Research Article

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Deconstructing Teacher Engagement Techniques for Pre-service Teachers through Explicitly Teaching and Applying “Noticing” in Video Observations

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Abstract: Student engagement is a complex measurement that can be viewed through behavioral, emotional, and cognitive constructs. Authentic intellectual engagement requires more than task compliance and requires teachers to make decisions and moves to promote engagement. Pre-service teachers need to have these teacher decisions deconstructed and explicitly reconstructed to “notice” and make sense of it. This study conducted a qualitative document analysis of 31 pre-service teachers’ observational reflections on a pre-selected video-recorded lesson. A pre- and post-assessment was used. When pre-service teachers were given explicit instruction on “noticing” teacher moves to enhance student engagement through multiple constructs, their understanding of student engagement within a lesson shifted from literal and compliance-focused to a multi-dimensional construct involving behavior, emotion, and cognition. The assessments also shifted focus from what the teachers did to the impact the teacher’s decisions had on student engagement and learning. Future research should look at how noticing skills in video observations can transfer to the pre-service teachers developing their teaching skills in the classroom.

Keywords: teacher preparation, observation, feedback skills, explicit instruction, engagement

1 Introduction

Student engagement is a complex measurement because it can be categorized in various ways. It can include social, behavioral, procedural, affective, academic, and cognitive engagement. It can also be seen as a large construct that looks at each engagement area holistically. Often, individuals “know it when they see it,” which is a more subjective than an objective view of the term “engagement.” To move away from this personal interpretation and towards a concrete construct, various forms of how one can be “engaged” must be defined, and how to quantifiably measure engagement needs to be determined.

Engagement, in the research, is often looked at in terms of three constructs (behavioral, emotional, and cognitive; Fredricks, Blumenfeld, & Paris, 2004). Behavioral engagement is defined by how involved the student is in academic and social activities. Behavioral engagement looks at the students’ involvement, participation, and conduct. Participation may include the student’s concentration, attention, effort, formulated questions, and contribution to discussions. At the same time, conduct may consider whether a student follows class rules (Fredricks et al., 2004). The dimensions of behavioral engagement can be viewed and measured on continuums such as on-task and off-task; paying attention or not paying attention; asking questions or not asking questions; and putting effort in or not putting effort in (Fredricks, Ye, Wang, & Brauer, 2019). Teacher behaviors can increase the likelihood that students will remain behaviorally engaged. These teacher behaviors include a teacher: setting clear expectations and learning goals, fairly and consistently reinforcing classroom expectations, having well-established routines and procedures in the classroom, providing structured response opportunities allowing for all students to participate in the lesson, monitoring and interacting with all students in the classroom, and establishing a safe and positive learning environment that capitalizes on giving specific praise and guidance to students (Goss, Sonnemann, & Griffiths, 2017; Pedler, Hudson, & Yeigh, 2020).

The emotional construct of engagement focuses on students’ attitudes, interests, and values they display through interactions with others. Emotional engagement focuses on...
the motivation or the desire to work (Fredricks et al., 2004). The emotional construct examines students’ affective reactions (interest in learning, boredom, anxiety, and emotions). It also examines an individual’s feelings about school or faculty and their sense of belonging to this school environment (Fredricks et al., 2004). Emotional engagement can be measured on continuums such as interested or bored, enjoying or not enjoying learning, and caring and not caring about learning (Fredricks et al., 2019). There are a multitude of teacher behaviors that support students’ emotional engagement. The most important is the individual one-on-one relationship the teacher develops with each student in their class. Other important teacher actions that promote a student’s emotional engagement are respecting and encouraging students to share their viewpoints, fostering inclusion and a sense of belonging for all within the classroom, building student confidence, and promoting student success using entry points into the curriculum and scaffolds, as needed. (Collie et al., 2016; Pedler et al., 2020).

The cognitive construct of engagement looks at a student’s willingness to put effort towards learning and their ability to self-regulate their learning and apply learning strategies in the real world (Fredricks et al., 2004). The only continuum measure associated with the cognitive construct is persisting with academic challenges versus giving up (Fredricks et al., 2019). Teachers enhance students’ cognitive engagement by activating students’ prior knowledge, using students’ interests to drive instruction, promoting active dialogue and encouraging students to expand on their responses, identifying students’ readiness to learn, delivering explicit instruction, setting a purpose for learning and making real-world connections, allowing for student choice, using universal designs for learning and high-leverage practices, and encouraging participation and collaboration between classmates (Hospel & Garland, 2016; Pedler et al., 2020).

The behavioral, emotional, and cognitive constructs of engagement all hinge on the teacher’s ability to create a safe learning environment, encourage and support students taking academic risks, and deliver lessons that meet students’ readiness and learning needs (Pedler et al., 2020). Student engagement is the cornerstone of effective instruction. In other words, effective learning only occurs when students are engaged in their learning environment (Finn & Rock, 1997; Osterman, 2000). Engagement promotes academic, behavioral, and social–emotional success in school (Ladd & Dinella, 2009). Student engagement is vital to academic achievement. It helps build student autonomy and challenges students appropriately (Sherhoff, Csikszentmihalyi, Schneider, & Shernoff, 2003).

Student engagement is a well-documented predictor of overall academic achievement (Fredricks et al., 2004; Guthrie & Wigfield, 2000). Schlechty (2002) found that engaged students are persistent in their work and feel satisfaction when accomplishing tasks. They are attentive in class discussions, interested in learning, and motivated to learn (Fredricks et al., 2004). Students with higher levels of engagement have been shown to earn higher grades, attend school more regularly, and have higher graduation rates (Blondal & Adalbjarnardottir, 2012; Klem & Connell, 2004; Willingham, Pollack, & Lewis, 2002).

Juxtaposed, disengaged students often become disruptive, get lower grades, do not seek higher educational goals, and are more likely to drop out of school (Kaplan, Peck, & Kaplan, 1997). A lack of engagement in school has also been linked to higher problematic behaviors, substance abuse, and delinquency (Wang & Fredricks, 2014). It is also connected to not feeling noticed by peers, not finding social relationships meaningful, actively resisting and avoiding participating in class, and feeling stressed and overwhelmed with school (Fredricks et al., 2019).

Even when teachers understand engagement and its benefits, they often struggle to engage students in meaningful and intellectually stimulating ways. One study by Schlechty in 2009 found that out of 1,500 classroom observations done on experienced teachers, only 15% of these teachers achieved greater than half of their respective students’ attention during their lessons. If student engagement is challenging for experienced classroom teachers, it will likely be even more challenging for pre-service teachers (Beasley, Gist, & Imbeau, 2014).

1.1 Theoretical Framework: Danielson’s Framework for Teaching

The Danielson Framework for Teaching is a teacher evaluation model that uses student engagement as its cornerstone. The Danielson Framework holistically examines teachers’ responsibilities through 22 practical teaching components. These 22 components fall into four domains (planning and preparation, the classroom environment; instruction; and professional obligations). Teacher actions that promote student engagement are cross-cutting within domains one through three of the framework. Domain one connects with the emotional construct of engagement, asking teachers to know their students and plan lessons coherently based on the knowledge and relationships built with students. Domain two, which connects to the behavioral construct of engagement, looks at establishing a safe environment with clear expectations and learning goals, whereas domain three, which focuses on instruction, explicitly has a
component titled “engaging students in learning” and focuses directly on the cognitive engagement construct. Domain three specifically looks at four elements linked directly to student engagement: activities and assignments, the grouping of students, instructional material, and the structure and pacing of a lesson (Danielson Group, 2022).

Danielson explicitly defines student engagement as being “intellectually active.” It expressly acknowledges that engagement is not simply “being busy” or “on-task,” which is solely related to the behavioral construct of engagement (Danielson, 2007). Danielson (2022) makes the distinction between “being busy and on-task” and “intellectually active,” in that the former shows students simply behaving compliantly while in the latter, students are working on building understanding through discussions, debates, answering “what if” questions, discovering patterns, and through other like activities. In other words, if you look at the tasks asked of the “intellectually active,” they cover all engagement constructs (behavioral, emotional, and cognitive).

In engaging lessons, the observer can see higher cognitive skills asked of students. The students, in other words, are being asked to do the cognitive lift. Student engagement reflects what the teacher does. It involves the activities and assignments students are asked to do and how they perform them. Engaging activities and tasks ask students to explain their thinking and call on the students to stretch their thinking (Danielson, 2013).

Student engagement is also seen in how students are grouped within a classroom or for a particular task. The importance of flexible grouping based on the lesson’s purpose acknowledges that group formation needs to vary so that all students learn from each other and are exposed to multiple perspectives. Strategically grouping students is one of the decisions that teachers make every day (Danielson, 2022).

The material and resources teachers select also play a role in student engagement. The resources teachers choose to use in a lesson directly impact the students’ learning experience(s). The material (texts, resources, learning activities, supplementary materials, and perspectives) teachers select for use in the classroom needs to be culturally sustaining and representative and needs to be based on interests and ability levels.

Another component that contributes to student engagement is the pacing of a lesson. A teacher needs to control how much information they give to students at once, how quickly they move in a lesson, and how much time they give students to complete specific tasks within a lesson. This must be considered based on a student’s needs and the learning they have demonstrated or are struggling with.

According to the Danielson framework, evaluators can look for specific indicators from teachers and students while watching a lesson. From the teacher, evaluators can look for suitable pacing with time for closure, opportunities given to students to respond in the lesson, the teacher’s interactions with students during the lesson, and the specific praise and guidance the teacher gives to the students throughout the lesson. Observers can look to the students to see student enthusiasm, higher-level cognitive learning tasks where students are actively “working,” students’ motivation and persistence with a learning activity. Students’ enthusiasm can be seen in how their interests are peaked and how they explain their thought processes. This plays right into higher-level cognitive tasks where evaluators see how students actively explain their thinking and ask questions to gain more information and persist with a task. In highly engaging learning, the students are not passive; they are not merely watching the teacher perform and taking notes. Instead, in the Danielson framework, students must actively think to be intellectually engaged (Danielson, 2013).

### 1.2 Pre-service Teacher Training

Using a framework like the Danielson framework can help pre-service teachers start to tease out the multitude of skills associated with teaching. The research indicates that this may be important because pre-service teachers often have difficulty thinking like a teacher rather than a student (Beasley et al., 2014). They often rely on their own experience or how they were taught and, therefore, see the teacher as the giver of information and the students as the receivers. Having this perspective without a theoretical underpinning may be why the field still lacks an in-depth understanding of the instructional practices that make a difference in pre-service learning – especially when it comes to strategies like engaging students in learning (Beasley et al., 2014).

In pre-service teacher training, there needs to be dialogue, deliberation, discussion, and a clear definition of student engagement. When defining engagement, clear examples and non-examples of what this looks like in the classroom should be presented. In other words, teacher actions that lead to student engagement need to be observable and measurable so that all pre-service teachers conceptualize this term similarly. One way to arrive at a clear definition for student engagement is by having pre-service teachers watch lessons of more experienced teachers and reflect on the teacher’s moves that foster the classes’ engagement with the lesson. This video analysis of master teachers can be turned into a self-reflective activity as they watch and analyze their lessons (Beasley et al., 2014).
Pre-service teachers need explicit criteria to provide focal points for the next steps in gaining the skills to become effective teachers. In this regard, Danielson's framework has clearly defined elements that help establish a commonly shared vocabulary for teacher-educators to use as they coach pre-service teachers regarding teacher moves that promote student engagement (Danielson, 2007).

1.3 Skills of Noticing

The Danielson framework needs to be deconstructed and, over time, reconstructed to help pre-service teachers understand teacher moves that promote student engagement. One way to do this is explicitly teaching pre-service teachers how to "notice" how master teachers encourage student engagement. "Noticing" identifies what a teacher does and what a pre-service teacher sees as they observe a lesson. This skill requires pre-service teachers to interpret their observations (Mason, 2008). Teacher noticing requires pre-service teachers to attend to and make sense of events happening in the classroom (Lam & Chan, 2020). The act of noticing is an essential skill for teachers (Mason, 2002). Teaching this skill, however, can be challenging (Jacobs, Lamb, & Philipp, 2010; van Es & Sherin, 2002).

"Noticing" is difficult to teach because classroom environments are complex and multi-dimensional. Teachers must contend with many data and variables during a lesson in the classroom. Teachers must recognize each student and their prior knowledge about a topic, their "feelings" or emotions coming into a class, their ability to attend a lesson, and their interest in the topic. Teachers also must understand the subject matter deeply, know how to provide entry points to the curriculum, and ask for more advanced skills in order for some students to make continual progress. Teachers see several observable actions and behaviors in a classroom environment, and then, they must make sense of what they are seeing (Sherin, Jacobs, & Philipp, 2011; van Es & Sherin, 2002). Teacher noticing, therefore, includes a set of skills "including attending to what is noteworthy in classroom data, analyzing and interpreting that data concerning defined goals, and deciding how to respond" (Barnhart & van Es, 2015, p. 85).

1.4 Explicit Instruction on Noticing

There has been growing interest in using classroom videos to support the development of skills associated with noticing (Van Es, Tekkumru-Kisa, & Seago, 2019). Video is advantageous for explicitly teaching noticing skills because a video can display the complex richness of classroom learning and allow for multiple viewings where a teacher educator can explicitly call out teacher moves and student engagement resulting from specific teacher moves (Brophy, 2004). Explicit instruction on noticing while watching a video allows the pre-service teacher to be guided as they shift attention from the teacher toward student learning and cognition (Santagata, Zannoni, & Stigler, 2007; Sherin & van Es, 2005; Star & Strickland, 2008).

Classroom videos allow pre-service teachers to observe classroom scenarios as if they were physically present in the classroom (Brophy, 2004; Santagata et al., 2021). The use of video captures the specificity of the classroom experience and allows pre-service teachers to see the classroom setting and lesson from multiple angles, as it can be watched repeatedly (Kang & van Es, 2019). Videos can, therefore, mimic real-time teaching and the moment-by-moment processes of teaching (Seago, 2004). Videos can be used to ask pre-service teachers to identify and make sense of crucial teaching moves, interactions, and student responses in a classroom. Videos can also be revisited multiple times for deeper and more fine-grained analysis, which can help pre-service teachers see, understand, and unpack how specific moves a teacher makes influence student learning and engagement (van Es, Cashen, Barnhart, & Auger, 2017). In other words, by guiding pre-service teachers on how to think and act like a teacher, the complexity of the classroom can be explicitly laid out (Linares & Chapman, 2020).

Pre-service teachers need this guidance and explicit instruction as they "observe" classroom teachers and begin to identify specific teaching elements (Van Es & Sherin, 2021). Guidance and explicit instruction help pre-service teachers understand what occurs within a lesson and make sense of how simultaneously occurring classroom events affect teaching (Van Es & Sherin, 2021). Pre-service teachers also need explicit instruction regarding what they should look for within the lesson and how to dissect the teaching environment they observe (van Es, Tunney, Goldsmith, & Seago, 2014). When teacher educators provide this guidance in observation tasks described here, they begin to help pre-service teachers see teaching and learning systematically (Chung & van Es, 2014). One way to guide the development of this observational learning is by having pre-service teachers focus on specific skills during their pre-practicum observations (Richards & Farrell, 2011).

Observations with a pre-determined focus have been shown to serve better as effective learning experiences (Richards & Farrell, 2011; Tyminski et al., 2021). In fact, without this specified guidance, effective teachers and teaching practices will not be produced (Windschitl,
Thompson, & Braaten, 2011). This is because, without this guidance, pre-service teachers lack the observation skills and pedagogical content knowledge to effectively analyze teaching and learning (Darling-Hammond & Bransford, 2005; Hiebert, Morris, Berk, & Jansen, 2007; Star & Strickland, 2008; Yang, König, & Kaiser, 2021). When no observational guidance is provided, it was found that pre-service teachers often focus on the behaviors of the teacher and that the pre-service teachers had very subjective interpretations of these behaviors (Levin, Hammer, & Coffey, 2009; Sandoval, Deneroff, & Franke, 2002; Yang et al., 2021). Calandra, Gurvitch, and Lund (2008) found that without guidance, pre-service teachers often wrote low-level, play-by-play descriptions of what was taking place in the classroom; they did not identify specific instructional techniques used by the teacher and, therefore, could not extend their thinking to match a teacher’s instructional moves with student responses and actions.

1.5 Current Study

Pre-service teachers can be supported as they observe videos of master teachers in their classrooms. The complexities of delivering a lesson and applying specific pedagogical approaches while classroom life is happening can be explicitly laid out (Hiebert, Gallimore, & Stigler, 2002). This current study takes a learner-centered theoretical perspective as we examine how using videos with explicit instruction can impact what pre-service teachers notice about a teacher’s decisions and actions promote student engagement. Throughout this pre-service fieldwork class, the instructors provided direct instruction through Danielson’s framework on various engagement strategies and then asked pre-service teachers to watch video-recorded lessons demonstrating these strategies. As these lessons were observed, explicit instruction was provided. Pre-service teachers were engaged in challenging, practice-based activities (video observations) with a theoretical underpinning focused on their teaching knowledge base. Kolb (1984) and Santagata et al. (2021) acknowledge that this transformation experience, using new knowledge to interpret video-taped classroom experiences, relies on reconstructing prior knowledge to understand the information practically.

Research Question:

1. How and in what ways does using videos with explicit instruction impact what pre-service teachers “notice” about classroom engagement?

2 Methodology

2.1 Research Design

This research utilized qualitative document analysis as a group of 31 pre-service teachers conducted observational reflections on classroom instruction. We collected data through written notes and reflections of video-taped observations of master teachers before, during, and after explicit instruction on instructional moves to promote engagement were taught. We then coded data to understand what pre-service teachers focus on when asked “to look for engagement” within a lesson, and then, we constructed a descriptive write-up of the observed videotaped lesson. The pre-service teachers participated in this observation and reflection at the start of the fall semester, and this served as their pre-assessment. All pre-service teachers watched the same video, a first-grade teacher conducting a math lesson with about 20 students. After the pre-service teachers completed the pre-assessment, they began their fieldwork seminar class. In this class, the pre-service teachers received explicit instruction on what to look for and how to observe a lesson. Explicit instruction on “noticing” was given in different areas, which included teacher moves to promote classroom management, a well-structured lesson, and student engagement. Each seminar class had a specific focal area that was guided by the Danielson framework and was set up using a routine format which began by having the pre-service teacher give an update on their fieldwork, set up using a routine format which began by having the pre-service teacher give an update on their field placement, followed by direct, explicit instruction on one specific “noticing” skill, and concluded with direct application of the skills in role-playing and video-observation examples. After each seminar class, each pre-service teacher was asked to watch additional video clips of classroom instruction and reflect on what they saw happening.

For this specific research question, the seminar on engagement began by defining vocabulary associated with behavioral, emotional, and cognitive constructs of engagement and the objective data pre-service teachers can look for or “notice” about teacher moves that lead to student engagement. Pre-service teachers were taught to look for teacher moves that built one-on-one relationships with students, set up a safe and inclusive classroom environment, tailored the lessons to students’ needs, and encouraged student response opportunities through guidance and praise. Pre-service teachers were asked to notice how these teacher moves impacted student enthusiasm (seen through peaked interests and explaining one’s thought processes), higher-
level cognitive learning tasks where students are actively “working” through explaining their thinking and asking questions to gain further understanding, students’ motivation and persistence with a task, and suitable pacing with time for closure and student self-reflection.

Direct instruction in this seminar class also focused on specific teaching techniques, such as activating background knowledge, allowing for frequent response opportunities, providing feedback, modeling, and utilizing peer-learning strategies to connect learning and students’ interests. A complete layout of the seminar’s focus, including associated vocabulary, explicit instruction topics that were called out, modeled, and practiced, and the writing prompt students were given post-seminar to reflect on, can be seen in Table 1.

2.2 Participants and Setting

Two classes, junior year fall seminar classes, one for elementary pre-service teachers and the other for early childhood education pre-service teachers at a small public university in New England, were used to collect data for this study. A total of 31 pre-service teachers enrolled in a BA/MA teacher preparation program participated in the study. The seminar classes for these students were held every other week for two-and-a-half hours, for a total of seven sessions. In support of this class, all these pre-service teachers spend 3 hours a week in a public-school classroom. The elementary students are placed in classrooms for students in grades one through six. The early childhood education pre-service teachers are placed in a preschool through grade two classroom.

2.3 Data Collection

At the start of the fall semester, these 31 pre-service teachers were shown a video of a first-grade teacher conducting a math lesson with a group of about 20 students. After viewing this video, they were asked to write a short reflection describing the lesson and instances of how the teacher's moves and decisions led to student engagement seen within the lesson. This pre-assessment was conducted before explicit instruction on “noticing” in observations occurred. After seven seminar classes were laid out as described above, students were asked to re-watch the same lesson and again write a short reflection describing the lesson and instances of “effective teaching” and “engagement” in the lesson.
2.4 Data Analysis

The pre-assessment and post-assessments were both looked at and coded using the multi-constructs of engagement (behavioral, academic, and emotional) as a framework. Within this construct, initial coding occurred, where we inductively generated as many codes as possible from both assessments. In doing this, essential words or groups of words were identified and labeled (Charmaz, 2006). Core categories emerged, and concepts were clearly defined (Strauss & Corbin, 1998). Emergent codes that surfaced around engagements were then codified and defined. These codes and definitions can be found in Table 2. Both researchers checked and defined these codes and 20% of all documents to ensure inter-rater reliability.

2.5 Validity and Trustworthiness

Qualitative research should address trustworthiness and validity. Trustworthiness includes credibility, transferability, dependability, and confirmation (Lincoln & Guba, 1985). In data analysis, intact, thick descriptions that participants used during the study were preserved so their voices could be heard, and authenticity remained (Lincoln & Guba, 1985).

2.6 Validity

Maxwell (1992) classifies descriptive validity as how valid that which is reported is accurate and factual. This study addressed descriptive validity by objectively reporting what participants wrote in their assessments. Interpretive validity refers to the “goodness of fit” as findings are developed (Guba & Lincoln, 1989). This was done by allowing the themes to emerge and coding all student assessments (Maxwell, 1992). Direct quotes from participants were preserved as another means to address interpretive validity.

3 Findings

When looking at students’ pre-assessment observational write-ups, pre-service teachers only looked at what teachers did to promote engagement from a behavioral construct. The data show that pre-service teachers either noted when students were or were not compliant with the teacher’s request. After receiving instruction on what to “notice” while observing classrooms, evaluated through the post-assessment observational write-up, students began to view engagement from behavioral, emotional, and cognitive constructs.

3.1 Pre-Assessment Findings

In the pre-assessment observations, the only engagement code that emerged was compliance, where students were doing what was asked of them by the teacher. The teacher maintains control of the classroom through student compliance. The pre-service teachers noticed that the teacher engaged students by reminding them how they should be seated and to comply with the teacher’s requests (like how to answer by “raising their hands” and to “look up here”). Pre-service teachers also shared that this teacher engages the students for complying with her requests through “encouragement and praise.” Pre-service teachers wrote, “This teacher gave lots of praise in different moments when students were listening to her.” “She gave high-fives when a child got an answer right,” and she had also said, “Someone is doing an excellent job (at sitting),” and “You are brilliant for knowing the answer.” Several pre-service teachers echoed the thoughts captured by one here, “I thought this was an effective way of teaching because receiving a compliment after doing a problem makes the students feel good about themselves and want to keep doing what they did.”

Pre-service teachers noted that this teacher “was in control the entire time and had a calm classroom where

<table>
<thead>
<tr>
<th>Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>Students were doing what was asked of them</td>
</tr>
<tr>
<td>Purpose for Learning</td>
<td>The teacher established why students were learning and the focal point of the lesson</td>
</tr>
<tr>
<td>Provisioning</td>
<td>The teacher prepared material before a lesson</td>
</tr>
<tr>
<td>Pacing</td>
<td>The structure and flow of the lesson</td>
</tr>
<tr>
<td>Interacting</td>
<td>Students were asked and encouraged by the teacher to participate and interact in the lesson</td>
</tr>
<tr>
<td>Build on Prior Knowledge</td>
<td>Students were asked to connect past and present knowledge</td>
</tr>
<tr>
<td>Variety</td>
<td>Students were asked to participate in varied and different activities</td>
</tr>
</tbody>
</table>
students could easily pay attention and could learn.” Many pre-service teachers shared that this was seen “when the students began to get noisy on the rug, the teacher stood at the front of the rug and waited silently until each student realized they needed to be quiet.”

Another pre-service teacher commented, “The teacher uses praise to encourage students to listen.” Similar thoughts were shared about this teacher’s effectiveness with engagement when another pre-service teacher pointed out, “The teacher pointed out the students who are following directions, and this may teach other students to want to act like those who were following directions.” The effectiveness of student engagement relied on students being compliant and doing as the teacher asked. These observation write-ups focused on the students’ actions rather than the teacher’s instructional moves and decisions.

### 3.2 Post-Assessment Findings

In the post-assessment observations, several codes around engagement emerged. These codes included provisioning, pacing, teacher–student interactions, building on prior knowledge, setting a purpose for learning, and using varied planned activities. These observational write-ups focused on what the teachers did, and the impact teacher moves and decisions had on keeping students engaged in the lesson. Pre-service teachers’ post-assessment write-ups focus on engagement focused on “active learning” rather than compliance or “busy” activities. Therefore, these observational write-ups aligned more closely with how the Danielson framework defines engagement and how a teacher’s specific moves contribute to behavioral, emotional, and cognitive engagement constructs.

#### 3.2.1 Provisioning

This code focused on pre-service teachers acknowledging the teacher’s work in preparing the material and activities before the lesson begins. Pre-service teachers were now focused on how the teacher had “all the materials ready, objectives written on the board, and the environment organized specifically for the activity.” They also shared how this teacher’s “provisioning and planning” actively ensured student learning. Pre-service teachers wrote provisioning began as “the class started off the lesson with a review of previous learning,” “reviewing the ones and tens columns” and then continued as the teacher pre-planned how to use the students as helpers “by randomly calling on students to answer questions or come to the board.”

#### 3.2.2 Setting a Purpose for Learning

This code emerged as pre-service teachers began to pinpoint the focal point of the lesson and why students needed to learn this skill. Pre-service teachers called attention to how the teacher explicitly “identified the purpose of the lesson” and made “explicit direct connections this skill [the learning] has to real life.” Pre-service teachers expanded on why this was important to student engagement as they “now know the importance of learning.”

#### 3.2.3 Pacing

Closely related to planning and setting a purpose for the lesson, the code “pacing” emerged when pre-service teachers noted the structure and flow of a lesson. Within this code, pre-service teachers shared that they “now knew that pacing was “strategically planned for” throughout a lesson and involved starting a lesson with ready materials. Pre-service teachers also noted that the “pace of a lesson is significant as it cannot be too slow, but it can also not be too fast.” The pace “has to allow for everybody to be involved.” The pacing the teacher uses throughout the lesson “needs to be adjusted as she [the teacher] assesses students learning and modifies her instruction.”

Pre-service teachers, in their write-ups, also shared some strategies for adjusting this pacing. One pre-service teacher shared, “The teacher also used overlapping strategies as she monitors what the whole class is doing as she works one-on-one with a struggling student.” Other students shared that the teacher “was able to monitor the room and check in with all students during the lesson.”

Another strategy that the pre-service teachers were keyed into was sub-dividing the class “to transition students to different locations successfully” and “to successfully transition students to different activities without losing time on learning.” This “sub-dividing of the class” was done by “calling a small group of students at a time.”

These teaching strategies allowed the lesson’s pacing to be appropriate for all students. Many commented on why pacing in this lesson was planned for and appropriate for the students. Some pre-service teachers noted that the “pacing of the lesson was good because she [the teacher] took the necessary steps to make sure students were ready to engage in the learning on their own.” Others, however, simply stated that the pacing of the lesson was good but did not give an explanation as to why. Many pre-service teachers commented on pacing at a level between these two statements saying, “Students spent a good amount of the class learning” and were “engaged with the activities and
material.” Another example was a pre-service teacher who wrote, “A majority of the classroom time was spent on learning because there were no filler activities, and she [the teacher] did not have to wait a while for the whole class to come together and settle down.”

3.2.4 Teacher–Student Interactions

This teacher–student interaction code was defined as the teacher asking and encouraging students to participate in the lesson. Pre-service teachers shared that these engagement strategies could be “as simple as asking for student volunteers” or “multiple strategies to gain attention and engage the students.” Some of the strategies to gain attention that the pre-service teachers noted were “the teacher cueing students into the lesson through hand clapping,” “encouraging unison choral responses,” “[the teacher] using a variety of voice inflections,” “enlisting student by using them as helpers,” “randomly calling on a student to answer questions and come to the board,” and “[the teacher] using positive praise to encourage students attempts.”

3.2.5 Build on Prior Knowledge

Building on prior knowledge was defined as connecting past and present content and developing expertise in this lesson. One pre-service teacher stated that this teacher “connected the current lesson to prior knowledge through a review of previous learning.” Many others shared this same thought in different words – noting that “reviewing previous concepts is important” for continuity in learning.

3.2.6 Variety of Activities

The last theme that emerged was the teacher using a variety of activities which was defined as acknowledging that students were asked to participate in varied and different activities. Pre-service teachers shared that continued engagement in learning happens because the teacher uses a “variety of activities,” “learning opportunities,” and “flexible groupings.” Like all the others noted in this post-assessment, this theme grounded engagement in “active learning” and shows how a teacher’s decisions and moves directly impact student engagement.

4 Discussion

In the pre-assessment data, pre-service teachers looked at engagement as “behavioral compliance” and highlighted the teacher praising students when they followed through on compliant activities. When pre-service teachers view engagement from this lens, they only consider the behavioral construct of engagement related to conduct. Pre-service teachers, without explicit instruction on what to notice, based on what a teacher is doing, simply look to see if students are or are not compliantly following the rules and expectations (Fredricks et al., 2004).

Viewing classrooms through this singular focus on compliance may be because pre-service teachers, due to their relative lack of experience, are in cognitive overload when asked to consider highly complex classroom scenarios (Kim & Klassen, 2018). Therefore, they only view classrooms from direct actions and judge the teacher based on student task compliance (van Es & Sherin, 2002). Without observational guidance, pre-service teachers subjectively judge the literal step-by-step actions of the teacher – not linking the impact of these actions on student learning (Levin et al., 2009; Sandovall et al., 2002).

Analysis beyond this literal task compliance needs direct teaching. Interactions in the classroom need to be explicitly unpacked for pre-service teachers. They need the classroom observation deconstructed so that they can, with explicit guidance from an instructor, reconstruct it with meaning. This explicit instruction must first start with noticing the actions of veteran teachers, which must be linked to meaning. This explicit instruction must first start with noticing the actions of veteran teachers, which must be linked to meaning-making (Schack, Fischer, & Wilhelm, 2017; Seidel & Stürmer, 2014).

In teacher preparation, instructors should step outside their teaching to draw attention to specific actions and explain their reasoning for making specific instructional moves. This helps pre-service teachers move from the literal play by play of classroom instruction to the beginning to analytically chunk important teaching segments that occur (van Es & Sherin, 2002; Yang et al., 2021). Throughout the seminar course in this study, instructors explicitly called out what they did and what was happening while watching videos of classroom instruction. This helped pre-service teachers deconstruct the lesson into analytical chunks as they began to take in how the planning and delivery of instruction were taking place.

Moving from instructors’ explicit instruction, where instructors were calling out what was happening, into guided practice, where pre-service teachers noticed specific teacher actions and decisions with support, was the next step in learning how to “notice.” In this step, instructors help pre-service teachers develop a discriminating eye for significant classroom interactions (van Es & Sherin, 2002). Support is given to pre-service teachers as they attend to and make sense of events happening in the classroom (Lam & Chan, 2020).
By guiding pre-service teachers to look for specific actions and decisions the teacher makes but doing so in a piecemeal fashion, pre-service teachers can take in what is happening in the classroom differently (Yang et al., 2021). With explicit guidance and instruction, pre-service teachers are spared from cognitive overload and can move beyond compliance or “busy” activities to dissect what occurs in a classroom. They can, therefore, begin to see engagement as a multi-dimensional construct that acknowledges behavior, emotion, and cognition aspects.

To solidify how pre-service teachers use noticing beyond the university walls, in actual practice, pre-service teachers need to practice this skill independently. In this study, pre-service teachers did this through assigned videos and generalizing this skill in their classroom observations. This pattern of scaffolding instruction is what teachers should be doing with students, so it only makes sense that pre-service teachers are taught “noticing” skills in this manner.

In this study’s post-assessment, students could independently call out engagement as a multi-dimensional construct. They called out instructional moves and made sense of instructional decisions that impacted student engagement in behavior, emotion, and cognition constructs. The post-assessments produced by pre-service teachers acknowledged the behavioral construct through the safe learning environment provided that allows for students’ participation in the lesson and contributions to discussion and learning. The emotional construct was noted as pre-service teachers shared how the teacher builds students’ motivation within the lesson by knowing individual student’s needs. The cognitive construct of engagement was captured by presenting varied learning opportunities/activities and connections to a real-life situation. Through this tiered instructional approach, students could reconstruct the classroom environment into analytical chunks that made meaning of instructional decisions and actions that supported student engagement.

This current study examined pre-service teachers’ ability to analyze someone else’s teaching and how it impacts student engagement. There were several limitations to this study as it was solely conducted at one teacher preparation institute, and only specific terminology and teacher moves related to the constructs of engagement were looked at due to timing. The fact that the same video was used in the pre- and post-assessment could also be seen as a limitation. In the future, these limitations could be researched as researchers look at different points to introduce “noticing” or further develop “noticing” skills through video in teacher preparation programs. Another study could look at teaching each construct of engagement separately and unpacking the teacher moves for each construct in greater depth and examine how seeing this further dissection may impact a pre-service teacher’s depth of knowledge and application. Future research could also determine if teaching noticing skills directly impacts how pre-service teachers plan and implement their lessons. It should also look to see if specific actions are easier or harder to implement once noticing and reasoning are developed. The development of these skills should be looked at in lesson planning, one-on-one instruction, small group, and whole group teaching formats. This research could also be extended to examine how students perform in their teaching and internship year, asking if noticing skills established during pre-service coursework regarding behavioral, emotional, and cognitive engagement translate into lesson planning and enactment during the practicum experience.

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References


