Teachers' Aesthetic Judgments of Classroom Events

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Abstract: This paper introduces and articulates the contours of a novel component of teacher noticing and thinking—teachers' *aesthetic judgments* of classroom events. By aesthetic judgments, we refer to teachers' rapid recognition of particular classroom events as having a certain character or quality, such as students being highly engaged or having a "good" conversation. Drawing on a definition from diSessa (1993) of an aesthetic as a loose knowledge system that operates in a data-driven manner, we highlight how such judgments appeared and functioned in the context of teachers selecting video clips from their own classrooms to share in an online professional development course. We describe a range of aesthetic judgments evident in this context to illustrate what aesthetics may involve and sound like in practice and to highlight domains in which teachers may draw on influential aesthetics. We conclude with consideration of related empirical and theoretical issues.

Keywords: aesthetics, teacher noticing, teacher thinking, video-based professional development

Introduction

Over the last two decades, research on teacher noticing has been concerned with how teachers parse and make sense of complex classroom events (Schack et al., 2017; Sherin et al., 2011). Accounts of teacher noticing commonly emphasize at least two key dimensions of noticing, often considered and analyzed as distinct dimensions—what teachers attend to within classroom interactions, and how teachers interpret or reason about what they attend to (see van Es & Sherin, 2021, for a recent review). However, studies continue to explore and debate how these dimensions relate to each other and the extent to which they are separable (e.g., Barnhart & van Es, 2015; Sherin & Star, 2011; Walkoe et al., 2020), particularly if conceptualized as cognitive processes. A range of research and teacher learning efforts have sought to both understand the nature of teacher noticing and support its development through intentional work with video recordings of classrooms, such as having teachers write analyses and reflections about videotaped classroom events (e.g., Barnhart & van Es, 2015; Superfine & Bragelman, 2018; Walkoe et al., 2020) or watch and discuss videos in arrangements like video clubs, in which groups of teachers meet to examine videos recorded in the classroom of one of the participating teachers (e.g., Sherin & van Es, 2009; Stockero et al., 2017; Walkoe & Luna, 2020).

The work reported in this article departs from prior work on teacher noticing by focusing on a unique aspect of teachers' workflow with respect to video. Namely, we looked closely at teachers' noticing processes as they selected clips from video that they captured in their own classrooms. This was done in the context of an online professional development course, for the purpose of sharing and discussing with other teachers.

Working within this novel context drew our attention to phenomena that we believe are not well-captured by prior research on teacher noticing—phenomena that we now call *aesthetic judgments*. In brief, when engaged in selecting clips, teachers seemed to make rapid judgments about what they saw in their classroom videos, highlighting particular parts as reflecting particular characteristics or qualities (e.g., where students were really engaged, where the conversation was "meaty"). These judgments blurred the lines between attending and reasoning, in that the very "noticed-things" (Sherin & Star, 2011) integrated inferences and characterizations. These rapid judgments were instrumental in understanding teachers' selections and selection processes in this video-based professional development opportunity in which teachers had agency over what to share. Further, we have come to believe that teachers' selection processes provided a window into an important, underspecified component of teacher thinking.

The purposes of this paper are to introduce the idea of an aesthetic judgment as applied to teachers' parsing of classroom events, and to provide the reader with a sense for the kinds of aesthetic judgments displayed in the context of our course. We do this with illustrations drawn from our data corpus. We discuss this corpus and the context in which it was collected in the next section. Then, we explain what we mean by an aesthetic judgment, situating this new construct. After that, we present, with examples, a range of types of aesthetic judgments seen in our corpus. We finally conclude with a discussion of empirical and theoretical issues, questions, and next steps with respect to the study of teachers' aesthetics as a focus of research.

Study context

Our study of teachers' aesthetic judgments occurred in the context of a short, online course on mathematical argumentation in kindergarten through second grade, adapted from a longer course designed by Lomax et al. (2017). In the course, participating teachers were asked to try a series of argumentation activities with their students, videotape the conversations that occurred, and select a 3-4-minute portion of each conversation to share and analyze with peers in the course. For instance, one argumentation activity involved showing a set of four images that differed in multiple respects and inviting discussion of "which one doesn't belong" and why. A second argumentation activity (reflected in the example in Figure 1 below) asked teachers to lead their students in discussing whether a somewhat ambiguous equation, such as $3 + 2 = 5 + 1 = 6$, was true or false. Instructions for selecting a video clip consistently specified the time limit and invited teachers to focus on what they noticed about their students' thinking but were otherwise fairly non-specific. Teachers shared and discussed video clips in a discussion board-like setting as shown in Figure 1.

44 Comments

May 23, 2019 6:42pm

This weeks activity was BY FAR THE MOST AMAZING YET!!!!! My kids had the most amazing discussion. We did 3 different equations because they conversation was so in depth. We started out with 8=5+3 and we built up to this equation. I found it so amazing that 1 of my kids thought this was true because she knows that 5+3 does equal 8 and then 8+2 does equal 10. My other 2 kids thought this was false because they weren't looking at the 10. They were tending to just look at 5+3=8+2. Once my student who thought it was true explained her thinking to her peers they both ended switching their opinion to true. Then they were both able to explain to me why they changed their opinion. I will definitely continue using true/false equations in my classroom with my whole class. This was about a 20 minute conversation and it was absolutely outstanding to see their thinking and their conversation with one another!

Week 4 trimmed

REPLY ♡ Recommended (0)

May 25, 2019 9:43am

I love the way you had a conversation with your students! The way you reiterated their responses seemed to be helpful in continuing the conversation and also guiding it. I think it's so powerful to watch your students really try to not only understand an equation but also one another's thinking.

REPLY ♡ Recommended (0)

Figure 1. Example of selected video clip discussion.

Ten teachers from two well-resourced, predominantly white suburban school districts in the United States participated in the course in the spring of 2019, and we collected several sources of data to gain insight into participating teachers' selecting processes and associated reasoning. First, we conducted two short interviews with teachers just after they videotaped argumentation conversations in their classes, where we asked them how they anticipated selecting clips and whether there were any particular portions they would want to make sure to include. Second, we asked teachers to perform at least two think-alouds while selecting video clips, in which they were to describe what they were doing and thinking as they interacted with their recorded video and made selections. Third, we conducted a final end-of-course interview with each teacher, where we asked them to reflect on what they tended to select in their video clips and why.

In prior work with this data corpus, we engaged in systematic coding of teachers' considerations while selecting (Richards et al., 2021), which allowed us to survey, at a high level, the types of thinking observed. In that work, we noted the existence of aesthetic reasoning as one component of that thinking. Here, we extend our theoretical and analytical work with this construct, focusing on data assembled from five of the ten participating teachers who had a) complete selecting datasets and b) particularly rich think-alouds, the latter of which we felt provided unique insight into the varied aesthetic judgments teachers made about videotaped classroom events.

These five teachers had a mean of seven years of teaching experience (with a range from three years to 15 years); all identified as female and white, and one teacher identified as Hispanic or Latina. We describe more about how we approached the data after introducing key aspects of what we mean by aesthetics as a teacher thinking construct.

Aesthetics, the idea

We begin with an example drawn from an interview with a first-grade teacher, Allison (1), used to introduce the idea of aesthetic reasoning in prior work (Richards et al., 2021) and further unpacked here. This particular example is taken from our second interview with Allison, just after she filmed an argumentation discussion with her class and before she had selected a portion of the video to share online. During these interviews, we always asked whether a teacher had any initial thoughts about what parts of the recorded activity they might choose to share. When asked this question, Allison responded:

> So, I probably will leave out—usually I go for the ending because I feel like that's where like *the meatiest conversations* come from, but I feel like this one, the last [equation] I'll probably leave out and more skim towards like the middle to the beginning, and I feel like at the beginning the kids were more on track with like $3 + 5 = 5 + 3$. (*emphasis added*)

Allison reported that typically she selects clips from the latter portions of activities since those portions are usually the "meatiest" (though that pattern did not hold in this particular instance). She did not elaborate on what she meant by "meaty," though one could infer a potential relation to where conversation was "more on track." The interviewer then asked her to say more about what she meant by "meaty."

> I: Mhmm. Yeah, and when you say meaty, like what do you—what counts as meaty?
> A: So, like the more in-depth conversations where they're like really able to explain their thinking, and then the opportunities where when it does make sense, and I have other kids like, "Can you repeat what so and so said"? Like those teachable moments.

Allison's noticing of "meaty" conversations is an example of the sort of *aesthetic judgments* that are our focus, and it has many features that typify these judgments. It is our intention to use the term *aesthetic* in a particular, technical sense—as a particular kind of knowledge system—that may be unfamiliar to some readers. In some loose respects, our usage does reflect everyday usages of the term; in other respects, it does not. Most fundamentally, our description of a system of knowledge as constituting an aesthetic is meant to describe features of the *form* of the knowledge—its structures and processes that act on those structures. In this respect, we closely follow the usage of the term proposed by diSessa (1993). In his account of the nature of intuitive physics knowledge and how it arises, diSessa provided a formal definition of a type of knowledge system that he called an *aesthetic*, explaining:

> The term is meant to be evocative of the functional characteristics of rich but structurally limited knowledge systems, which, notwithstanding their richness, appear fluid, data driven, and involve situation-specific reasoning (as opposed to plans and general methods) and idiosyncratic justification. (p. 187)

In diSessa's definition, an aesthetic is a knowledge system that consists of a collection of elements that are not highly organized. An aesthetic is activated and applied through a process of recognition, strongly driven by the data at hand. Further, since aesthetic judgments are undergirded by "structurally limited," less formalized knowledge systems and terminology, we should expect teachers to use variable ideas and language to express what they have in mind; in particular, we should expect them to draw on language that is somewhat specific to the situation currently under consideration.

Although diSessa's (1993) definition of an "aesthetic" is quite technical, it nonetheless aligns with some aspects of more everyday usages of the term. Consider, for example, the aesthetic judgments of wine connoisseurs. They might use words such as "complex" and "balanced" to describe a particular wine, with some consistency, and they would draw on a rich range of knowledge elements and experiences in doing so. Nonetheless, such judgments are simultaneously "fluid" and "data driven"; they are in-the-moment responses to particular sensory experiences. And a wine connoisseur might use varied language, perhaps cued by the particularities of a given wine, to explain what it means for a wine to be "complex."

We see the characteristics of an aesthetic reflected in Allison's judgments in the example above. Allison seemed to treat "meatiness" as something that could be recognized—perhaps relatively unproblematically, as she did not initially think to describe it further. However, when pressed, she applied a range of descriptors, suggesting that the bases of this judgment may involve a range of elements, some of which are more or less salient in particular situations. Indeed, although she used the word "meaty" throughout all of our interviews, the ways in which she unpacked this term varied. Here, for example, she described meaty conversations as "in-depth" and as "opportunities where when it does make sense." Across other data, depth was a relatively consistent descriptor associated with "meaty," but Allison also associated meaty with an "aha moment" (interview 1) and with being able to see diverse student thinking (final interview). These observations lead us to believe that for Allison, "meaty" is more than just a word—it reflects an aesthetic with some consistencies and complexities, and its application in particular situations may be nuanced and fluidly connected to a variety of considerations and inputs.

As emphasized above, diSessa's (1993) definition of an aesthetic is intended to be only structural. For him, an aesthetic is a system of weakly connected knowledge elements applied in a data-driven manner. But the aesthetic judgments in our own data do have some characteristics that are reminiscent of more everyday usages of the term. Though this was not always the case, the aesthetic judgments in our data were sometimes value-laden (as are those of a wine connoisseur). Here, for instance, Allison did not simply notice and characterize something that occurred; she positioned meaty conversations as desirable. Strictly speaking, in these interviews, teachers were responding to a question about which parts of a video were desirable for a particular purpose—the purpose of sharing in an online course with their colleagues. But, in actuality, their judgments often did not seem limited to this context; Allison's judgment that a portion of the discussion was meaty seemed to be naming an intrinsically positive attribute of that part of the conversation, regardless of the video-based task at hand.

It makes sense to us to think of the systems of knowledge that produce aesthetic judgments—systems that we call simply "aesthetics"—as part of the underlying machinery of teacher noticing. They produce readouts and evaluations that are, in a fundamental and important sense, "just seen" in classroom events. They become raw "noticed-things" (Sherin & Star, 2011) that are often treated as inputs to teacher reasoning and decision-making (e.g., Schoenfeld, 2008). Yet with respect to the noticing literature as described in the introduction, we note that an aesthetic seems to be a particular *kind* of noticed-thing that blurs distinctions between what teachers attend to and how they interpret or reason about objects of attention. For instance, noticing a "meaty conversation" embeds interpretations or evaluations within the noticed-thing itself. This contrasts with noticed-things that require little in the way of inferences, such as noticing that a particular student spoke in class today.

Aesthetics in teachers' video selecting work

As we looked across our data corpus of teachers' selecting processes, we noted a range of aesthetic judgments that teachers made with respect to what occurred in their classrooms. Briefly, the first and second authors independently identified all instances in the data corpus in which a teacher seemed to rapidly recognize and characterize a classroom occurrence, noting both what the teacher was naming (e.g., "meaty conversation") and descriptors or observations used by the teacher that may be part of the locally applied knowledge system. We then discussed and refined our collective understanding of each instance and discussed patterns and potential categories of aesthetics across the dataset. The first author then constructed analytic memos synthesizing instances into descriptive categories and examining prevalence across teachers.

Here, we elevate and characterize aesthetics that arose across multiple teachers. We do not put these forth as any kind of firm typology; rather, we frame these aesthetics as initial evidence-based characterizations that illustrate what an aesthetic (as a teacher thinking construct) may involve and sound like in practice, suggest varied domains for which teachers may have operational and potentially influential aesthetics, and form the basis for future work in this area. We also broadly acknowledge that focusing on aesthetic judgments is only one way of making sense of teachers' judgments that foregrounds their common structure and character; one could alternatively foreground other aspects of teachers' judgments, such as their epistemic underpinnings.

Student state-oriented aesthetics

We begin with a set of aesthetics that focused on different aspects of students' states—how students were participating, feeling, understanding, etc. As with most aesthetic judgments, these were often positioned as things one could "see" or "tell" directly from observational cues. Unlike some other aesthetic judgments, however, they at times incorporated language that suggested degree, in that students could demonstrate more or less of a given state.

We call one common student state-oriented aesthetic *engagement*, following from teachers' language. We believe that, even in everyday interactions, it is a common assumption that it is possible to tell when someone is "engaged" with us or with an activity—though it might be challenging to define what we mean or say why we

think so. Four of the five teachers demonstrated evidence of judging whether and to what degree students were engaged in the classroom activity at different times in their video work, often via declarations without further explanation. For instance, a kindergarten teacher, Deb, described a week in which she filmed two argumentation activities and selected one to share in part based on her perception of students' engagement. She noted that "they were just so blah" (final interview) in relation to one of the activities, but they were highly engaged in the other: "I did this one just on a whim one day and I'm like, 'Oh, we need to stop and record this' because they got so into it" (final interview). Such judgments—of students collectively getting "so into it," or of other descriptors teachers used such as "more engaged," "so distracted," or "checked out"—likely involved complex, synthetic work across a range of sensory inputs, but they were framed as fairly direct read-offs of the data at hand. As first-grade teacher Allison noted, "You can kind of see like the engagement, you can see the kids who are kind of like zoned out" (interview 1).

Another emergent student state-oriented aesthetic across teachers was *understanding*—whether and to what degree students understood something or not. Here, teachers described whether students "realized" something, or were "confused" or "lost," often making such judgments based on observational cues (e.g., "they'll show if they're confused or they're not quite sure… just through their facial expressions" (Vicky, interview 1)). Again, these are complex judgments that are far from unproblematic; they require ascribing to students a cognitive state, based on their facial expressions, postures, tones of voice, etc. Furthermore, in the moment of teaching these judgments are not incidental; they are likely to have an impact on teachers' actions and interactions with students.

Contribution-oriented aesthetics

Teachers also made aesthetic judgments with respect to specific contributions from students. Here, the aesthetics were more explicitly valenced in nature, elevating and depicting particular contributions as "good" or "interesting" from the teacher's perspective. For instance, multiple teachers drew on a *good contribution* aesthetic, in which they demarcated particular contributions or segments of contributions with positive evaluative language: "She does a nice job using math vocabulary" (Dorothy, think-aloud 1); "This is where I got some really good observations" (Kendra, think-aloud 2); "That's a really important point" (Vicky, think-aloud 2); "I love that they were connecting across the subjects" (Deb, think-aloud 3). These sentiments were most common during selecting think-alouds, suggesting that they were activated for teachers in response to specific pieces of video data, and they at times shaped teachers' selections.

What we call the *interesting part* aesthetic was also a contribution-oriented aesthetic that teachers used to demarcate particular contributions, but these judgments had a different tenor. Here, teachers were reacting to contributions that intrigued them, sometimes because they were surprising or reflective of times when students posited ideas that teachers had not contemplated or showcased abilities that teachers had not expected. This aesthetic was distributed across data sources, suggesting that teachers identified parts that were interesting to them during their interactions with students while capturing video, as well as while selecting portions to share. Further, while teachers on occasion simply cited something as "interesting," they tended to also name *what* was interesting, and at times *why*. They added this specificity more often with the *interesting part* aesthetic than with others. For instance, a kindergarten teacher, Dorothy, described a line of thinking she found "interesting": "He wanted it to look like $2 + 5 = 2 + 5$ [rather than $2 + 5 = 5 + 2$] and then it would be true, and then at the end he realized that it still is the same, which I think is- it's interesting" (think-aloud 2). At the end of the course, Dorothy noted that she made selections partly based on parts that she "found really interesting or different or that were surprising" (final interview). When pressed to unpack what "interesting comments" meant, Dorothy replied:

> I kind of had in my mind, things that they were going to say, and things that they would notice, and sometimes they said something completely different that I was like "Wow, I didn't even think of that," so I thought that was awesome… Things that surprised me that I didn't really think they could do, or that I didn't think they would notice (final interview).

Other teachers also depicted students' approaches or understandings as "interesting," "fascinating," or "compelling" and made sure they were included in their selections (e.g., "I think it's so fascinating that she's- when she talked about flipping it around. She's just doing it completely backwards… okay, so I'm keeping that" (Vicky, think-aloud 2)). In another example, kindergarten teacher Deb noted how a "whole video" in which her class discussed an equation with variables was "very fascinating. I just thought it was so interesting talking about variables with kindergartners" (think-aloud 3). Deb reiterated her interest in this particular discussion and how it influenced her selections several times throughout her final interview:

I was just like so intrigued by their understanding… there were times when I trimmed the video more on something that I just found really like compelling that a student had said… I'm remembering it was something [student] said… where she shocked me in understanding what "a" could stand for… their thinking on that one was just so fascinating to me (final interview).

Here, Deb used varied language—"intrigued," "compelling," "shocked," and "fascinating"—to depict the part she found interesting and specified that while the "whole video" was fascinating, she was most tuned into a particular student's understanding of how to work with a variable that she found surprising.

Interaction-oriented aesthetic: Good conversation

A third category of aesthetic that arose across multiple teachers focused on the nature of interactions among students. In our course context, three of the five teachers drew on what we call a *good conversation* aesthetic, which had several characteristics. First, it was often used as a descriptor without much further specification—teachers noted where the conversation was "good," "better," or "best," often positioned in contrast to where the conversation was "slow" or "not argumentative" (given the content of the course). Contrasting "good conversation" with what teachers deemed to be less good conversation seemed unique to this aesthetic.

Second, when teachers did specify what made a conversation "good," they focused on specific ways that students interacted with each other. For instance, Dorothy described that students "were actually listening to each other," in contrast to portions where she perceived that "once one kid was talking, the other two were not listening at all" (interview 1; note here that this aesthetic also seems tied to the *engagement* aesthetic in Dorothy's judgment of when students were listening). Other teachers noted that "good conversation" was where "there was kind of a back and forth between other students" (Kendra, final interview) or where students explicitly disagreed with each other (Vicky, final interview).

Story-oriented aesthetic: Completeness

Finally, four of the five teachers demonstrated aesthetic judgments that seemed to be more about the holistic nature of the classroom event or video clip, judgments that we link to a *completeness* aesthetic. Here, teachers considered and judged whether a given event or clip seemed to reflect a "complete" or "whole" story.

Take the following think-aloud example from Kendra, a second-grade teacher, who had filmed her students' discussion of whether two pairs of images were the same or different and was considering what to include in her selected clip. She watched how students discussed both pairs of images and noted that in one discussion, a particular student took over and "it wasn't really, um, argumentative" (the *good conversation* aesthetic). She noted, "I'm just gonna eliminate the second conversation and, um, my video will now capture the complete conversation on our first same or different… picture" (think-aloud 5). Note here that while the *good conversation* aesthetic seemed to drive which conversation to include, Kendra also made a *completeness* judgment—that the video would "capture the complete conversation" she selected.

Kendra returned to this *completeness* aesthetic on multiple occasions. She sought to reflect "the conversation as a whole" (think-aloud 3), and this consistently led her to trim at what she deemed to be natural boundaries, such as after a spot where a student was "finishing a thought" (think-aloud 4). Other teachers drew on similar judgments of what made something complete. For example, Allison explained, "if I could include the whole part of the last person talking I would, but always that beginning part I felt like it was important to like capture the whole conversation" (final interview). Similarly, Deb made sure to "get to the end of [the student's] thought" (think-aloud 1) before trimming. While there were some commonalities in what made an event or a clip feel complete, such as starting and stopping at natural boundaries in talk or tasks, these judgments were also situation-specific in that what felt "complete" to a teacher for one argumentation activity did not always match what felt complete for another activity. Returning to Kendra's examples, what felt "complete" in the same or different discussion described above was showing the entirety of students' discussion of one pair of images; what felt "complete" in another argumentation activity in which students discussed what would make particular equations true (e.g., 1 x __ = 2 x __) was showing portions of how students discussed two equations back-to-back, to be able to showcase the whole trajectory of their reasoning.

Discussion

This paper is our first extended attempt to articulate our ideas concerning what we believe to be an underexplored component of teacher noticing and thinking—teachers' aesthetic judgments. To recap, these are rapid, at times value-laden judgments that we saw teachers make about, and in response to, classroom events. Drawing on diSessa's (1993) notion of an aesthetic as a rich but loosely organized knowledge system, we argued that aesthetics that are "just seen" by teachers are likely to be an important part of teacher noticing. Specifically, they reflect

what teachers intuitively notice in classroom events in a way that seems to merge attention and interpretation, blurring dimensions often treated as separable in studies of noticing.

With respect to teacher learning and learning to notice in particular, we believe that the prevalence and ease with which teachers made aesthetic judgments while selecting video clips in our course context suggest that such judgments are likely at play for teachers even if they are not made explicit through professional development activities. Furthermore, we believe aesthetic judgments can reflect substantial professional expertise. Indeed, precisely because an aesthetic is a largely informal kind of knowledge system, we anticipate that aesthetics may be largely built up from experiences observing and leading classrooms, in addition to other sources of knowledge. Teachers' aesthetic judgments likely constitute some of the raw "noticed-things" (Sherin & Star, 2011) that can be built on, and/or critically investigated with respect to how relational positionalities and lived experiences shape noticing, in professional development contexts.

However, we are aware that much work remains to be done to more fully investigate and articulate the idea and its implications. We conclude here with a discussion of what we see as the most pressing empirical and theoretical issues. First, from an empirical point of view, an important next step is to investigate teachers' aesthetics in contexts beyond video selection. In some respects, teachers' video selection processes provided an ideal context within which to see aesthetics, as they involved teachers judging segments of classroom activity and choosing some segments over others. But again, our argument for the importance of aesthetics hinges on our belief that they are also active throughout other teaching activities. We believe there is a strong prima facie case to be made that aesthetic judgments play an important role when teachers, for example, lead a classroom discussion. Even fine-grained models of teacher decision making, such as the one developed in Schoenfeld (2008), include what are essentially black boxes in which teachers must make complex and important judgments, such as whether a particular student question is generative to pursue or reflective of a broader lack of understanding in the class. Thus, one concrete next step is to study how and when aesthetic judgments are made across multiple teaching activities, including within situated classroom events.

Another contextual consideration has to do with the specific focus of the course as related to the specific aesthetics activated among teachers. For example, the fact that teachers were to engender and capture student "argumentation" likely provoked a focus on interaction-oriented aesthetics, in which teachers judged whether and how students interacted with each other's contributions. Similarly, the prevalence of story-oriented aesthetics in our data corpus was likely dependent on the particular context of selecting video clips that would be comprehensible to share with peers (though we believe that a focus on discussion features such as "closure" is likely not unique to this context). Further work could explore which kinds of aesthetics are commonly activated in which kinds of contexts, as well as potential patterns across contexts and relations among aesthetics in action. For instance, we noted above how judgments of the quality of a discussion might be linked to judgments of engagement. We anticipate, as we expand the study of teacher aesthetics across contexts, that we will find aesthetics that tend to be employed together, and in characteristic ways.

A different empirical question concerns the degree to which there is individual and/or cultural variability in teachers' aesthetics and their use. On the one hand, multiple teachers in this study's context showed some focus on student engagement and the quality of student ideas. However, there was also a great deal of fine-grained texture to these judgments. Just as a wine connoisseur might employ a rich vocabulary of terminology to describe the flavor of wines, so did teachers use varied language to talk about the flavor of student ideas and student conversation. Future research could examine commonalities and variations in readouts and language across teachers and instructional contexts.

There also remain a variety of questions about teachers' aesthetics and aesthetic judgments that are more theoretical in nature. As a novel construct with respect to teacher thinking, the definition and posited characteristics of teachers' aesthetics will benefit from ongoing refinement in relation to additional teacher thinking constructs, related interdisciplinary perspectives, and other examples of aesthetic judgments among teachers. As with many constructs, we anticipate that refinement of the construct itself and associated heuristics for identifying aesthetics in data will co-evolve. Further, understanding teachers' complex judgments of classroom events through the lens of aesthetics is only one way of exploring what is happening—a way that affords attention to the structure of the judgments. Additional work in this area may help to clarify how the structure of aesthetic judgments relates to other interpretive lenses that instead focus more directly on content or context. There is also work to do concerning the relationships that may exist among aesthetics. For example, can they be nested one inside the other, similar to schemata (e.g., Rumelhart, 1980)? When considering an aesthetic, such as the *interesting part* aesthetic described above, in what ways does it make sense to conceptualize its counterfactual (i.e., a part that is not very interesting) as *part of* the aesthetic versus its own aesthetic? Finally, there are also dimensions of variability across aesthetics that deserve attention. For example, some aesthetic judgments seem to

be more tacit than others, and some seem to have a stronger valence. We hope that the existence of these questions is suggestive that this is a worthwhile area for further research.

Endnotes
(1) All names are pseudonyms.

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