LEARNING TO NOTICE CRITICAL MOMENTS IN L1 TEACHING

The potential of video-based mentoring conversations during fieldwork

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Abstract

This study argues that to educate first language (L1) teachers who are responsive to students' needs, we must pay attention to the invisible but fundamental processes of *teacher noticing.* Teacher noticing—how teachers perceive, interpret, and make decisions about how to respond to student ideas and needs during teaching—is scarcely studied within language and literature education. In this qualitative study, I examine the characteristics of mentoring conversations in which teacher candidates and their mentors discuss videos of the candidates' L1 teaching in terms of the *critical moments* (Myhill & Warren, 2005) they attended to, their interpretations of these critical moments, and their decision-making on how to respond to these moments. The findings show that the candidates and mentors attended to various opportunities to scaffold student text production and interpretation, as well as opportunities to elicit and respond to student ideas in text-based discussions. Adopting an evaluative stance toward these critical moments supported the candidates in identifying alternative teaching moves, while adopting an inquiry stance led them to identify the first paths toward more adaptive teaching. These findings suggest that video-based mentoring conversations have the potential to support L1 teacher candidates in learning to notice and have implications for teacher education coursework and fieldwork.

Keywords: Teacher noticing, adaptive teaching, instructional scaffolding, video, critical moments

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1. INTRODUCTION

> Most of what happens in classroom interactions is unpredictable and requires that I just have to make decisions on the spot – and that again requires experience, I think. […] It's not something you can learn directly on campus or from books. (Teacher candidate B1)

The unpredictable nature of teaching and the diversity of classrooms require first language (L1) teachers to be responsive to their students' needs and ideas as they emerge in immediate classroom interactions. These opportunities to scaffold student learning on the fly have been labelled *critical moments* in classroom interactions (Myhill & Warren, 2005) and are typically considered something teacher candidates can only learn to master once they actually begin their teaching career (Norman & Feiman-Nemser, 2005). In the quote introducing this article, a teacher candidate in this study points to the crucial role of experience when making spontaneous decisions. Since experienced L1 teachers are likely to have spent much time facilitating text-based discussions and scaffolding text reception and text production, they have also had extended opportunities to develop their ability to *notice* – to perceive, interpret, and make decisions about how to respond to student ideas and needs while teaching (Santagata & Yeh, 2016). Teacher candidates, on the other hand, generally lack classroom experience and have yet to fine-tune the professional lens needed to "make sense of the work of teaching" (Santagata et al., 2021, p. 121).

In this study, I suggest that supporting teacher candidates in learning to notice critical moments is crucial when preparing them to become adaptive L1 teachers who can make in-the-moment decisions in response to students' immediate needs (Gibson & Ross, 2016; Pomerantz & Kaufman, 2019). Adaptive L1 teachers are flexible and metacognitive in their movement between L1 content and student ideas, and they provide tailored instructional scaffolding to help students thrive (Athanases et al., 2015; Duffy et al., 2008; Hoffman & Duffy, 2016; van de Pol et al., 2010; Vaughn, 2019). Teacher noticing underpins this kind of successful in-the-moment decision-making (Cowie, 2018; Pomerantz & Kaufman, 2019), making it possible to develop knowledge about how students engage with the various and complex texts that are at the core of the L1 subject (Williams, Athanases et al., 2020) and to provide scaffolded and equitable learning opportunities for all students (Athanases et al., 2015; Vaughn, 2019). This means that teacher education programs must go beyond the sole focus on the knowledge needed to teach L1 (Fairbanks et al., 2010) and provide opportunities to develop the ability to perceive and interpret opportunities to scaffold student learning and make in-the-moment decisions (Santagata et al., 2021). Within mathematics education, an extensive body of research has documented that the use of video can enhance teacher and teacher candidate noticing (König et al., 2022; Santagata et al., 2021; Stahnke et al., 2016). Recently, there has also been a dawning interest in what it entails to learn to notice in L1 and literacy teacher education (e.g., Banes et al., 2023; Simpson et al., 2019), including various ways of theorizing (Ellis et al., 2019; Williams, Athanases, et al., 2020) and

developing L1 teacher noticing (e.g., Ballock et al., 2018), suggesting, for instance, that using video in mentoring conversations may support candidates in learning to notice (González et al., 2019).

The present study contributes to the small but growing body of research on teacher noticing in L1 by examining video-based mentoring conversations during fieldwork and the potential they hold to support candidates in learning to notice. The study is situated within upper secondary schools, where seven teacher candidates taught L1 under the mentoring of school-based teacher educators (hereafter mentors) and recorded and selected videos of their attempts to scaffold student learning to be used in mentoring conversations. A previous analysis of these data indicates that the mentoring conversations served as an opportunity to discuss dilemmas that the candidates encountered during their teaching (Brataas & Jenset, 2023). Studies have also suggested that using video as a tool in school-based mentoring conversations might strengthen teacher candidates' attention to critical classroom events (Chien, 2018; Nesje & Lejonberg, 2022). However, little empirical research exists with respect to the role of teacher noticing in such conversations. Against this backdrop, the purpose of this study is to characterize these video-based conversations to begin to understand whether and how the use of videos of own teaching in mentoring conversations during fieldwork has the potential to support L1 teacher candidates in learning to notice. The study seeks to answer the following research question: *What characterizes the conversations around videos of the candidates' L1 teaching in terms of (i) the critical moments the teacher candidates and mentors attended to, (ii) their interpretation of these critical moments, and (iii) their decision-making about how to respond to these moments?*

2. THEORETICAL AND EMPIRICAL BACKGROUND

This study is informed by a situative perspective (Lave & Wenger, 1991; Santagata & Yeh, 2016), where fieldwork is considered a fruitful arena for practicing the work of teaching with actual students and with support from experienced teachers (Putnam & Borko, 2000). From a situative perspective, discussing videos of one's own teaching is considered particularly beneficial because it provides a more authentic and meaningful context for developing noticing skills and identifying aspects of one's own L1 teaching that bear improvement (Borko et al., 2008; Santagata & Yeh, 2016). In the two sections that follow, I review research that informs my conceptual framework for analyzing teachers' noticing of critical moments in L1 teaching. Concepts that form part of my analytical framework are marked in *italics*.

2.1 Teacher noticing

An increasing body of research has positioned teacher noticing at the core of teacher competence (Blömeke et al., 2015; Gaudin & Chaliés, 2015; Santagata & Yeh, 2016), referring to this salient component as either teacher noticing (e.g., Santagata & Yeh,

2016), professional vision (e.g., Colestock & Sherin, 2009; Goodwin, 1994), or professional noticing (e.g., Gibson & Ross, 2016; Jacobs et al., 2010). Despite differences in the theoretical commitments of these constructs and the myriad operationalization of noticing facets (Chan et al., 2021; König et al., 2022; Weyers et al., 2023), they all capture how teachers, due to their knowledge and experiences as professionals, notice and make sense of classroom events differently from laypeople. This study follows Santagata and Yeh (2016) in conceptualizing teacher noticing as "the cyclical processes of perception, interpretation, and decision making" (p. 164) that are highly situated in classrooms and teacher communities. This conceptualization, which builds and elaborates on Blömeke et al. (2015), comprises a broader understanding of noticing than most frameworks developed within mathematics (for a review, see Amador et al. [2021], Stahnke et al. [2016], and Weyers et al. [2023]) in that it does not limit noticing solely to attention to student mathematical thinking (Kaiser et al., 2015). However, as I unpack my understanding of perception, interpretation, and decision-making below, I also borrow from van Es and Sherin's (2021) "Revised learning to notice framework" (p. 19) and from studies that have elaborated on the decision-making facet of teacher noticing (e.g., Jacobs et al., 2010; Jacobs et al., 2011; Santagata & Guarino, 2011).

In this study, *perception* refers to the ability to attend to and to identify significant classroom events (Kaiser et al., 2015; Santagata & Yeh, 2016) and disregard less significant ones (van Es & Sherin, 2021). Perception is always biased; thus, what teachers perceive or do not perceive in their classrooms—or when watching videos of teaching—depends on their knowledge, beliefs, and experiences (Schoenfeld, 2011; Sherin & Star, 2011). *Interpretation* refers to the act of interpreting the perceived classroom events (Kaiser et al., 2015; Santagata & Yeh, 2016) in light of theoretical, practical, and contextualized knowledge (van Es & Sherin, 2002, 2021), thereby connecting specific events to broader principles of teaching and learning (Jacobs et al., 2010; van Es & Sherin, 2021). Many researchers have distinguished between description, evaluation, and interpretation to reflect an increasingly sophisticated continuum of interpretation (Luna & Sherin, 2017; van Es & Sherin, 2006). In a recent expansion on prior conceptualizations of teacher noticing, van Es and Sherin (2021) suggested that "adopting a stance of inquiry" (van Es & Sherin, 2021, p. 21) is a hallmark of high-quality interpretation, meaning that teachers not only try to make sense of a given classroom observation but also treat this observation "as something worth trying to figure out" (van Es & Sherin, 2021, p. 22).

The third facet of teacher noticing is *decision-making* (Blömeke et al., 2015; Santagata & Yeh, 2016). In the present study, decision-making refers both to the in-the-moment decisions that teachers make during teaching (Santagata & Yeh, 2016) and to the *alternative teaching moves* (Keller et al., 2022; Luna & Selmer, 2021; Simpson, 2019; Santagata & Guarino, 2011), *what if-scenarios* (Munson et al., 2021), and the *next steps* that teachers and teacher candidates might suggest when reviewing videos of their teaching (Jacobs et al., 2010; Jacobs et al., 2023; Santagata

& Guarino, 2011). Not all researchers incorporate decision-making in their analysis of noticing (e.g., van Es & Sherin, 2021). However, I see decision-making as a necessary facet that impacts how teachers make space for student sensemaking (Haverly et al., 2020; Sun & van Es, 2015), shape interactions (Sherin & Star, 2011; van Es & Sherin, 2021), and build on student ideas (Stockero et al., 2017). As such, the decisions that teachers and teacher candidates make shape what they are able to notice (van Es & Sherin, 2021), underscoring that perception, interpretation, and decision-making are not linear processes but reciprocal, cyclical, and highly situated (Santagata & Yeh, 2016; Scheiner, 2021; Sherin, Jacobs, & Philipp, 2011).

As "in-the-moment-noticing" (Sherin, Russ, & Colestock, 2011, p. 79) or "noticing in practice" (Sun & van Es, 2015, p. 2) is challenging to detect in action (Haverly et al., 2020), most studies have measured teachers' and teacher candidates' noticing when they view videos of teaching, that is, "noticing-after-the-moment" (Bakker et al., 2022, p. 2). As Sherin and Star (2011) noted, such studies cannot directly access teachers' and teacher candidates' perceptions, interpretations, and decision-making but rather what they verbally comment on: "the emergent features" (p. 76) of teacher noticing. By using video as part of teacher education coursework (Barnhart & van Es, 2015; Rosaen, 2015) and, for example, video clubs (Luna & Sherin, 2017) and lesson studies (Amador & Weiland, 2015) during fieldwork, researchers have sought to provide opportunities for candidates to notice and make sense of noteworthy classroom events without the pressure of responding in-the-moment. As is evident from many recent reviews on teacher noticing (e.g., König et al., 2022; Santagata et al., 2021), such video-supported learning opportunities can develop teacher candidates' ability to notice, particularly in relation to student mathematical thinking (Santagata et al., 2021; Stahnke et al., 2016). They also demonstrate that teacher candidates' abilities to notice (after-the-moment) when reviewing videos are shaped by their sensemaking with others (Guner & Akyuz, 2020; Kang & van Es, 2019), such as facilitators (Bragelman et al., 2021; Superfine et al., 2019), colleagues (Amador et al., 2021), mentors (González et al., 2019; Kang, 2021), and peers (Arya et al., 2015; Bragelman et al., 2021). For instance, Guner and Akyuz (2020) demonstrated how one teacher candidate's participation in a lesson study with peers and mentors advanced her noticing skills over time, indicating that generativity in video-based conversations is not an individual matter but a result of collective inquiry. Hence, teacher candidates' noticing skills, as demonstrated when discussing videos of their own teaching in mentoring conversations, should not, from a situative perspective, be isolated from their interactions with mentors and peers or from their interactions with students during teaching and the context in which they teach (Santagata & Yeh, 2016).

2.2 Teacher noticing in language arts

Ross and Gibson (2010) set the stage for applying the idea of teacher noticing to language arts and literature classrooms by exploring a conceptual framework for

expert noticing during literacy instruction. However, it is only recently that more studies have started to argue for the importance of L1 teacher noticing (Aukerman & Aiello, 2023; Simpson et al., 2019; Williams, Athanases, et al., 2020; Williams, Higgs, & Athanases, 2020). To date, researchers have investigated teachers' or teacher candidates' noticing in dialogic text discussions (Banes et al., 2023; Gotwalt, 2023; Rosaen et al., 2010; Simpson, 2019; Walsh et al., 2020), writing and reading instruction (Ballock et al., 2018; Parr, 2019; Ross & Gibson, 2010), and in the broader commitment to equity in L1 classrooms (Simpson et al., 2019; Williams, Athanases, et al., 2020; Williams, Higgs, & Athanases, 2020). These studies suggest that the ability to perceive, interpret, and make decisions about how to respond to student ideas and needs is a crucial feature of L1 teachers' professional competence (Aukerman & Aiello, 2023; Ellis & Simpson, 2019; Williams, Higgs, & Athanases, 2020), necessary for providing timely and appropriate feedback (Ballock et al., 2018; Parr, 2019), ensuring equitable participation in classroom discourse (Banes et al., 2023), disrupting structural inequities (Gotwalt, 2023), and building on students' interests, motivation, and multilingual literacies (Aukerman & Aiello, 2023; Williams, Athanases, et al., 2020).

Other studies on L1 teachers' instructional scaffolding (Brownfield & Wilkinson, 2018) and instructional adaptations (Athanases et al., 2015; Duffy et al., 2008; Vaughn, 2019)—although without explicit attention to teacher noticing—also shed light on the importance of perceiving and interpreting students' immediate needs and making responsive instructional decisions based on such needs. For instance, in a study of missed opportunities in text-based instruction in lower secondary L1 lessons, Tengberg et al. (2022) found that teachers often decreased the cognitive challenge of text-based tasks when trying to scaffold students' interpretive work on the spot. Rather than providing strategies that allowed students to interpret texts on their own, teachers often presented their own interpretations of the text or directed the students' attention to less cognitively challenging aspects of text performance. Similarly, Myhill and Warren (2005), who investigated how L1 teachers dealt with critical moments in whole-class conversations, found that teachers often steered the discourse along a "predetermined path" (p. 60) instead of creating space for students to express their ideas. Taken together, these studies indicate that teacher noticing is crucial for adaptive, scaffolded, and responsive L1 teaching (Ross & Gibson, 2010; Walsh et al., 2020)—"a kind of teaching that can only be created *in the moment* in response to what students bring" (Kavanagh et al., 2020, p. 99–100).

2.3 Critical moment

In this study, I use the notion of critical moments as an analytical lens to capture the opportunities to scaffold student learning that the teacher candidates and their mentors attend to in conversations around videos of the candidates' teaching. The notion of critical moments has gained traction in the literature on teacher noticing (Rotem & Ayalon, 2022) and shares many similarities with terms such as pivotal

events (Ross & Gibson, 2010), pivotal moments (Stockero & van Zoest, 2013), critical incidents (Chien, 2018; Seidel et al., 2011; Tripp, 1993), and noteworthy events (van Es, 2011). Drawing on Myhill and Warren's (2005) work, I define critical moments as discourse units in classroom interaction that are "significant either in supporting the development of a child's understanding or in hindering it, or where an opportunity to build on a child's response was missed" (p. 59). As such, critical moments refer to the points in a lesson in which opportunities to scaffold student learning surface in interaction between the teacher candidate and one or more students. I also consider opportunities to read and respond to student writing in the midst of instruction as critical moments, as students' pieces of writing offer opportunities for teacher candidates to notice and build on student ideas in their interactions with students (Ballock et al., 2018; Parr, 2019).

In other words, classroom interactions are full of critical moments, but noticing these moments might be challenging for both teacher candidates and their mentors. While mentors, as experienced teachers, are more capable than novices in attending to student learning and dealing with the complex and unpredictable nature of classroom events (Berliner, 2001), they might have developed routine teaching practices and fixed expectations based on previous teaching experiences that inhibit them from noticing (e.g., Myhill & Warren, 2005; Tengberg et al., 2022). Teacher candidates, on the other hand, have less classroom experience, and studies have shown that they tend to focus more on classroom management issues and superficial aspects of instruction than on their students' learning (Star & Strickland, 2008). However, a recent study by Keller et al. (2022) found that teacher candidates identified as many critical incidents and suggested as many alternative teaching moves as experts when both groups viewed videos of their own teaching. This indicates that using videos of their own teaching in mentoring conversations might allow teacher candidates to examine opportunities to scaffold student learning that they did or did not notice while teaching (Borko et al., 2008). However, more research is needed to understand whether and how such conversations have the potential to support teacher candidates in perceiving, interpreting, and making decisions about how to respond to critical moments when teaching L1.

3. METHODS

3.1 Participants and study context

This qualitative study reports on seven teacher candidates and four mentors (school-based teacher educators) who used video as a tool in mentoring conversations during the candidates' fieldwork in upper secondary school. It is part of an ongoing project on the use of video as a pedagogical tool across coursework and fieldwork in an integrated five-year teacher education program at a Norwegian university. In this program, candidates choose two school subjects and complete disciplinary studies, studies in pedagogy and subject didactics, and 100 days of fieldwork in practice

schools. At the time of the study, the candidates were in a nine-week field placement in their fourth year of the program. Prior to the fieldwork, and as part of the larger study, the candidates had worked with instructional scaffolding in coursework in the subject didactics of L1, where videos of experienced teachers' instructional scaffolding were used to train the candidates in noticing teachers' enactment of instructional scaffolding in response to student needs with an emphasis on strategy instruction, modeling, and feedback (Brataas & Jenset, 2023). I was the instructor of this course, and as such, I have an insider perspective (Fleming, 2018; Mercer, 2007) in this study. During their fieldwork, the candidates taught in pairs in L1 classrooms in grades 11–13 under their mentors' guidance, who were present in the classroom with the candidates. The candidates were asked to record three lessons in which they focused on instructional scaffolding using two tablets and microphones capturing their interactions with students. After every lesson they recorded, they were asked to select video clips of their attempts to scaffold student learning that they wanted to discuss with their mentors and peers and to make screen captures of these video-based mentoring conversations.

The participants were recruited using both purposeful and convenience sampling strategies (Cohen et al., 2018)—purposively because the candidates had focused on instructional scaffolding and noticing in their coursework and conveniently because they had been placed in practice schools with mentors who also consented to participate. Two mentors previously participated in a professional development program using video to target instructional scaffolding, but none was experienced in using video in mentoring for the purpose of learning to notice. When referring to these participants throughout this paper, I use pseudonyms that group pairs of candidates and mentors with letters and numbers (candidates A1, A2, and mentor A; candidates B1, B2, and mentor B, etc.).

3.2 Data

This study draws on 403 minutes of screen and audio recordings from a total of 12 mentoring conversations, in which 32 video clips of the candidates' teaching were displayed. The screen recordings captured both the screen used to display the videos of the candidates' teaching and the audio of the candidates and the mentors as they inquired into these videos, making it possible to link teacher candidates' and mentor talk in mentoring conversations to the specific events in the candidates' videos. The screen and audio recordings, including the audio from the candidates' videos of their teaching, were transcribed using InqScribe, and the excerpts in this paper were translated from Norwegian to English by the author.

3.3 Data Analysis

To examine the characteristics of the conversations among teacher candidates and mentors around videos of the candidates' L1 teaching, I conducted a qualitative

content analysis (Hsieh & Shannon, 2005) in three phases. In the first phase, I segmented the conversations by identifying the critical moments that the teacher candidates and their mentors attended to in the candidates' videos. To do so, I first watched the screen recordings of mentoring conversations and read the transcripts several times, before I applied Myhill and Warren's (2005) definition of critical moments to identify utterances addressing moments in the candidates' videos that were "significant either in supporting the development of a child's understanding or in hindering it, or where an opportunity to build on a child's response was missed" (p. 59). This implied that two criteria had to be met in considering a critical moment: (1) the participants had to refer to a specific moment in the videos of the candidates' teaching and (2) that specific moment had to be an opportunity to meet student needs. Finally, I sampled all the talk related to each critical moment, which then served as my unit of analysis, representing a "unit of meaning" (Strijbos et al., 2006, p. 33) tied together by the critical moment.

In the second phase, I developed an analytical framework (see Table 1) to describe the characteristics of the conversations around critical moments by moving between previous research, as reviewed in this paper, and the empirical data. As outlined in the analytical framework (see Table 1), I started out with three main codes: *perception*, *interpretation*, and *decision-making* (Santagata & Yeh, 2016). To code for perception, here understood as teacher candidates' and mentors' attention to critical moments in the candidates' videos, I reviewed the critical moments and gave each critical moment a data-driven label capturing the topic of the interaction, before I grouped the critical moments thematically into three broad categories (see Table 1). For interpretation, I initially applied the subcodes description, evaluation, and interpretation as adopting a stance of inquiry (van Es & Sherin, 2021). However, as none of the conversations consisted of purely descriptive talk, only *adopting an evaluative stance* and *adopting a stance of inquiry* were applied to the material. Finally, for decision-making—here understood as new suggestions about how to respond to the critical moment—I distinguished between the two subcodes *alternative teaching moves* and *alternative teaching moves accompanied by what if-scenarios and/or next steps.*

Table 1. Analytical framework for characterizing noticing in video-based mentoring conversations

Code	Definition
Perception of critical moments	
Attention to opportunities to scaffold individual student writing	The teacher candidates and/or mentors attend to a critical moment that arises when a teacher candidate tries to scaffold students' individual writing during seatwork.
Attention to opportunities to scaffold text interpretation individually or in groups	The teacher candidates and/or mentors attend to a critical moment that arises when a teacher candidate tries to scaffold individual students or groups of students who are working with analyzing and interpreting factual or literary texts during seatwork.

Attention to opportunities to elicit and respond to student ideas in text-based discussions in plenary	The teacher candidates and/or mentors attend to a critical moment that arises when a teacher candidate invite students to share their ideas during text-based discussions in plenary.
Interpretation of critical moments	
Adopting an evaluative stance	The teacher candidates and mentors mainly describe and evaluate the critical moment, focusing primarily on the candidate's in-the-moment decisions rather than students' ideas and needs. Evaluations may or may not be based on theoretical, practical, and/or contextual knowledge about instructional scaffolding.
Adopting a stance of inquiry	The teacher candidates and mentors hold on to the critical moment by seeking multiple and often conflicting interpretations, thereby treating the critical moments as something worth discussing in-depth. Their interpretations may include descriptions and evaluations of the candidate's in-the-moment decisions but also include predictions of student learning in relation to teacher candidate moves. Interpretations include theoretical, practical, and/or contextual knowledge about instructional scaffolding so that the specificity of the critical moment is linked to broader principles of teaching and learning.
Decision-making in response to critical moments	
Alternatives teaching moves	The teacher candidates and/or mentors suggest alternative teaching moves that could have been responses to the critical moment.
Alternative teaching moves accompanied by what if-scenarios and/or next steps	The teacher candidates and/or mentors suggest alternative teaching moves that could have been responses to the critical moment. They also conjecture the impact on student learning if the candidate had used different teaching moves and/or suggest the next steps for future lessons.

Once I had established the analytical framework, I applied one subcode for perception, one for interpretation, and one for decision-making to each of the conversations around the critical moment. As is the case for many analytical frameworks for measuring teacher noticing (Amador et al., 2021), the subcodes for interpretation and decision-making represent "an increasingly sophisticated continuum" (Luna & Sherin, 2017, p. 288), where conversations coded as, for instance, adopting a stance of inquiry also can include evaluative talk.

In the third phase, I conducted an in-depth analysis within and across the conversations around critical moments, guided by patterns that emerged from applying the analytical framework. First, I looked into the conversations that were coded as either adopting an evaluative stance or a stance of inquiry and found that these conversations also differed in terms of decision-making. After having discovered that differences in stances related to the differences in decision-making, I looked within conversations with an evaluative stance and an inquiry stance to further distinguish their characteristics, focusing on the opportunities they provided for teacher candidates to advance their noticing skills.

3.4 Trustworthiness and research ethics

While being an insider has many advantages in terms of enabling contextualized analysis and interpretation of the data, it also carries the risk of biased interpretations (Fleming, 2018). To ensure trustworthiness and data credibility, I discussed the analytical framework, coding process, and transcripts with colleagues and conferred the video data at every step of the analysis. I also aimed for transparent descriptions of the analytical procedures and the results when presenting my findings, for instance by combining several authentic quotes from the data with simple tabulations (Silverman, 2014, p. 100–106). The study was approved by the Norwegian Centre for Research Data and followed ethical guidelines (The National Committee for Research Ethics in the Social Sciences and the Humanities, 2022). The participants signed informed consent forms and were briefed about their right to withdraw their consent at any time. To comply with the European Union's General Data Protection Regulation (IT Governance Privacy Team, 2019), the teacher candidates were instructed not to upload sequences containing special categories of personal data to the cloud service, and such videos and screen and audio recordings were omitted from the data collection. To be clear, this implied that teacher candidates and mentors could not upload conversations in which they, for instance, talked about ethnically, linguistically, and neuro-diverse learners, thereby limiting this study in investigating how candidates, for instance, can begin to learn how to notice and disrupt dominant narratives and marginalization (e.g., Louie et al., 2021; Williams, Athanases, et al., 2020).

4. FINDINGS

The analysis led me to identify 33 conversations around critical moments in the videos of the candidates' teaching. The conversations lasted approximately 2–15 minutes and had different characteristics. Table 2 provides an overview of these characteristics in terms of the critical moments the candidates and mentors attended to, their interpretations, and their decision-making in response to these moments. The numbers in the second column reflect the number of conversations in which various codes were present. As illustrated in Table 2, I identified three different categories of critical moments. Twenty-three of the conversations around these critical moments were characterized by an evaluative stance, whereas 10 were characterized by a stance of inquiry. Not all conversations involved decision-making, but among those that did, 14 focused on alternative teaching moves and nine also included what-if scenarios and next steps. In what follows, I first provide a brief description of the characteristics of the critical moments the candidates and mentors attended to, before I present the opportunities that an evaluative and inquiry stance entailed for candidates to advance their noticing skills.

Table 2. Characteristics of noticing in video-based mentoring conversations

Codes	No. of Conversations out of 33
Perception of critical moments	
Attention to opportunities to scaffold individual text production	11
Attention to opportunities to scaffold text interpretation individually or in groups	9
Attention to opportunities to elicit and respond to student ideas in text-based discussions in plenary	13
Interpretation of critical moments	
Adopting an evaluative stance	23
Adopting a stance of inquiry	10
Decision-making in response to critical moments	
Alternatives teaching moves	14
Alternatives teaching moves accompanied by what if-scenarios and/or next steps	9

4.1 Attention to critical moments

The 33 critical moments that the teacher candidates and mentors attended to when reviewing videos of the candidates' teaching all point to opportunities to scaffold student learning that urged the teacher candidates to act on the fly while teaching. As demonstrated in Table 2, 11 of the critical moments represented *opportunities to scaffold individual text production*. These critical moments typically emerged when the students raised their hands and asked the candidates for help with their writing or when the candidates, unprompted, approached the students to read their drafts and provide feedback. For instance, Candidate D attended to a critical moment in her interaction with a student who was writing a short literary analysis and asked her mentor for advice about how to avoid telling students what to write:

> Candidate D: This is what I wanted to look into. I chose this clip because there are a lot of students asking these kinds of questions: "Could you read my text and tell me if I have to add something?" I feel that's such a classic question when students are writing. And every time I get this question, I think to myself, "How can I support this student without telling him what to write? Should I ask follow-up questions or give some prompts? […]."

Another related category of critical moments consisted of nine *opportunities to scaffold text interpretation individually or in groups.* When first attending these critical moments, the candidates and mentors often made remarks about students in the video clips who struggled with interpreting factual or literary texts, for instance, by commenting on how "some students intentionally fish for fixed answers" to analytical and interpretive tasks. The candidates also attended to these critical moments by commenting on how they attempted or struggled to ask appropriate questions that elicited student ideas about the text at hand, as illustrated in the following quote from candidate C1: "Here, I couldn't figure out how to ask open questions while at the same time pushing him in the right direction."

Thirteen critical moments represented *opportunities to elicit and respond to student ideas in text-based discussions in plenary.* The candidates often attended to these moments based on their experiences of failure or success when asking questions that elicited student ideas or when responding to inaccurate answers in whole-class conversations. For instance, candidate D attended to a moment in a whole-class conversation in which she asked a question that she characterized as a "guess-what-the-teacher-is-thinking-of question" and thus initiated a conversation about the kinds of questions better suited to eliciting student ideas. The mentors also drew the candidates' attention to student responses and whether the candidates used or missed opportunities to elicit students' prior knowledge and build on student misunderstandings. For instance, Mentor B commented on a student response to a question about rhetorical devices in a speech, saying that "there's someone in the second row saying something about pace and rhythm that's inaccurate," thus starting a conversation around the candidate's response to this particular student.

As evident from these examples used to illustrate the three categories of critical moments, the candidates' and mentors' attention to critical moments already carried with them some interpretations of students or some evaluations about candidates' decision-making. In the two sections that follow, I outline the differences between conversations in which the candidates and mentors adopted an evaluative stance as opposed to an inquiry stance toward these critical moments.

4.2 An evaluative stance supporting decision-making

As illustrated in Table 2, 23 of the conversations around critical moments were characterized by an evaluative stance, meaning that the candidates and mentors made sense of these moments mainly by evaluating how the candidates responded to them during teaching. Nine of these conversations, all in which the candidates and mentors agreed that the candidate's initial decision-making was responsive to student needs, were brief and did not include any suggestions about alternative teaching moves. This is illustrated in the following excerpt from a conversation about an opportunity to scaffold individual text production:

> Mentor B: That one [the feedback on a student's text] was beautiful!
>
> Candidate B1: Yes, I had a couple of those during the lesson. I managed to be specific when I read their texts.
>
> Mentor B: Yes, right. And you are super explicit about the next step being to include an example. That is going to improve the [student's] paragraph.

Fourteen of the conversations, however, were more extended and nuanced in terms of judgments about quality. In these conversations, the teacher candidates who owned the video clips typically took the lead and revealed their in-the-moment perceptions and interpretations and the challenges they faced when making in-the-moment decisions, before the candidates and mentors discussed alternative

teaching moves in relation to student needs. In the excerpt that follows, Pair A and their mentor discuss a critical moment that consists of another opportunity to scaffold individual text production:

> Candidate A1: Her I tried to use what she had written and say what was good about it, and when making suggestions about revisions, I also built on what she had already written […]. She had understood that she needed a topic sentence, but she had written "The composition is important in short stories", and when I tried to suggest that she should rather focus on why the composition was important in *this* particular short story, it became confusing […] I realized that she did not understand, and that I do understand when I look at it now – it really *is* confusing. So, I ended up giving her a [topic] sentence, and it's likely that she just used it without knowing why."
>
> Mentor A: Is there something you could have done different in that situation, do you think?
>
> Candidate A1: Maybe it would have been better to ask *why* she thought it was important? […] To ask more questions -
>
> Mentor A: Yes, exactly. So that the student herself puts into words the things she is going to write […] Because I think that in this situation, if she does not know what to write and is stuck, then it is probably better to talk about it […]. That makes it more likely that she is not going to be stuck when you walk away.

As this excerpt illustrates, adopting an evaluative stance allowed the teacher candidate to reconsider their in-the-moment decision-making by discussing alternative teaching moves. In some of these conversations, the mentors also prompted the candidates to reflect upon their decision-making in light of theoretical knowledge, for instance, by asking what they considered to be good feedback or by discussing what reading and writing strategies would help students advance. However, as these conversations focused mainly on teacher candidates' decision-making, they generally did not seem to change what the teacher candidates noticed about the student with whom they interacted. In other words, what they commented on in their video clips did not seem to differ from what they noticed during teaching, indicating that these conversations mainly supported the candidates in the decision-making facet of noticing.

4.3 An inquiry stance supporting noticing for adaptive teaching

The second pattern of conversations around critical moments consisted of 10 conversations in which the candidates and mentors adopted a stance of inquiry and, with one exception, discussed not only alternative teaching moves but also what-if scenarios and next steps. In these conversations, the candidates, in addition to revealing their in-the-moment noticing, also came to notice aspects of the critical moment that they did not notice during teaching or to interpret what they had noticed in new ways. To illustrate, I turn to a conversation around an opportunity to scaffold text interpretation in which teacher candidates B1 and B2 and Mentor B discovered that they had all talked to the same student about his struggles with understanding literary devices. While Candidate B1 initially thought that he had

succeeded in helping the student move forward, his peer's comment made him question his initial understanding of the situation:

> Candidate B2: I don't know if you or I talked to this student first, [B1], but I believe I had the exact same conversation with this student today.
>
> Mentor B: Me, too!
>
> Candidate B1: Really? That's interesting!
>
> Candidate B2: So, I think he's seeking confirmation that he's on the right track–
>
> Mentor B: Indeed. I noticed the same thing in the last lesson. One of you was constantly sitting by his desk throughout the whole lesson.
>
> Candidate B1: I've been thinking about the same thing, but here I was trying to show him that he has resources to lean on regarding literary devices. And I felt that he got it. But if we all had the same conversation with him, then my interpretation must've been wrong. I guess he just pretended to understand. What do you think?

As this excerpt indicates, the candidates and mentors began to inquire into this critical moment to better understand the student's utterances and needs, posing hypotheses such as: "Is it a strategy he uses to get answers from us that he can use in his text […] or could it be that he can't move forward on his own?" In many of these conversations in which the candidates and mentors adopted a stance of inquiry, they would draw on their observations from the present and past lessons and on concepts such as strategy instruction and feedback, and they would connect the specific critical moment to broader principles of teaching and learning. As indicated in Candidate B1's summary of the conversation above, these critical moments were not treated as particular cases but as cases for broader principles:

> Candidate B1: But this is an insight I'll keep in mind, that even when I think I've managed to help students move forward, they might still not understand. It's easy to say, "Yes, I understand," if they don't know what else to ask.

Another characteristic of the conversations in which the candidates and mentors adopted a stance of inquiry was that some of the candidates not only talked about what they did or did not do in the video clips but also about how their actions related to their beliefs about good teaching and the factors that restrained them from creating alignment between their beliefs and their actions. For these candidates, moving from "stick[ing] perfectly to the plan," "time pressure," and "right or wrong answers" to eliciting and building on student ideas was a crucial but challenging step:

> Candidate B2: It is so easy to make it a question about right or wrong. And I don't want to become that kind of a teacher. Therefore, it annoys me that I sometimes act like that […] I often end up guiding them toward an answer rather than letting them reflect on their own. I don't have enough experience to guide them down a path in which they can find out more for themselves.

Across these conversations, the mentors supported the candidates in reflecting upon what kinds of moves and questions were better suited to elicit student ideas and needs. For instance, Mentor A suggested that they replay a video clip in which

Candidate A1 missed an opportunity to elicit student ideas about Martin Luther King Jr.'s seminal speech, "I Have a Dream," so that all could look for what kinds of questions the candidate could have asked. As illustrated in the excerpt below, Candidate A1 came up with many questions that she did not think about in the heat of the moment, and they went on to discuss the affordances of a more dialogic approach and the implications for lesson planning:

> Candidate A1: Oh, yes! I thought about a bunch of things I could've asked about! First, who is he? Does everybody know? I guess I didn't ask because it was already written on the PowerPoint, but still I could've asked. And what do they know about him? Do they know what he accomplished? Probably, they're familiar with "I Have a Dream." So, I could've asked what they knew about the speech. What is it about?
>
> […]
>
> Mentor A: And then you also build stronger relationships with the students, talking to them, not only presenting content […] And what the students know already, right? And that's information that you can use later on.
>
> Candidate A1: Yes. And then all relevant information can't be on the PowerPoint presentation because then I'll just think to myself that they'd just say what's already there anyway.
>
> Candidate A2: Yes, that's something we can keep in mind for tomorrow.

As illustrated in this excerpt, the candidates and mentors not only suggested alternative teaching moves but also elaborated on the what-if scenarios pertaining to a more dialogic approach and the next steps that would allow teacher candidates to be more adept to student ideas. The most common implications and next steps across the 10 conversations in which the candidates and mentors adopted a stance of inquiry involved building on what they had noticed in the present lesson when planning the next, planning less in detail to make space for student ideas (for instance, by putting less information on the PowerPoint presentation), and paying more attention to student ideas and the kinds of questions that could elicit such ideas. As demonstrated in the following excerpt, these next steps were often suggested by the mentor and challenged the teacher candidates to defy their lack of experience for the sake of building on student ideas:

> Mentor A: But sometimes, you can have those golden moments if you just set the plan aside. But, of course, that gets easier the more experience you get. Like yesterday, my plan was to compare modernism and realism, but instead, we spent the whole lesson discussing literary quality.
>
> Candidate A2: I can imagine that if we were to teach that lesson, and someone brought up literary quality, we would've said, "Yeah, that's really interesting, but now, we have to move on...."
>
> Mentor A: And that's totally understandable when you're doing your fieldwork, plan the lessons together, and depend on each other's timing […] But if you come across such golden moments in the weeks that you have left, you could try to pay attention to them. It's challenging to do so on the spot, but could you try?

> Candidate A1: Yes, I believe that if we had thought that it was natural, none of us would have thought that we wouldn't dare.
>
> Candidate A2: I don't think so either.
>
> Candidate A1: Especially not now that you've told us to give it a try. We'll keep it in mind.

Towards the end of these conversations, several candidates expressed an interest in incorporating these next steps into their teaching, as illustrated by Candidate D: "I realize that this is something I want to be better at, especially reflection questions. That is something that is at the forefront of my mind now." Compared to the decision-making suggested in conversations with an evaluative stance, which was often limited to a particular critical moment, these next steps involved a change in how the candidates could plan for more adaptive teaching.

5. DISCUSSION AND IMPLICATIONS

Fieldwork provides teacher candidates with indispensable opportunities to engage in the in-the-moment noticing necessary to provide instructional scaffolding adapted to student needs. As this has proven to be a highly challenging task for teacher candidates (Duffy et al., 2008) and teachers alike (Hoffman & Duffy, 2016), this study examined the characteristics of conversations around video clips of teacher candidates' attempts to scaffold student learning in L1 to understand whether and how such video-based conversations hold the potential to support candidates in developing their noticing skills.

A key finding in this study is that the teacher candidates and mentors attended to various critical moments in the videos of the candidates' teaching, ranging from opportunities to scaffold student text production and text interpretation to opportunities to elicit and respond to student ideas in text-based discussions in plenary. This is a promising finding when keeping in mind that the notion of critical moments was used as an analytical lens in this study and not as a pedagogical concept that guided the candidates' and mentors' conversations. Taken together, the critical moments that the teacher candidates and mentors attended to indicate what the candidates and mentors perceived as "noteworthy events" (van Es, 2011, p. 139) and paint a clear picture of the complexity of scaffolding student learning in the midst of instruction. For instance, the candidates had to make spontaneous decisions about how to respond to student writing (Ballock et al., 2018), how to avoid "the primacy of teacher interpretations" (Tengberg et al., 2022, p. 8), and how to elicit student ideas in text-based discussions (Banes et al., 2023; Simpson, 2019; Walsh et al., 2020). As such, this study corroborates recent research demonstrating the importance of teacher noticing when reading and responding to students' writing (Ballock et al., 2018; Parr, 2019) and when fostering text-based discussions in L1 classrooms (Williams, Athanases, et al., 2020; Williams, Higgs, & Athanases, 2020).

The study also sheds light on the relationship between teacher candidates' in-the-moment noticing (Sherin, Russ, & Colestock, 2011; Sun & van Es, 2015) and noticing-after-the-moment (Bakker et al., 2022) in post-teaching mentoring conversations with videos of own teaching. Although I did not isolate teacher candidates' noticing from their interactions with mentors, the findings indicate that the critical moments that the candidates attended to in their videos were informed by what they had noticed and experienced during teaching. Moreover, the candidates revealed their in-the-moment noticing when making sense of these critical moments together with their mentor and peer, indicating that the authenticity and situatedness of video viewing of their own teaching can foster a dialectic relationship between noticing in and after the moment (Sherin, Jacobs, & Philipp, 2011). Drawing on Schön's (1983) argument that reflection-on-action may contribute to more thoughtful reflection-in-action, it is possible that noticing-after-the-moment in video-based conversations with mentors and peers might influence teacher candidates' in-the-moment noticing in future classroom situations. This is, however, an empirical question that this study cannot answer, and that requires further examination.

Another key finding in this study is the different opportunities that an evaluative stance and a stance of inquiry offered for teacher candidates' learning to notice critical moments in their teaching. An evaluative stance was adopted in more than two-thirds of the conversations, thereby corroborating findings from studies of mentoring conversations that show that evaluative talk often dominates when teacher candidates and their mentors talk about teaching (e.g., Clarke et al., 2014; Soslau, 2012; Valencia et al., 2009). As demonstrated in this study, an evaluative stance primarily offered the candidates' opportunities to reveal their in-the-moment noticing in order to either get positive feedback or discuss alternative and more responsive teaching moves. Being able to explain and evaluate one's instructional decision-making forms part of what it entails to become an adaptive teacher (Soslau, 2012) but is in itself not enough (González et al., 2019). Therefore, adopting an inquiry stance in teaching and when viewing videos has been underscored in the literature on teacher noticing (Parr, 2019; van Es & Sherin, 2021) and in research on teacher education more broadly (Athanases et al., 2015; Ball & Cohen, 1999). This study adds to this literature by indicating that an inquiry stance provides richer opportunities for teacher candidates to learn from their teaching. The decisions that the candidates and mentors made when adopting a stance of inquiry not only related to alternative teaching moves that could have been made in a specific situation but also supported the candidates in identifying the next steps for future lessons—which has been described as a challenging endeavor for teacher candidates and teachers alike (Gonzáles et al., 2019; Jacobs et al., 2023). Because several candidates were concerned about their time plan, they sometimes tended to steer students along a "predetermined path" (Myhill & Warren, 2005, p. 60), thus missing several opportunities to scaffold student learning. Similar to Gonzáles et al.'s study (2019), the mentors played a crucial role in suggesting or supporting the candidates in

identifying the next steps toward more adaptive teaching, such as posing questions that created opportunities for students to think (Walsh et al., 2020) and building on student ideas and prior knowledge (Stockero et al., 2017).

Still, given the predominance of an evaluative stance in these conversations, this study indicates that both L1 teacher candidates and mentors—as widely documented in mathematics (Amador et al., 2021; König et al., 2022; Santagata et al., 2021)—would benefit from more targeted support in perceiving and interpreting student ideas and needs (Walsh et al., 2020). As none of the mentors were trained in using video to support teacher candidates in learning to notice, collaborating with mentors about how to support teacher candidate noticing appears to be an interesting avenue for further research (Gonzáles et al., 2019; Orland-Barak & Wang, 2021; Reisman & Beckwith, 2023). To further develop teacher candidates' noticing, I also speculate that videos of critical moments could be used in coursework, thereby challenging the idea that this is "not something you can learn directly on campus," as presented by one of the teacher candidates in the quote introducing this paper. The critical moments identified in this study show similarities with a large study of missed opportunities in L1 teachers' text-based instruction (Tengberg et al., 2022), indicating that they represent common challenges for L1 teachers and thereby can be anticipated and represented on video and used to build up teacher candidates' abilities to perceive, interpret, and make decisions on the spot. As demonstrated in this study, such informed decision-making is crucial for responsive instructional scaffolding and for shaping text-based discussions that build on students' ideas. This includes building on students' diverse cultural knowledge and values (Pomerantz & Kaufman, 2019) and linguistic resources (Williams, Higgs, & Athanases, 2020)—aspects of teacher noticing that the teacher candidates and mentors in this study paid less attention to during the video-based mentoring conversations, and that deserve more attention in future studies (Aukerman & Aiello, 2023; Williams, Athanases, et al., 2020).

Some limitations must be taken into account when interpreting the findings and considering the abovementioned implications. First, it is important to note that the ethical guidelines prohibiting participants from uploading special categories of personal data, such as information about neuro-diverse learners and ethnic-linguistic background, most likely led them to avoid in-depth discussions about particular student needs when such needs were linked to sensitive information about students. Second, this qualitative study cannot speak for a broader group of teacher candidates but illustrates the possibilities linked to using videos of candidates' teaching to support noticing in mentoring conversations during fieldwork. Moreover, the study aimed to describe the characteristics of the conversations among teacher candidates and mentors and, therefore, did not reveal individual differences between candidates, which can be expected based on previous research on teacher noticing (Ballock et al., 2018; Jacobs et al., 2023). In the same vein, I did not investigate differences between pairs of candidates and

mentors, meaning that the study did not provide insights into whether all candidates and mentors were able to adopt a stance of inquiry.

Despite these limitations, this study makes an important contribution in demonstrating that video-based conversations during fieldwork have the potential to support teacher candidates in learning to notice critical moments in their L1 teaching, particularly if teacher candidates and mentors adopt a stance of inquiry. There is, however, a need for more studies that shed light on L1 teacher candidates' noticing and the role of school-based teacher educators in supporting candidates' development of noticing skills, and studies that collaborate with school-based teacher educators on how to do this work would be beneficial. Teacher noticing could be the missing link between professional knowledge and adaptive L1 teaching, and it is my hope that researchers will join in advancing the field's knowledge about what it entails to become a noticing teacher in L1 classrooms, for the benefit of all students.

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