).

The study was situated within a second-year unit in the Bachelor of Education programme at an Australian university, with a focus on planning for effective teaching and learning. The unit comprised a weekly one-hour online lecture and a two-hour in-person tutorial over a 12-week semester. Learning activities included lesson and unit planning, and engagement with pedagogical and curriculum resources. The assignment initially required PSTs to craft a lesson plan for a self-selected year level and topic, engage in peer discussion and solicit feedback after peer teaching, and revise the lesson plan. Through sustained involvement in these activities, we observed PSTs' PR as expressed through planning choices, tutorial conversations, responses to feedback, and revisions to planning.

4.2. Participants and researcher positioning

The study involved four of us who taught PSTs within the same teacher education unit. As participants within the activity system being examined, we were directly involved in the pedagogical activity through which PSTs learned to plan. Our interactions with PSTs, including the questions we asked and the feedback we provided, formed part of the social context in which PSTs' PR developed (Horn & Campbell, 2015). Our dual roles as TEs and researchers also meant that our observations and interpretations were themselves part of the collaborative inquiry.

CAE provided a means of examining these observations and interpretations reflexively. Collaborative autoethnographic inquiry brings multiple perspectives into dialogue and subjects individual interpretations to mutual questioning and scrutiny (Lapadat, 2017; Roy & Uekusa, 2020). Bringing our accounts together provided opportunities to identify points of convergence and divergence and to question assumptions that might have remained unexamined within individual reflection. This reflexive process was particularly important because we were interpreting pedagogical activity in which we ourselves participated.

4.3. Data collection

Data were collected through an iterative process of individual and collaborative reflection. Each of us first produced an individual narrative reflecting on our observations and interpretations of PSTs' PR across the semester. To provide a common structure while enabling us to draw on different experiences, the reflection prompts (**see Appendix A**) were organised around the six components of the second-generation CHAT activity system: subject, object, tools, rules, community, and division of labour (Engeström, 2001).

Prompts relating to the subject explored our observations of instances of thoughtful pedagogical decision-making, difficulties in articulating reasoning, and patterns in how PSTs approached planning, such as what they prioritised in planning and how they justified their choices. Questions relating to the object examined what PSTs appeared to be trying to achieve through planning and how their sense of pedagogical purpose appeared to develop. Tools prompts focused on PSTs' use of planning templates,

examples, pedagogical concepts, curriculum resources, and other available supports. Rules explored formal and perceived expectations surrounding planning tasks. Community focused on the role of peer interaction and feedback, while division of labour addressed teacher educator guidance, feedback, and decisions concerning the amount and form of pedagogical support provided.

Following the initial individual reflections, we read and responded to one another's narratives. We added probing questions and comments intended to clarify interpretations, interrogate assumptions, identify similarities and differences across tutorial experiences, and consider alternative explanations for observed pedagogical decisions. Each of us then returned to our narrative and responded to colleagues' questions, generating a second layer of reflection.

This dialogic process was particularly important because our initial reflections sometimes contained interpretations that appeared self-evident to the individual TE (McDonough & Brandenburg, 2019). Collaborative questioning made some of these assumptions available for further examination. For example, accounts of apparently thoughtful lesson design generated questions about whether the PR had been explicitly articulated by PSTs or inferred by us. Reflections on tutor scaffolding similarly generated questions about when guidance supported the development of professional judgement and when it might encourage PSTs to reproduce what they perceived the tutor wanted. The dataset therefore comprised not only individual retrospective accounts but also collaboratively interrogated reflections in which initial interpretations were questioned, elaborated, and sometimes reconsidered.

4.4. Data analysis

Data were analysed iteratively through a theoretically informed coding process guided by second-generation CHAT (Engeström, 2001) and Vygotsky's GM (Vygotsky, 1978). CHAT provided a deductive organising framework through its six activity-system components, while specific codes were developed and refined through engagement with the data. The first author developed an initial coding scheme using one of our reflective accounts, which was then reviewed and refined collaboratively by all of us before being applied across the dataset (**see Appendix B**).

To reduce reliance on any one researcher's interpretation, we coded one another's reflective accounts rather than their own. Each of us subsequently reviewed the coding of our own account to check whether it adequately represented the intended meaning of our reflections. Coding was further refined through comparison and discussion across the four accounts, including consideration of differences and counter-examples.

The coded patterns were then examined relationally across the activity system to identify recurring tensions and the underlying contradictions they indicated. For example, accounts of PSTs selecting engaging activities before clarifying their pedagogical purposes were coded as activities-first planning, while difficulties explaining the rationale behind apparently well-structured plans were coded as plan–justification disconnect. Observable tensions were not automatically treated as contradictions; their

recurrence and relationships within the wider activity system were examined before underlying contradictions were identified through our collaborative interpretation.

The GM complemented this systemic analysis by providing a developmental lens for examining how we interpreted the development of PR across the cultural-historical, ontogenetic, and microgenetic domains (Table 1). These three domains were examined relationally to understand how we made sense of development in relation to broader contextual conditions, PSTs' accumulated experiences, and particular learning interactions. For example, our observation of movement from activities-first planning towards greater attention to pedagogical purpose, learner needs, and justification was examined in relation to PSTs' prior understandings, broader planning expectations, and particular experiences of interaction and feedback. Collaborative questioning and subsequent reflections were used throughout the analysis to challenge initial interpretations and consider alternative explanations.

Table 1
Genetic method analytical framework

Genetic domain	**Analytical focus**	**Example evidence examined**
Cultural-historical	Broader educational and institutional conditions shaping what counts as appropriate planning and pedagogical reasoning	Curriculum and assessment expectations; professional expectations; institutional requirements
Ontogenetic	PSTs' accumulated experiences and understandings	Prior classroom/placement experiences; personal beliefs; implicit assumptions
Microgenetic	Changes in reasoning emerging through particular interactions and learning experiences	Tutorial dialogue; tutor questioning; peer discussion and feedback; lesson-plan revision

5. Findings

Across our accounts, three contradictions were identified in PSTs' learning to plan (Table 2). We interpreted these contradictions in relation to the development of PSTs' PR, as manifested in how PSTs approached, articulated, and justified pedagogical decisions over time. Such development was uneven and recursive, with PSTs sometimes demonstrating more purposeful reasoning while continuing to rely on procedural structures or external guidance in other contexts. In this section, despite the autoethnographic nature of our data, we intentionally adopted third-person narration to enhance the analytical distance and objectivity of our thematic presentation.

Table 2
Overview of the findings

Contradiction	Manifested tension	Interpreted development in pedagogical reasoning
Within object	Assessment completion **versus** purposeful pedagogical planning	From completing and demonstrating towards planning around clearer pedagogical purposes
Tool-object	Procedural use of pedagogical tools **versus** context-sensitive reasoning	From following tools procedurally towards interpreting and adapting them to learners, content, and purpose
Community-subject	Community-supported reasoning **versus** independent professional judgement	From reliance on external guidance towards increasingly adaptive and independently justified professional judgement

5.1. Contradiction 1: The tension between assessment completion and purposeful pedagogical planning

The first contradiction was located within the object of the activity, reflecting competing orientations towards the purpose of lesson planning. TEs observed PSTs navigating expectations to produce assessable evidence of competence while also learning to design meaningful experiences for learners. Early in the semester, their accounts frequently characterised PSTs' planning as oriented towards completing the task correctly. Nathan observed that many PSTs focused on formatting, rubric interpretation, word limits, and required components, approaching the template section by section. Sophie similarly described PSTs as seeking to demonstrate competence through plans that appeared organised, coherent, and aligned with curriculum expectations. The high-stakes nature of the planning assessment also made experimentation potentially "risky".

This contradiction became particularly visible in Rachel's comparison between assessment-oriented and teachable planning:

The most visible tension is timing, a teachable lesson is paced to give students cognitive room, but an assessment-optimised plan often crams in evidence of every rubric criterion, leaving no room. The deeper one, which I am still thinking about, is voice a teachable lesson reflects a particular teacher's professional judgment, but an assessment-optimised lesson tends to flatten that voice into something generic and safe. (Rachel)

Assessment expectations could therefore redirect PSTs' attention from the pedagogical purpose of planning towards its visible completeness. Ethan similarly observed PSTs including numerous concepts and strategies because they believed these were expected, sometimes producing overloaded plans with weak connections to learning intentions, success criteria, and learner needs.

A related manifestation was activities-first planning. TEs observed PSTs sometimes selecting activities because they appeared engaging and subsequently attempted to justify their pedagogical value. Sophie described a highly interactive lesson in which the PST repeatedly explained her decisions in terms of making the lesson enjoyable for students but struggled to explain what the activities enabled students to learn. Rachel recognised the same pattern in groups that prioritised an engaging plenary activity and then built the lesson around it. Nathan likewise observed PSTs beginning by considering what students would do and how activities could be made engaging before considering conceptual progression or evidence of learning.

TEs interpreted development in PSTs' PR as becoming visible when pedagogical purpose increasingly began to organise activity selection. Across the semester, their accounts suggested that repeated planning and engagement with feedback appeared to create opportunities for some PSTs to reconsider what should organise their lessons. Rachel described one PST whose initially broad Humanities unit became focused around a clearer transfer goal, with the PST increasingly orienting her planning towards enabling students to recognise persuasive moves across different texts. Rachel reflected on how this clearer pedagogical purpose shaped her subsequent planning:

Her lessons became more coherent and purposeful. She selected fewer examples, sequenced them from familiar to unfamiliar texts, and included repeated opportunities for students to practise the analytical skills she wanted to develop. (Rachel)

Rachel interpreted the significance of this shift as lying not simply in producing a more coherent plan, but in what increasingly organised the PST's pedagogical decisions. Rather than beginning with activities or assessment requirements, a clearer pedagogical purpose increasingly provided the basis for selecting, sequencing, and justifying learning experiences. Across TEs' accounts, this developmental movement can therefore be characterised as a shift from completing planning requirements towards making and justifying purposeful pedagogical decisions, although this development remained uneven across PSTs.

5.2. Contradiction 2: The tension between procedural use of pedagogical tools and context-sensitive reasoning

The second contradiction identified across the TEs' accounts emerged between the pedagogical tools mediating lesson planning and the object of purposeful, context-sensitive planning. TEs observed that planning templates, examples, curriculum documents, pedagogical frameworks, and conceptual resources provided PSTs with structure and security, particularly when they had limited planning experience. Yet the same tools were interpreted as potentially constraining PR when they became procedures to reproduce rather than resources to interpret in relation to learners and purposes. Nathan captured this duality when describing the planning template as both supportive and restrictive, while Rachel observed that many PSTs initially treated it as a checklist to complete. Sophie's reflection similarly illustrated how she understood the template as shaping what PSTs attended to:

The [template]sections on prior knowledge, potential misconceptions, literacy and numeracy demands pushed pre-service to think more carefully about which students might struggle with a task and what kinds of scaffolds could support participation. (Sophie)

In the collaborative reflection, Rachel consequently characterised the same template as capable of operating either as a checklist or as a thinking tool, depending on how PSTs engaged with it. This distinction was important because a well-populated template did not necessarily indicate well-developed reasoning. TEs observed that PSTs could produce apparently structured plans containing learning intentions, differentiated activities, and assessment tasks while remaining unable to explain why particular choices were pedagogically appropriate.

The same contradiction was identified in TEs' accounts of PSTs' use of conceptual tools. Nathan observed formulaic applications of "I do, we do, you do" in which the framework was visible but its relevance to particular learners or content remained unclear. Ethan similarly described PSTs incorporating multiple pedagogical concepts mechanically because they knew they were expected, without demonstrating a flexible understanding of why those approaches fitted the learning context.

Across the semester, TEs interpreted development as becoming visible when some PSTs moved beyond using tools to structure their plans and began drawing on them to reason about the needs of particular learners. This shift appeared to develop through accumulated planning experience, placement encounters, and repeated feedback rather than through exposure to the tools alone. Rachel described one PST whose use of the template changed after placement experience and repeated feedback:

Rather than using the planning template simply as a form to complete, she used it to develop a pedagogical hypothesis about how specific learners might access the content. (Rachel)

Rachel subsequently explained that having a specific placement class in mind anchored the PST's reasoning, while repeated feedback helped her recognise that the template cells were "prompts for thinking, not fields to populate". The developmental movement was therefore not away from pedagogical tools, but towards a qualitatively different relationship with them: from following tools, to interpreting their pedagogical function, and increasingly to adapting them in relation to learners, content, and purpose.

5.3. Contradiction 3: The tension between community-supported reasoning and independent professional judgement

The third contradiction emerged across the TEs' accounts between the subject and community within the activity system. TEs observed that PSTs, as the subjects of the activity, relied on the community of peers and teacher educators to articulate, question, and develop their pedagogical reasoning, while also being expected to develop professional judgements of their own. This was interpreted as a tension

between the support that enabled PR and the possibility that such support could also foster dependence on others' views or encourage PSTs to reproduce what they perceived as expected responses.

The supportive role of the community was particularly evident in TEs' accounts of peer discussion. Peer interaction was observed to create opportunities for PSTs to externalise reasoning that might otherwise remain implicit. Sophie observed that explaining lesson ideas to classmates required PSTs to justify their decisions and could lead them to "articulate (and refine and sometimes question)" their reasoning. Nathan's account of a Year 6 persuasive-writing lesson illustrates how such interaction could generate substantive change. The original lesson relied heavily on teacher explanation and independent worksheet completion. During peer discussion, another PST questioned whether learners had sufficient opportunities to hear and test persuasive arguments before writing. The subsequent revision introduced oral debate, paired analysis, joint construction, and only then independent writing. Nathan interpreted the significance of this revision as extending beyond the addition of collaborative activities: "What stood out to me was not simply that the [PST] added group work, but that her PR shifted." Peer interaction was therefore interpreted as creating opportunities for PSTs to reconsider the pedagogical assumptions underlying their plans.

Yet TEs did not interpret the influence of the community as necessarily indicating more developed PR. Ethan observed that some PSTs would copy engaging activities from peers quite directly without considering whether they fitted their own learner group, subject area, or learning intension. He further noted that some PSTs adopted peer ideas too quickly without adapting them properly for their own classroom context.

TE support involved the same tension. Across the narratives, questioning was commonly used to encourage PSTs to articulate reasoning before being given a solution. Rachel, for example, described asking PSTs questions about what they imagined students doing, what would count as evidence that an activity had worked, and which learners they had in mind. Yet the collaborative interrogation of these practices raised a more difficult question about where productive scaffolding ended and reproduction began:

How do you recognise the point at which guidance begins supporting PSTs' pedagogical development, versus the point where it may start shaping them to reproduce what they think the tutor wants? (Ethan)

This is a question I do not have a confident answer to. My working point is to watch for whether students' subsequent decisions look like extensions of my advice or imitations of it. Extensions suggest the guidance has been internalised; imitations suggest reproduction. (Rachel)

This exchange made the contradiction explicit: PR required support, but development could not be equated with increasingly accurate reproduction of teacher educator advice. For the TEs, an important indication of development was how PSTs subsequently used that support. Across their accounts, some PSTs were interpreted as becoming less reliant on external guidance as they articulated and questioned their decisions through dialogue and demonstrated more adaptive and independently justified

professional judgement. This did not mean that support disappeared; rather, PSTs appeared to change in how they used and transformed the pedagogical resources made available through others.

Across the three contradictions, the accounts also suggested a broader development in PSTs' PR over the semester. Early planning was often characterised by the TEs as oriented towards visible and externally available structures, including meeting assessment requirements, selecting engaging activities, following templates and frameworks, and seeking support from peers or teacher educators. Later accounts included more instances in which TEs observed PSTs articulating clearer pedagogical purposes, reasoning from the needs of particular learners, using available tools more selectively, and providing stronger justification for their own decisions. The TEs nevertheless interpreted this development as uneven. As Rachel reflected:

Across the semester, I observed that students' sense of purpose developed unevenly and recursively, rather than in a straight line. In the early weeks, many framed planning procedurally: writing a lesson plan, aligning with descriptors, and using the template correctly. Their purpose was largely shaped by the assessment task.

The accounts therefore indicated recurring shifts between more procedural forms of planning and more purposeful, context-sensitive, and explicitly justified pedagogical reasoning. These shifts were interpreted across all three contradictions, as PSTs negotiated assessment expectations, the use of pedagogical tools, and support from peers and TEs.

6. Discussion

6.1. Pedagogical reasoning development through contradictions in learning to plan

The findings identified three interconnected contradictions in PSTs' learning to plan, concerning assessment expectations, pedagogical tools, and community support. Viewed through CHAT (Engeström, 2001), these contradictions illustrate how arrangements intended to support learning to plan could also constrain the development of PR. Assessment requirements encouraged PSTs to demonstrate competence through structured plans, sometimes directing their attention towards task completion. Planning templates and pedagogical frameworks provided guidance, yet their procedural application could limit context-sensitive reasoning. Similarly, peer and TE support created opportunities for questioning pedagogical decisions while sometimes encouraging dependence on external guidance.

These findings extend research identifying difficulties in connecting pedagogical knowledge with instructional decisions (Colley et al., 2021; Hughes et al., 2020; Morrison-Love & Patrick, 2025). While such research has highlighted challenges in developing and articulating PR, the present study shows how these difficulties were also related to contradictions within the organisation of learning to plan. For example, the emphasis on producing assessable evidence of competence sometimes encouraged PSTs

to prioritise visible completeness over pedagogical purpose. Similarly, Rachel's distinction between using a template as a checklist or a thinking tool illustrates how the same resource could support different forms of engagement. This complements research emphasising the importance of connecting professional knowledge with pedagogical decisions (Loughran et al., 2007; Nilsson, 2009), while drawing attention to how institutional expectations and mediating tools shape these connections.

Importantly, the contradictions did not necessarily lead to more developed PR. Some PSTs continued to rely on procedural structures despite opportunities for feedback and revision. CHAT conceptualises contradictions as potential sources of development, although their presence does not guarantee transformation (Engeström, 2001; Engeström & Sannino, 2021). The findings therefore suggest that understanding PR development requires examining how PSTs negotiate competing expectations, resources, and forms of support within the planning activity.

6.2. The situated and non-linear development of pedagogical reasoning

The findings suggest that TEs interpreted PSTs' PR development as uneven and recursive. Some PSTs increasingly articulated pedagogical purposes, adapted planning tools, and justified decisions in relation to learners, while continuing to rely on procedural approaches in other situations. This reflects the challenges of integrating professional knowledge into situated pedagogical decisions (Horn & Campbell, 2015; Morrison-Love & Patrick, 2025). Vygotsky's (1978) GM helps explain these patterns through three interconnected developmental domains: cultural-historical, ontogenetic, and microgenetic. These domains provide a way to examine how institutional conditions, accumulated experiences, and immediate interactions contributed to the changes TEs observed.

Rachel's account of a PST's changing use of the planning template illustrates these connections. From a cultural-historical perspective, assessment expectations and established planning practices shaped the PST's initial reliance on the template to meet task requirements. At the ontogenetic level, accumulated planning and placement experiences appeared to deepen the PST's understanding of particular learners and their needs. At the microgenetic level, repeated feedback and planning revisions provided opportunities to reconsider how the template could inform pedagogical decisions. The PST gradually began using it to consider learners' access to content and appropriate scaffolding. This complements Nilsson's (2009) research on planning and reflection in developing pedagogical understandings, while illustrating how experiences across these developmental domains may contribute to changes in pedagogical reasoning.

These changes, however, were not consistently evident across planning situations. From a genetic perspective, this uneven development can be understood through the continuing influence of cultural-historical expectations surrounding assessment and planning, the different experiences PSTs accumulated at the ontogenetic level, and the opportunities for reconsideration arising from microgenetic interactions. For example, feedback might prompt more purposeful reasoning in a particular planning task, while unfamiliar teaching demands could lead PSTs to return to procedural

approaches or external guidance. This complements Horn and Campbell's (2015) emphasis on mediated experiences and Ryan et al.'s (2026) argument for structured opportunities to exercise professional judgement across increasingly complex situations. The findings suggest that PR development remained shaped by the interaction of these developmental domains, with emerging understandings not always carried forward into new planning contexts.

6.3. Teacher educators' interpretive work in supporting pedagogical reasoning

The findings highlight how TEs interpreted PSTs' PR within the contradictions identified through CHAT. Across tensions involving assessment expectations, pedagogical tools, and community support, structured plans, applications of pedagogical concepts, and responses to feedback did not always indicate developed PR. TEs' interpretations therefore involved considering how these conditions shaped PSTs' decisions and explanations over time. This complements research distinguishing instructional decisions from their underlying reasoning (Hughes et al., 2020; Oo et al., 2021) and extends understanding of TE mediation beyond questioning and feedback to the interpretation of PSTs' reasoning (Horn & Campbell, 2015; Kavanagh et al., 2020).

This interpretive challenge was evident in Ethan and Rachel's collaborative reflection. Ethan questioned whether TE guidance encouraged PSTs to reproduce expected responses, while Rachel distinguished between extending and imitating advice. Their exchange highlighted the contradiction between community support and independent professional judgement. From a genetic perspective, interpreting such responses also required attention to PSTs' accumulated experiences (ontogenetic), immediate interactions with TEs (microgenetic), and established planning expectations (cultural-historical). This highlights the uncertainty involved in judging how mediated experiences contribute to PR development (Byth, 2026; Horn & Campbell, 2015).

Through CAE, TEs collectively reconsidered what constituted evidence of PR development and how their own guidance influenced PSTs' responses. This reflects the reflexive potential of CAE (Chang, 2013; Roy & Uekusa, 2020). Their reflections also highlighted their dual position within the activity system, as educators supporting PSTs' reasoning and researchers interpreting its development. Such reflexivity is important because TEs' interpretations are themselves situated within the contradictions and developmental processes they seek to understand.

7. Conclusion

This study examined how four teacher educators identified contradictions in PSTs' learning to plan and interpreted the development of their pedagogical reasoning within an Australian initial teacher education context. Three interconnected contradictions were identified, concerning assessment completion and purposeful planning, procedural use of pedagogical tools and context-sensitive reasoning, and community support and independent professional judgement. The findings also suggested that PR

development was uneven and recursive, with PSTs demonstrating increasingly purposeful planning in some situations while continuing to rely on procedural approaches in others.

Empirically, the study offers insights into how PR development can be recognised through TEs' situated interpretations of PSTs' planning decisions, explanations, and responses to feedback. It also highlights the importance of considering the conditions under which such reasoning emerges and changes. Practically, the findings encourage TEs to look beyond completed lesson plans and create opportunities for PSTs to explain, question, and revise their pedagogical choices. TEs may also reflect on how their guidance supports independent judgement or reinforces reliance on external direction.

Several limitations warrant consideration. The study involved four teacher educators within a single university unit, which may limit the transferability of the findings. Furthermore, PSTs' pedagogical reasoning development was interpreted through teacher educators' accounts, without directly examining PSTs' perspectives or systematically tracking their planning decisions over time. Future research could incorporate PST interviews, planning artefacts, and classroom observations across different institutional contexts to develop a more comprehensive understanding of pedagogical reasoning development.

References

1. Byth, A. (2026). Rethinking the gradual release of responsibility in ITE mentoring: An andragogical perspective. *The Australian Educational Researcher, 53,* Article 21. https://doi.org/10.1007/s13384-025-00924-3
2. Carter, M., Stephenson, J., & Hopper, T. (2015). Factors in instructional decision-making, ratings of evidence and intended instructional practices of Australian final year teacher education students. *Australian Journal of Teacher Education*, *40*(6). https://doi.org/10.14221/ajte.2015v40n6.5
3. Chang, H., Ngunjiri, F. W., & Hernandez, K.-A. C. (2013). *Collaborative autoethnography.* Left Coast Press.
4. Clark, J. S. (2015). "My assessment didn't seem real": The influence of field experiences on preservice teachers' agency and assessment literacy. *Journal of Social Studies Education Research, 6*(2), 91–111. https://doi.org/10.17499/jsser.91829
5. Colley, L., Mueller, R., & Thacker, E. (2021). "We just followed the lead of the sources": An investigation of how teacher candidates developed critical curriculum through subject matter knowledge. *The Journal of Social Studies Research*, *45*(4), 253–265. https://doi.org/10.1016/j.jssr.2020.12.001
6. Durksen, T. L., Sheridan, L., & Tindall-Ford, S. (2024). Pre-service science and mathematics teachers' reasoning: A think-aloud study. *Educational Studies*, *50*(5), 581–596. https://doi.org/10.1080/03055698.2021.1973377
7. Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. Journal of Education and Work, 14(1), 133–156. https://doi.org/10.1080/13639080020028747

8. Engeström, Y., & Sannino, A. (2021). From mediated actions to heterogenous coalitions: four generations of activity-theoretical studies of work and learning. *Mind, Culture, and Activity*, *28*(1), 4–23. https://doi.org/10.1080/10749039.2020.1806328
9. Gotwalt, E. S. (2023). Putting the purpose in practice: Practice-based pedagogies for supporting teachers' pedagogical reasoning. *Teaching and Teacher Education*, *122*(Article 103975). https://doi.org/10.1016/j.tate.2022.103975
10. Greiner, U., Katstaller, M., & Oitner, T. (2024). Reasoning in classroom dilemma situations: How pre-service teachers judge performance assessment. *Frontiers in Education*, *9*. https://doi.org/10.3389/feduc.2024.1170118
11. Horn, I. S., & Campbell, S. S. (2015). Developing pedagogical judgment in novice teachers: Mediated field experience as a pedagogy for teacher education. *Pedagogies: An International Journal*, *10*(2), 149–176. https://doi.org/10.1080/1554480x.2015.1021350
12. Hughes, J. E., Cheah, Y. H., Shi, Y., & Hsiao, K. H. (2020). Preservice and inservice teachers' PR underlying their most-valued technology-supported instructional activities. *Journal of Computer Assisted Learning*, *36*(4), 549–568. https://doi.org/10.1111/jcal.12425
13. Hutner, T. L., Petrosino, A. J., & Salinas, C. (2021). Do preservice science teachers develop goals reflective of science teacher education? A case study of three preservice science teachers. *Research in Science Education, 51*, 761–789. https://doi.org/10.1007/s11165-018-9816-6
14. Kavanagh, S. S., Conrad, J., & Dietz, S. (2020). From rote to reasoned: Examining the role of pedagogical reasoning in practice-based teacher education. *Teaching and Teacher Education*, *89*, 102991. https://doi.org/10.1016/j.tate.2019.102991
15. Land, C. L., & Rubin, J. C. (2020). Part of the assignment: Student–teachers' planning instruction within/across activity systems. *Teaching Education, 31*(3), 279–297. https://doi.org/10.1080/10476210.2018.1546689
16. Lapadat, J. C. (2017). Ethics in autoethnography and collaborative autoethnography. *Qualitative Inquiry*, *23*(8), 589–603. https://doi.org/10.1177/1077800417704462
17. Leont'ev, A. N. (1978). *The problem of activity in psychology*. Prentice Hall.
18. Leont'ev, A. N. (1981). The problem of activity in psychology (translated by Wertsch, J.V.). In Wertsch, J. (Ed.), *The concept of activity in Soviet psychology* (pp. 37–71). M.E. Sharpe.
19. Loughran, J. (2019). Pedagogical reasoning: The foundation of the professional knowledge of teaching. *Teachers and Teaching, 25*(5), 523–535. https://doi.org/10.1080/13540602.2019.1633294
20. Loughran, J., Mulhall, P., & Berry, A. (2008). Exploring pedagogical content knowledge in science teacher education. *International Journal of Science Education*, *30*(10), 1301–1320. https://doi.org/10.1080/09500690802187009
21. Loughland, T., & Bostwick, K. (2023). A taxonomy of clinical reasoning for pre-service teachers on professional experience. *The Australian Educational Researcher, 50,* 1497–1512. https://doi.org/10.1007/s13384-022-00568-7

22. Ma, Q., Lee, H. T. H., Gao, X., & Chai, C.-S. (2024). Learning by design: Enhancing online collaboration in developing pre-service TESOL teachers' TPACK for teaching with corpus technology. *British Journal of Educational Technology, 55*, 2639–2667. https://doi.org/10.1111/bjet.13458
23. McDonough, S., & Brandenburg, R. (2019). Who owns this data? Using dialogic reflection to examine an ethically important moment. *Reflective Practice*, *20*(3), 355–366. https://doi.org/10.1080/14623943.2019.1611553
24. Meneses, A., Nussbaum, M., Veas, M. G., & Arriagada, S. (2023). Practice-based 21st-century teacher education: Design principles for adaptive expertise. *Teaching and Teacher Education, 128*, Article 104118. https://doi.org/10.1016/j.tate.2023.104118
25. Morrison-Love, D., & Patrick, F. (2025). Understanding the challenge of developing PRin initial teacher education: Theorising as practice-focused research. *British Educational Research Journal*, *51*, 1904–1926. https://doi.org/10.1002/berj.4167
26. Murphy, K., Murphy, S., O'Brien, S., & Cutting, S. (2025). Australian preservice teachers' reflections on how a group placement model influenced their professional learning. *The Australian Educational Researcher, 52,* 4149–4170. https://doi.org/10.1007/s13384-025-00892-8
27. Nilsson, P. (2009). From lesson plan to new comprehension: Exploring student teachers' PRin learning about teaching. *European Journal of Teacher Education*, *32*(3), 239–258. https://doi.org/10.1080/02619760802553048
28. Olson, J. K. (2007). Preservice teachers' thinking within a research-based framework: What informs decisions? *International Journal of Science and Mathematics Education, 5*(1), 49–83. https://doi.org/10.1007/s10763-005-9027-2
29. Oo, C. Z., Alonzo, D., & Davison, C. (2021). Pre-service teachers' decision-making and classroom assessment practices. *Frontiers in Education*, *6*. https://doi.org/10.3389/feduc.2021.628100
30. Pang, M. (2016). Pedagogical reasoning in EFL/ESL teaching: Revisiting the importance of teaching lesson planning in second language teacher education. *TESOL Quarterly, 50*(1), 246–263. https://doi.org/10.1002/tesq.283
31. Roy, R., & Uekusa, S. (2020). Collaborative autoethnography: "Self-reflection" as a timely alternative research approach during the global pandemic. *Qualitative Research Journal*, *20*(4). https://doi.org/10.1108/qrj-06-2020-0054
32. Ryan, M., Saubern, R., & Kazmaly, A. (2026). Beyond knowledge mobilisation: Epistemic reflexivity and professional judgement in initial teacher education. *Asia-Pacific Journal of Teacher Education,* 1-14. https://doi.org/10.1080/1359866X.2026.2755320
33. Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1–23. https://doi.org/10.17763/haer.57.1.j463w79r56455411
34. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press.

Figures

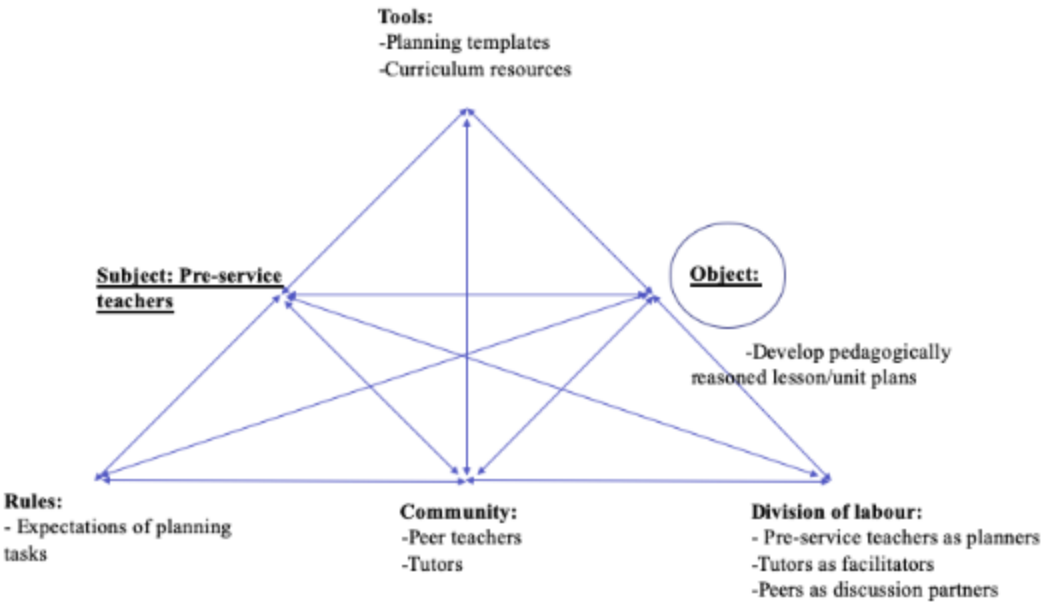


Figure 1

An example of an activity system of pre-service teachers learning to plan in Australian ITE (adapted from Engeström, 2001).

Supplementary Files

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- AppendixA.docx