



Can You Just Tell Me?!

A Portrait of Becoming a Teacher

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Abstract

At a time when there is great emphasis on teacher quality and the preparation of excellent teachers, this portrait explores the process of one such aspiring teacher, Katie, in the fall of her full-year student-teaching internship. Her mentoring teacher, Kristen, is a veteran fifth-grade teacher at a small elementary school in New Hampshire who uses the same expertise with Katie as she models for use in her classroom. The portraitist, Bryan Mascio, uses classroom observations, interviews, and document analysis as well as his own background as a master teacher to illuminate the complexities of learning, teaching, and learning to teach—while revealing the parallels between these processes. Because teaching is a complex intellectual skill, those who are learning that skill or learning to improve that skill are at their core learners—even while they are simultaneously the teachers of others. By viewing interns through this dual lens, we can best support them to develop as teachers.

Introduction

Twenty energetic fifth graders stream into Kristen's¹ classroom, sweaty and out

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of breath from their physical education class. Without any noticeable direction from her, they grab their chairs and make semicircle rows around the easel in preparation for the next lesson. On the chart paper is a list of work that has been, and needs to be, handed in this week. It starts off with a packet on fables and includes revising the memos on their independent reading books, finishing the stories they have been writing, preparing for their spelling tests, a list of math work, and several other tasks.

Kristen reviews the list, making sure everyone understands each assignment. She has everyone turn and talk to a friend about what assignments everyone has left to do. An excited buzz fills the room as children share their progress with each other. When they are done, she tells them that each student's friend is also whom the student should check in with at the end of the day to support him or her in getting the work done. Kristen explains that throughout the week, everyone will do an individual reading assessment—and while she is conducting these, the rest of the class will work on their list of assignments. I remember how difficult it could be to create a situation where the whole class will be productive and engaged so that I could work intensely with an individual—and I am struck with how Kristen has fostered a culture where it seems so natural.

Before having the students return to their regular seats, Kristen hands out a stapled packet of reading and worksheets on fables. This is the start of a larger unit that also includes fairy tales, and while most of the students are excited about the topic, that sentiment is not unanimous. One little boy begrudgingly looks over the packet of “stupid stories.” What he does not yet know is that Kristen's guidance will help him develop a deep knowledge of and appreciation for this literature. Two months from now, he will excitedly share with me a sophisticated explanation of the difference between the original Brothers Grimm version of Cinderella and the one we commonly tell children.

Kristen tells the students that the word “moral” appears in the packet seven times; when they get back to their seats, the first thing they should do is circle all seven. This could easily be dismissed as a trivial instruction, but it has two very different—but equally valuable—outcomes. First, it allows Kristen to scan the room to easily identify the students who jumped right into reading the packet and thus were not fully listening. Beyond needing a repeat of this instruction, these students will also need to be monitored and coached for the important learning strategy of paying attention to directions. Second, once students do circle the word “moral”—either on their own accord or after a gentle redirection from Kristen—their attention is drawn to an important element of the assignment. The packet includes multiple short fables, with comprehension questions that include finding the moral to each story. This one simple instruction provided important support for potentially struggling students and improved performance for everyone.

I have seen Kristen effortlessly use these masterful teaching techniques countless times as I observe her classroom, and know that they have been developed and honed throughout almost two decades of her teaching. No profession expects those

initially entering the field to be as skillful as those with many years of experience; however, it is crucial that we prepare first-year teachers to be both adequate in their abilities and primed for ongoing development. This is the purpose of teacher preparation programs. What learning is necessary in that preparation?

Teaching Intern Skills

Over the last century, our understanding of student learning has changed dramatically, evolving from behaviorist views of rote learning to more sophisticated constructivist views of how students co-create their knowledge (Lee, 2016). This advancement has also driven forward the conception of teaching (Cochran-Smith, 2016). As people conceived of students less as acquirers of static knowledge and more as ever-changing learning entities, the role of teacher shifted from provider of information to shepherd of this process. This reframed the conceptualization of teaching as an intellectual skill (Feiman-Nemser, 2001). But how do teachers develop their skill of teaching?

While teacher preparation course work certainly contributes to prospective teachers' learning, and good teachers will continue to grow throughout their careers, I am particularly interested in the learning and growth that occur during a teacher candidate's clinical experience—the internship. The internship is a critical time because it challenges interns to bring together their preinternship course work with the realities of teaching practice (Cochran-Smith et al., 2015). This is the bridging of the much-talked-about divide between theory and practice. Additionally, an intern's experience has a large impact on the intern's sense of preparation and commitment to a teaching career (Ronfeldt & Reininger, 2012). Recognizing the importance of the internship experience, this portrait takes place in a classroom that is partnered with the University of New Hampshire's (UNH's) teacher preparation program. UNH has a long history of advancing teacher preparation and in recent years has been nationally recognized for its innovation and excellence (Andrew & Jelmberg, 2010; Morrissey, 2015); while no program is perfect, examining the learning that their interns experience is a glimpse of what learning to teach can be.

In the newest edition of *The Handbook of Research on Teaching*, Russ, Sherin, and Sherin (2016) proposed a novel approach to research teacher learning; researchers should not focus on teachers' skills as unique or specialized but rather as a modification of their "everyday skills" that they have developed throughout their lives. These skills may start out as reading nonverbal communication or making inferences from statements (which most people use on a daily basis), but the skills are then transformed into the advanced skills needed to monitor a classroom of students or assess a struggling reader.

I embrace this concept of learning to teach; it accepts teaching as a natural human skill yet also recognizes the significant enhancement required for high-level professionals (Rodriguez & Fitzpatrick, 2014). I want to understand how this process

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occurs as someone becomes a teacher, taking into account the person's thinking as well as the person's sociocultural context. This is why I selected the qualitative research method of portraiture (Lawrence-Lightfoot & Davis, 1997), believing it uniquely positioned for this kind of complex understanding. Portraiture combines common ethnographic methods of naturalistic observation, interviews, and document analysis with the self-identified perspective of the researcher. Considering the complex and dynamic nature of teacher learning, its process can best be captured from such a nuanced "inside view."

Pasi Sahlberg (2018)—global expert in education reform and former teacher educator—recently called for incorporation of a different kind of data to supplement our growing reliance on big data in school, saying that "small data in education is about phenomena and events that are occurring at the transactional level of an individual student, teacher, classroom, or school in real time" (p. 38). He argued that capturing the humanity within the data is crucial to a fuller understanding. Relatedly, Altan and Lane (2018) recently presented a case for using narrative inquiry as a method to better understand the role of teachers' life experiences in their teaching practice. I propose portraiture as a powerful tool in answering both of these calls.

I do not approach this study as a dispassionate researcher objectively analyzing the actions of foreign "others." I am a teacher before being a researcher—meaning both that I worked as a teacher for more than a decade before becoming a researcher and that teaching remains central to my identity. I completed multiple teacher preparation programs—a bachelor's degree in adult education and a master's degree in special education—as well as a graduate program for leadership and administration. Most of my 12 years as a teacher were spent in alternative school settings working with at-risk adolescents, but I also worked as a behavior specialist both directly with students with behavioral issues as well as with their teachers. As an experienced teacher conducting this research, I was able to capture details of teacher actions and student responses that may have otherwise gone unnoticed. Just as importantly, I was able to delve into the teacher's thinking that drove those actions.

Portraiture calls for data analysis both during and after data collection. At the end of each day in the research school, I wrote reflections, impressions, and questions. Rather than solely relying on my own interpretations, I was able to check any assumptions and concerns by following up with the participants. Those deep conversations and probing inquiries allowed me to test hypotheses and triangulate the data being collected. While this portrait presents events from a single day, the analysis and interpretation are based on 3 months of field observations and on numerous formal and informal interviews.

Ultimately, the validity of a portrait is a measurement of its authenticity and whether it resonates as true for its three audiences: the portraitist, the subjects of the portrait, and the reader. The first comes as a lengthy and arduous process, but hearing from the portrait subjects can feel more like receiving a verdict. Teaching

practice is intensely personal and laden with ethical implications, thus the two main subjects of this portrait had allowed themselves to be quite vulnerable. When the final portrait was shared with Kristen and Katie, they each strongly endorsed it, describing what Lawrence-Lightfoot and Davis (1997) termed as evoking a “click of recognition” as well as a “yes, of course” response. As for the readers, each will determine individually whether the portrait rings true.

To Learn

When you teach a child something you take away forever his chance of discovering it for himself.

—Jean Piaget

Katie is moving between her two spelling groups, on opposite sides of the room. The one furthest from where I am sitting, comprising three boys, is the highest group of spellers. Each of the four groups gets different lists of words, based on their abilities, and work for a week or more to understand the patterns and prepare for their spelling quiz. These three boys commonly work quite independently. Last week, having already quickly taken their quiz, they were allowed to administer the spelling quiz to two of the other groups.

As Katie crosses the room to her other spelling group, she is not surprised to hear them loudly discuss their list of new words. This group is focusing on words that start with either a hard or soft *C* or *G*, and each of the five girls has a pile of the same 23 words that they have cut out and are now organizing. They all have the word “CEASE” laid out in front of them and are discussing what it means—but they are pronouncing it as “SEIZE” and are using examples of “seizing the princess” and “seize the throne,” with flails of their hands, brandishing imaginary swords, as 10-year-olds so enthusiastically do.

Katie picks up a dictionary on her way to their table. The five girls sit on blue hard-plastic chairs that are arranged around a five-foot wooden table, although one particularly fidgety girl shifts between kneeling on and standing over hers. The whole classroom is set up with tables and chairs arranged in odd angles rather than rows. There is an open area in one of the corners of the room, where there stands an easel and a giant flip chart that is used for group lessons. There are also two individual desks—one set at the back of the room facing a back wall and the other right against and facing the front whiteboard—used for two students who have difficulty focusing. During this group work time, however, each of these students has joined her respective spelling group. Dictionary in hand, Katie approaches one of these students, hovering over her blue seat.

Katie opens the dictionary to the *S* section, starting to look up the word “SEIZE,” but turns it over to the fidgety girl when she announces herself as the “dictionary master.” When the girl points to the page exclaiming that she can’t find it, Katie asks, “Is it *S-I-E*, or *S-E-I*?” Understanding the implied redirection, the girl quickly

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flips to the right page and shares the definition with the rest of her group. After some discussion, everyone around the table agrees that this is clearly the word that they know from movies, meaning that they were incorrect when projecting its use onto “CEASE” earlier.

Before the student gets a chance to start looking up the actual spelling word, Katie points out to her “SÊZ” on the page. The girl looks up at Katie, saying, “It’s a different language . . . ,” But when Katie does not give an approving reaction, she continues, “. . . or how to pronounce it.” When asked, “Which one is it?” she answers with authority, “It’s how to pronounce it.”

After letting the group look up the definition and pronunciation for “CEASE,” Katie concludes that they have begun to understand the difference, and she brings them back to the main task at hand. The group is supposed to be identifying a rule for how to know which words have hard and soft *C* and *G* beginnings. One of the students excitedly remembers the “V-C-V rule,” that if two vowels are only separated by a single consonant, the first vowel says its name. This is an explanation of why the *A* in “CAPPED” sounds so different than when it is in “CAPE,” but it does not help with knowing the difference between hard and soft sounds at the beginning of words. Katie smiles at the girls and asks them to discuss it in their table group so that she can circle back to the boys on the other side of the room.

Before she fully walks away, Katie pauses to listen in on their continued conversation. She stands comfortably in what would otherwise look like a stiff posture. Her right arm is laid across her abdomen, its hand firmly hooked into her bent left elbow. Her left hand alternates between resting at her throat and rising up so that her fingers cover her mouth. This is a common pose for Katie, covering her slight frame, and it seems to allow her to melt into the background. She smiles again, before heading off to the boys.

In their teacher’s absence, the girls quickly shift away from the spelling words to what their plans are for the upcoming trick-or-treating. Among the laughter and descriptions of Halloween costumes, they do return to the question of how to tell whether the words start with a hard or soft sound, and the repeated response is that they will “just know.” Katie’s return is met with the answer that “you sound it out both ways and see which sounds right.”

I can see that, with the list of words they have been given, their proposed rule is unfortunately proving to be correct. All of the girls know how to pronounce “CIRCLE,” “CENT,” and “CELL” and would not confuse the sounds with “CUB,” “CARD,” or “CALF.” It would be hard for them to see the shortcomings of their strategy without being confronted with words that they do not know and of which they would not intuitively sense the pronunciation. I wonder to myself what they would think if shown “COULOMB” or “CYTOSINE.”

Katie’s expression must be enough for the students to realize that they have not found an acceptable answer. One girl again presents the V-C-V rule as being key to their dilemma, and Katie smiles as she reaches for the cutout words on the

table. “Oh good, use these words to explain it.” Katie’s voice is characteristically soft and low—not hushed, but gentle in its tone. It is easy to imagine her while she teaches piano lessons in the afternoon, when her words of guidance would naturally mix into the drifting melody.

The girl, pleased with herself, answers, “OK, ‘CITY’ is a V-C-V, and ‘CODE’ is . . . a . . . oh . . . wait.” This quick use of cognitive dissonance is hugely successful. Instead of telling the students that their rule would not work—something that they would have invariably pushed back against—Katie creates a situation where they try it and experience it not working for themselves. This is an important part of students constructing their new knowledge. The expression on the girl’s face is unmistakable; after she finishes with “CITY,” she *knows* that a V-C-V word must have a soft beginning sound, and then after naturally starting “CODE” with a hard sound, what she *knew* falls apart. The V-C-V rule will not be cited again in this way.

“It sounds like you guys are saying it’s all trial and error. Keep thinking about it and we’ll figure it out tomorrow.” It is 9:30 and time for Phys Ed, so with that, Katie wraps up the spelling time, allowing the girls to walk away without anything actually being wrapped up. I later ask Katie what rule she is hoping for the girls to come to. Admittedly, I had been racking my brain for what rule could possibly exist—with English being based on so many different languages, I assumed that the pronunciation would be based on each word’s origin. As I started to worry that I was experiencing a terrible *Are You Smarter than a 5th Grader?* moment, Katie allays my fears. “They are almost there,” she answers. “There is no rule that will work, so they’ll just have to memorize them.”² I ponder whether they’ll be satisfied with this particular conclusion after so much work.

Over the past couple of weeks, I had seen Katie refer students to the dictionary, ask what they thought the answer was, and ask them a wide variety of questions rather than providing them with the answers. These kinds of teaching techniques run counter to many of our intuitive reactions when asked questions by students or children in our lives. These 20 fifth graders pepper her with countless questions during the day, and it is natural to give an answer when a question is asked. Katie’s ability to resist this inclination is noteworthy considering that she is only in her second month of a full-school-year teaching internship, and it is all the more impressive considering how different it is from how she herself had been taught.

Although Katie grew up in the town where she is now doing her internship, she never attended the public school there. She tells me that if she had, she would not have been allowed to use it as her internship site. However, when she first arrived, one of the first-grade teachers mistook her for her older sister, who had attended there for a couple of years, giving her a big hug before Katie had a chance to correct her mistake. This mistaken identity has actually increased Katie’s feeling of comfort in the school, she says. “I’m so welcome there and they always wave to me and say hello to me and that’s something that the younger grades wouldn’t neces-

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sarily have done if they didn't know my older siblings." The tone of Katie's voice conveys how strongly she needs this sense of safety and comfort and the intensity of the doubt and fear that it keeps at bay.

Following her older sister's exodus from public school, all of Katie's schooling took place at a Catholic school 30 minutes from her hometown. She says this background has left her unprepared for the behaviors of her current students and the classroom management required when they do not necessarily sit quietly and follow directions. She also speaks of the huge differences in the curriculum and pedagogy that she experienced as a student in comparison to what she is expected to do now as a teacher. Her description is blurted out in a single breath:

We had so much homework every night, even in second grade. And we memorized, and we learned it, and we had a test, and we moved on. So we covered the entire book for every subject and we didn't have to know the meaning behind it as long as we knew the material. We knew the answers. We were good to go. The teacher stood in the front of the classroom and just lectured and we were all OK with it. It's all we knew.

She contrasts this with what she is now learning to do. "Here, it's all talking about integrating all these things and movements and activities. And they have to know the meaning—don't just tell them!"

While Katie has some hesitation about the slower pace that this new kind of pedagogy requires, and questions whether this puts more advanced kids at a disadvantage, she has clearly embraced the techniques. When working one-on-one with a struggling student during reading time, she uses questions to help the boy analyze the differences between fables. "Is the lion and mouse different from the other one we read?" And when he says they are the same, she responds, "Even the mouse?" When this does not lead to concrete examples, she knows to shift away from questions, directing him with "Let's pick two differences." But as soon as she has an opportunity to go back, she happily asks, "Is that important to include? Did the other story make you feel that way?"

The students in the classroom are clearly accustomed to interacting this way, and many embrace the process. During writing time last week, the students were busily working on their memoirs. Most were using Alphas, a simplistic word processor that avoids the distractions of formatting or access to online temptations. A few students had completed that phase, uploaded their work to an actual desktop, and were working to edit their writing and bring it closer to final form.

Katie had been circulating through the room and made her way over to the computers, grabbed a book off of a nearby shelf, and crouched down next to one of the students working there. She opened the book to a random page and asked for the student to take a look at the paragraphs. "How can we tell where a paragraph starts? What does the author do?" When the student studied the page with no response, Katie pointed to the start of each paragraph on the page, asking, "Are

there extra lines before each paragraph?” Realizing that the author had not used the same strategy he had been using in his work, the student answered, “No, they indented,” and he went back to his computer to correct his formatting.

It is not uncommon to see students working with Katie conclude with an appreciative, “Oh, yeah, I remember!” or a silent but wide-eyed smile as they find their own way to an answer. There are occasions, however, when a person loses patience or faith that the person will get there. Because today is the last day for students to finish their memoirs, a few stragglers are feeling especially anxious about the ticking clock. I see Katie working at the back of the room with one little girl, who cries, “Can you *just* tell me? This is so frustrating!”

In addition to studying interns, I also teach courses to prospective teachers and others who are interested in education. One of my courses, an adaptation of a traditional educational psychology class, is rooted in the question of “what is learning?” My graduate students read works by behaviorists, cognitivists, and neo-Piagetians, examining each theory and its implications. They begin the course by telling a story about a learning experience—either their own or someone else’s—and then offer their description of what learning is. I wonder what Katie’s description would be and how it might be different if I first asked her to tell a story of her own childhood learning versus a story of one of her students’ learning.

The behaviorist notion of learning, first articulated more than a century ago, solely focused on inputs and outputs, explicitly shunning investigation of the thinking process (Pearce & Hall, 1980; Watson, 1913); behaviorism directly connects changes of antecedents with resulting outcomes, defining learning as that change in behavior but leaving the actual process of learning concealed (Skinner, 1950). In contrast, cognitivists explicitly work to illuminate this “black box” of learning; they investigate the thinking and feeling that drive the learning process, relocating the crux of learning to students’ minds (Piaget, 2013; Vygotsky, 1930-1934/1978). Extending the work of cognitivism, neo-Piagetian theories of learning have incorporated dynamic systems thinking to provide a more sophisticated understanding of the learning process (Fischer & Bidell, 2006; Morra, Gobbo, Marini, & Sheese, 2012).

An example of the neo-Piagetian conception of learning is Fischer’s (1980) dynamic skill theory (DST), which reveals learning to be a complex and context-dependent dynamic system (Fischer & Bidell, 2006; Rappolt-Schlichtmann, Tenenbaum, Koepke, & Fischer, 2007). In practical terms, this means that any individual student’s learning of a particular skill may happen differently from anyone else’s learning of that same skill as well as differently from the student’s own learning of any other skill (Fischer, Rose, & Rose, 2007; Rose & Fischer, 2009). The learning of different skills will impact and interact with each other (such as math skills supporting science learning) but also be impacted by their prior learning, current learning environment, emotional state, and personal context. Relatedly, DST suggests that learning is the increasing complexity of a student’s understanding rather than simply a behavior change or an accumulation of knowledge.

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When Katie spoke of her own childhood learning, her descriptions come across as somewhat behaviorist—the relation between the input of information through lecture and memorized texts and the output of test answers was simple and linear. As she said, “We didn’t have to know the meaning behind it as long as we knew the material.” In contrast, when she speaks of her students’ learning, she has moved away from the goal of them repeating back information toward their need to develop deeper understanding. Her interactions with her students suggest that she also accepts that this new goal requires relatedly new forms of interactions that do not resemble lectures, saying, “They have to know the meaning—don’t just tell them!” Without explicitly knowing DST, Katie’s interactions with her students suggest the beginnings of teacher practices that are well aligned with its conception of learning. She uses students’ background knowledge in the subject being taught as well as in other subjects and nonschool interests, builds rapport, and supports them as they build their complexity of understanding rather than providing them with the answers. She knows that they may sometimes find it frustrating, but she works to create a classroom environment where that struggle will feel safe.

To Teach

Tell me and I forget. Teach me and I remember. Involve me and I learn.

—Benjamin Franklin

As soon as Katie returns from leading the students to their Physical Education class, Kristen asks, “Do you have any questions for coding the reading stuff today?” and Katie responds, “I’m shadowing you first, so no.” Kristen is Katie’s cooperating teacher, meaning that this classroom is actually her classroom and she is mentoring and supervising Katie this year during her internship. Kristen has been a teacher in this school for 15 years. Prior to that, she had taught at a residential center for troubled kids and had spent 1 year as a half-time paraprofessional and half-time case manager—a situation that essentially had her reporting to herself.

This is Kristen’s third year with an intern in her classroom. The first had been from a different college, but last year, the elementary school entered into a 4-year relationship with UNH—a selective process that marks it as being particularly committed to the mentoring and development of their interns. Kristen’s intern from last year is now teaching one of the other fifth-grade classes right across the hall. When Kristen heard that I was interested in studying how teachers-in-training develop in thinking about teaching, or their *teacher cognition*, she quickly agreed to have me join her classroom.

Despite Katie not having any questions about the upcoming reading assessments, Kristen goes over how the reading time will go. She points out what she finds difficult when managing the assessment as well as what kids commonly struggle with. She also explains what these assessments mean and why she does this particular one (nonfiction) at this time of the year. Kristen retrieves a flip-book of giant index

cards, an elaborate structure she has created over the weekend, combining data from multiple sources for each student. She concludes by talking about the folly of teachers in lower grades having kids use books from the reading kit that are far above grade level. Kristen knows that Katie will have her hands full learning the nuts and bolts of how to conduct the assessment, but she cannot pass up the opportunity to place it in context and give Katie a glimpse of the bigger picture.

Later, when Kristen is preparing the students for independent work so that she and Katie can conduct the assessments, Katie positions herself at the back of the group of students. Katie listens intently to Kristen's instructions and jots down phrases and terms that she will use later when working with students. Once everyone is working diligently on the fable packet and is prepared to work independently for the rest of the period, Katie picks the first student to assess, and Kristen asks the girl to join them at a table in the back corner of the room.

The two teachers are already sitting opposite one another, and when the girl calmly slips into the chair offered her at the end, they both easily turn to face her. The three are positioned as a cozy triangle, able to have their private conversation set apart from the quietly busy class. Kristen and Katie each has worksheets and pencils in front of her, and they slide a thin booklet on earthquakes to the student.

Kristen explains the assessment to the student and asks her to start reading. Both Kristen and Katie are marking their papers as the girl quietly reads aloud. They log mistakes made, draw a curved arrow when a phrase is reread, and note where she has self-corrected. When the girl is done reading out loud, Kristen offers her time to reread "as you normally would. When you are done reading, just close the book and we'll know you are done." When the silent reading starts, Kristen leans across the table to point out spaces on Katie's sheet to start doing calculations based on her markings. Kristen begins doing the same on her sheet.

Once the girl is done reading silently, Kristen asks what she learned and jots down answers. Katie furiously writes on her sheet. After the initial answer listing off a few facts, Kristen begins asking follow-up questions. Her tone is casual, and the girl seems at ease in their exchange. As the first inquiry leaves Kristen's lips, however, Katie looks wide-eyed down at her sheet and makes a funny face. When I ask her later how she feels about needing to do the assessment herself, she answers, "It's actually really hard, harder than I thought, because she made it seem like a conversation. . . . I think I'd be a robot asking question by question, and she made it seem interesting, and I don't think I could do that yet."

When the girl answers Kristen's question about a specific diagram, she slides her hands back and forth, mimicking the motions of the tectonic plates. Kristen smiles. "I saw you using your hands when you were reading it. Was that diagram helpful?" and the conversation continues. "Tell me more about the seismograph. . . . You've talked about it several times; can you tell me more?" "Let's talk about the book itself right now. Can you tell me about the sections?" "Is there anything the author did to help you know that you are going from section to section?" "What

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kind of descriptive words did the author use to help you understand?” “Is there anything else you learned that you want to tell us about?” When the girl references that earthquakes can sometimes be helpful, Kristen leans forward and, as though wishing to be let in on a secret, asks, “Oooo, how?”

This pattern continues as Kristen and Katie bring additional children to the back table. The next little girl is offered a book titled *Amazing Animal Adaptations* and asked whether she knows about the topic. Just as the first girl had answered about earthquakes, this girl does not know much about them. Kristen reassures her that not knowing about the subject may actually be better for this. I absently nod, thinking that it would be hard to gauge comprehension if a child already knew the information—it is good that they have three books with different topics.

When a boy is brought back to the table and given the book on earthquakes, he enthusiastically replies that he knows lots about them. Kristen responds, “That’s great. Let’s see what else we can learn.” She later explains to me that they have specifically picked the book each student will use for the assessment. The flip-book she had shown Katie earlier includes data from an assessment that Katie had done with each student a few weeks ago, their STAR test scores, and their scores when assessed with this kit last year on both fiction and nonfiction (kids typically do better on fiction). She had spent her weekend triangulating these data for each student to determine which was the appropriate book to use for their individual assessments.

When asked what he learned from the book, the boy only gives a single fact, and Kristen prods for more, “Even if you already knew it.” He points to the picture on the cover of the book, elaborating on the destructive power of earthquakes. “Do you think it was a good picture to put on the cover?” “What makes it such a good picture to put on?” “Do all earthquakes cause destruction?” He responds to Kristen’s questions with a bounty of information, but she persists. “What is this diagram on page 3 meant to tell you?” “Is that important to know?” While she is probing for similar understanding as she had with the first girl who read about earthquakes, it is clear that she is not reading from a script.

When Kristen and I sit down to discuss the reading assessment, we specifically talk about the methods of asking comprehension questions. When are questions too leading? Fountas and Pinnell, who publish the kit of books and assessment materials, also run training sessions on how to use them. Kristen recalls having heated conversations with experienced teachers while watching the training videos. “How did they give a 2 when they asked so many questions?” I ask whether the point is to assess whether the student *understands* the main point or whether it is to assess the student’s ability to *communicate* understanding of the main point. Kristen smiles and leans back in her chair.

I am immediately transported back to my old classroom, where my student Isabella had such difficulty answering questions in ways that the answer sheet anticipated. Once, when the entire class was stumped on how to answer my question about a molecular reaction, Isabella called out, “You know, it’s like this . . .” as

she gestured, bringing “spirit fingers” closer together and farther apart. This is the motion she had used, weeks before, when I worked with her on a related concept. While her classmates initially scoffed, I beamed, impressed with her understanding—and then asked questions that guided her to the words to explain it.

After Kristen and I talk about the disparity between a student’s understanding and the ability to communicate it, I ask, “That’s a very complex issue—how much of that do you discuss with an intern now, versus let it build throughout the year?” She smiles again. “There’s a difference between the conversation with an experienced teacher and someone who’s like a deer in headlights trying to get ready. I need Katie to become more purposeful in what she’s doing in calendar math. She has 20 minutes of direct instruction.” Kristen then looks down at the reading assessments, almost speaking to the materials themselves. “I also need to get these assessments done for report cards this week. I’d love to talk more about them, but when? I’m off to other things and she’s getting ready. We can have conversations about the assessments after.” She picks her head up and looks over toward Katie working to prepare the calendar math area. “I have to be purposeful in helping her be purposeful.”

In my Educational Psychology course, once students have thoroughly interrogated behaviorist, cognitivist, and neo-Piagetian principles, they choose one of the theories and create or modify a piece of curriculum or classroom practice so that it fully aligns with their choice of learning theory. The reason I assign this final project is because knowing about a theory of human development is quite different from being able to utilize that theory in practice. The knowledge of student learning informed by DST—that learning a skill is dynamic and context dependent, there are multiple learning pathways, and learning is about building complexity—calls for different approaches for teachers to use in their practice.

Even without explicit knowledge of DST or other neo-Piagetian theories, Kristen has clearly developed an understanding of the complexity of her students’ learning. Knowing that students’ various skills and subskills may develop in different ways, at different rates, and differently for different students changes how a teacher must view the classroom assignments, individualized expectations, and students’ personalized needs. Teachers must take into account the varied skill sets that contribute to a student’s ability to complete a task, just as Kristen worked to tease apart each student’s reading comprehension (which she was attempting to assess), from the student’s background knowledge (asking to share information, “even if you already knew it”), social-emotional state (overcoming nervousness through a conversational or excited tone), and ability to express knowledge verbally (recognizing the knowledge shown with hand movements). This requires teachers to know their students in new and deeper ways to support their learning, and it requires teachers to take into account a large number of factors when making decisions in their classrooms.

Rather than viewing learning as the simple accumulation of knowledge, or even as stacking new knowledge upon old knowledge, DST and other advances in the learning sciences reveal learning as the building of complexity (Fischer & Kennedy,

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1997). A helpful analogy may be learning to read. Beginning readers think about individual sounds and separately about individual letters. As they learn, they connect individual letters with the sound each makes and transform that pairing into a single concept. When those are combined, words are read—initially by sounding out individual letters and then eventually by seeing them as a single entity (this is unto itself a complex process with multiple pathways³). Words combine to become full sentences, paragraphs, and, eventually, full books. Books are then conceived of, not as a collection of words or paragraphs, but as the ideas they represent. Those ideas may then be combined with related ideas from other areas of life. For example, *To Kill a Mockingbird* may be united with the injustices currently seen in society. Each level described is not simply the amount of knowledge but rather a higher level of complexity.

The difference between assessing knowledge through a noncomplexity concept of learning versus DST may be seen in the two parts of the reading assessment. The first part of the assessment looks for fluency and accuracy of reading—a behavioral output that can be measured and recorded with simple notations—and a teacher learning to conduct this part of the assessment can do so through rote memorization. The second part of the assessment, however, looks for comprehension which is itself more complex; to assess it well requires the teacher to think in more complex ways, and a teacher cannot learn how to assess it that way through rote memorization.

Kristen, aligned with a sophisticated understanding of human development (such as DST), sees her students' learning as a complex system. She teaches and assesses it accordingly. But Kristen also understands that the learning of an intern is just as much a complex system and requires the same kind of pedagogical techniques on her behalf. She recognizes the different skills that Katie is developing, such as learning the “nuts and bolts” of conducting an assessment, the “need . . . to become more purposeful in what she’s doing,” and the more complex conversations that should be avoided with someone who “looks like a deer in headlights.” Kristen knows that these skills must be constructed and developed rather than simply acquired through a direct input. Unlike the fifth-grade students in Kristen’s classroom, however, Katie is not accustomed to this kind of learning herself.

To Learn to Teach

It is better to know how to learn than to know.

—Dr. Seuss

As it approaches 11:30, Katie and Kristen conclude their reading assessments and have the students clean up their workspaces, preparing to go to lunch. Once the students file out the door, Kristen turns to Katie, asking, “Are you ready for math today?” Katie shows her some of the papers from last week that concern her, and Kristen responds, “OK, so what do you think you have to do next?”

Katie offers, “Quick calendar, and then the worksheet . . . or do I wait until the next day for the worksheet?”

“What do you think?” Kristen asks, shrugging her shoulders.

“I don’t have anything to compare it to. I think they’ll be ready.”

After Kristen asks when the monthly assessment is going to be given (on Wednesday, Katie tells her), she says, “Focus on your timing.” I am immediately alerted to this phrasing—I recognize that Kristen is about to model backward planning, but I also doubt whether this is how Katie will hear it. When Katie uses the word “timing,” it is always to lament how she does not have the experience to know how long an activity is going to take—I worry that she will miss Kristen’s lesson.

Kristen continues, “Take five minutes right now to figure out ‘what do I do today to be ready for tomorrow?’ and ‘what do I do tomorrow to be ready for Wednesday?’ Also, start thinking of what you can let go of and still be ready for Wednesday—look at the assessment for Wednesday, and plan from there.”

Katie tells Kristen that she has been looking at the assessment since the beginning of the month, unlike last month, when she never looked at it until the kids took it. Kristen enthusiastically responds, “That’s a number one rule—know what you are preparing them for.” I cannot help but smile as I remember the beautifully scripted writing that lined the hallways where I used to teach. I was always so pleased that the phrase “begin with the end in mind” could be seen directly outside of my classroom.

After a few minutes of writing up her plans, Katie begins to prepare the flip-board area for calendar math. It is not long before the students are lined up outside the door, returning from lunch. Katie situates herself near the easel, and the students are quickly gathered around her. The energy from lunch still clings to the students as their bodies shift in their chairs, but their attention is initially focused on Katie. The first boy to be called on answers a series of related questions before Katie switches to another student for the next one. As students attempt to describe the pattern presented, Katie’s inquiries help them see the flaws, and each successive answer improves on the last. “Can you answer my question using the word ‘multiple’ in the answer?” “Why did you multiply 2 times 4?” “Oh, you make me so happy!” But the back third of the students are barely paying attention anymore. There is a group of students to Katie’s right that is most engaged, and she has moved her direction of attention to them.

Kristen always starts her interns off with calendar math. Throughout the year, they will gradually take responsibility for more and more of the school day, but calendar math is where it always begins. It is a limited amount of time but an actual line on the report card that they will be responsible for. Geometry is typically left to the end of the fifth-grade curriculum and thus gets short shrift if it is not entirely pushed off when other units inevitably take longer than expected. In calendar math, they will focus on different shapes each month (October is triangles) and thus disperse geometry lessons throughout the whole year. Additionally, the calendar math curriculum focuses on pattern recognition, which is another important facet of the

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math standards. Kristen says that taking responsibility for this direct instruction is a good place for a developing intern to start.

Last week, while we were out at recess duty, I asked Katie what she thought of calendar math—we had just come from a lesson that went quite similarly as today. “I hate doing calendar math. It’s the same thing every day, and it’s boring.” She discussed her struggles with having kids come to the front to answer questions—it is great engagement for them but eats up a lot of time. Plus, when someone makes lots of mistakes, she loses even more time. “I’m pretty good at leading small groups, and moving around the room to help.” But she still was not feeling comfortable leading whole-group lessons and complained, “I know that [Kristen] has the answers, but she won’t give them to me. She thinks that I’ll figure them out, but at some point she’ll realize that I won’t. I can’t see the answers. Like today, even if I did it again, I can’t make it better—I don’t know how.”

Katie finishes her calendar math lesson with the students counting out the denominations of money that gets subtracted from their pot each day. They count in unison, before heading back to their tables. There is a seamless transition as Kristen puts several math problems on the board and students work independently on their mini-whiteboards at their seats. Kristen stops everyone when she sees that there is a common mistake. She asks them to turn and talk with another mathematician about this problem—“what was done right, and what was done wrong?”

As Kristen walks the class through the problem and teaches them how to know the number of digits that will be in a quotient, Katie looks on attentively from the back of the room. She is actually hoping that Kristen will return to an example she used last week, explaining long division as a way to fairly split up a large number of brownies she had baked. Katie remembers, “So that was my first time like, ‘Oh my gosh! It’s about being fair. Long division is all about fairness,’ and I never thought of it that way.”

Seeing how well the students respond, Katie is always hoping to seize these nuggets, but the approach does not come naturally:

I don’t know if it’s ‘cause I’m still stuck in the Catholic school ways of, ‘Why are you drawing a picture? This is math. There are no pictures in math. Get rid of those dots.’ But, I hope she does it one more time for my sake just ‘cause that’s what would make me a good teacher, and I don’t have that.

Kristen has also previously referenced Katie’s Catholic school background; a big challenge for Katie will be to move away from rote memorization and traditional methods—she will need to “make math come alive.”

At 1:30, with Kristen’s math lesson over, the students head out to the playground for recess. Katie and Kristen do not have recess duty this week. Katie comes to where I am sitting and shows me a sheet of lined paper filled with observations that Kristen has given her from the calendar math lesson as well as a small slip with her “2 stars and a wish.” Kristen uses these slips to encourage Katie to be reflective about

her practice, setting it up with the topic of the lesson across the top and two stars and a wishbone drawn along the left side. Katie is to write things she liked about her lesson in the space next to each of the two stars, and something she wishes she could do differently next to the wishbone. To help guide Katie's thinking, Kristen also proposes a question at the bottom.

Kristen joins us and asks Katie what her stars are. Katie talks about how she usually goes off-topic but did not this time. Her wish is to restructure it so that it is not boring. Kristen asks Katie about the data: "Did you see all of this?" When Katie responds, "Not the boy standing on his chair," Kristen explains that he was crouched down while standing on it. She redirects Katie's attention. "What about Blake? Did you see him . . . ?" as she energetically scoots her chair backward. "He kept getting further and further away."

Katie's eyes drop back down to the bottom of the small slip of paper, focusing on the question Kristen posed there: "How do you know if they have pattern?" This question frustrates Katie. She has been trying to teach students to recognize the patterns she is creating on the calendar—what triangle will be the triangle today, which days will have a blue dot, or why is there a yellow star today? She also wonders if they are getting it, but Kristen had previously told her that she should not do an assessment at the end of every calendar math lesson. She feels like this question on her slip is a contradiction.

Kristen asks, "You heard Tony say the word 'multiple,' but how do you know others got it? How do you know Blake got it?" Katie abruptly answers, "He doesn't," to which Kristen replies, "But how will *you know* so that you can support *him knowing*?"

Exasperated, Katie states, "I don't know. I have tried calling on him when he's not paying attention, so that he'll see that it's important for him to pay attention. But it doesn't seem to work."

Kristen has them shift back over to Katie's wish. "What can you do to make it less boring? How can you build excitement . . . it doesn't always have to be about drama?" I silently chuckle, recognizing that this seemingly new question is actually an expert nudge, guiding Katie toward a unifying solution.

"What about a turn and talk?" Katie hesitantly asks about Kristen's common technique of having students briefly talk through a problem with a partner.

"Have you tried it?"

"No. Will it work?"

Kristen answers, "I don't know. Have you seen any changes in engagement when kids do it? Have you seen how they get excited?"

"But," the skepticism clear in Katie's voice, "will that be enough to also know whether they get it?"

"I don't know. You can listen and see if you hear lots of 'multiples, multiples, multiples' around the room." With each utterance of "multiples," Kristen darts her hands to different positions, flicking her fingers, making it seem like little explo-

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sions of the word. “You can try it. Kids listen to each other, and it’s better if they figure it out.”

To illustrate her point, Kristen explains how she grouped certain kids together today during an earlier lesson. Of the four kids she was working intensively with, she paired a high-achieving boy with a moderately skilled partner and then two struggling girls together. Before Kristen can explain the work the kids had done together, Katie asks, “I thought you should pair a high with a low.”

Kristen smiles as she answers, “Can you imagine Tommy bringing Candace through her understanding? Can he really help her understand? Or would he just show that he knows?”

In eager agreement, Katie replies, “I know in the book it says to pair a high with a low, but I think your way is right.”

Kristen responds, “It’s not that it’s right, but if the high student doesn’t have the skills to help the low student. If the high kid just gives the lower kid the answer, that’s no different than me giving it to them.” When she sees the emptiness in Katie’s lackluster nod, Kristen continues, “It’s just like how I let you figure it out instead of just telling you. Otherwise you wouldn’t learn to question.”

I hear a familiar loss of patience and faith in Katie’s frustrated tone when her head snaps up, and she interrupts, “But then I would be doing it right!”

Reflections

This portrait of Katie is part of a series of ongoing studies capturing the process of interns learning to teach. Only by better understanding interns as learners—going through the process of developing a complex skill—can we better prepare them before entering their internship and support them during the internship. Additionally, an improved comprehension of how interns develop may inform progress in teacher credentialing, new teacher induction, professional development, and teacher evaluation. Through this specific portrait, we glimpse the beginning stage of Katie’s internship and gain insight into the complexity she is navigating.

When I look back over my years of K–12 teaching, I know that the most important thing I did to support my students’ learning was to understand their thinking. Assessing whether their answers on assignments were right or wrong was just the beginning. The real work was investigating *why* they answered that way. When they got the answer wrong, understanding their thinking allowed me to target interventions. When they were correct, illuminating their thought process informed how I could best support their continued growth. Like Kristen and Katie, I (unfortunately) did not have explicit knowledge of DST or other neo-Piagetian concepts of learning—but I had developed an understanding of my students’ learning as a complex and dynamic system.

This kind of inquiry was central to my work with students, and I know the same is true for many expert teachers. However, it seems far less common that it

is extended to our work with teachers. The tests I took for my certification were simply assessing whether I knew the right answers. Of the countless professional developments I attended, I cannot think of any that targeted my thinking or decision-making process—they just provided me with a new tool or a *thing* I should do. And my yearly evaluations typically cataloged the things I did or did not do in my classroom, never framing me as a learner or attempting to uncover my process. In truth, I also rarely examined teachers' thinking. When I was asked to work with struggling teachers, our conversations invariably focused on what they did in their classrooms rather than their *why*. It is as though we lacked the language to discuss their thinking and illuminate their process. We were all conditioned to think in terms of inputs and outputs.

Recently, research organizations have recognized this lack of understanding of how teachers learn and develop—as well as the importance of filling that gap. The Institute of Education Sciences (2017) has called for more research to identify “the key constructs of teaching and the processes by which these constructs are interconnected” as well as “cognitive processes of professional learning and the developmental sequence of the major skills necessary for teaching.” Similarly, a study panel convened by the James S. McDonnell Foundation (2017) found that research on teacher learning had been largely neglected and concluded that “education reform efforts to change classroom practices based on evidence cannot succeed without a scientific understanding of teaching and teachers as learners.”

Teaching is, after all, a complex intellectual skill. Those who are learning that skill, or learning to improve that skill, are at their core learners—even while they are simultaneously the teachers of others. This means seeing them as teachers who navigate the complex system of their students' learning, while also seeing them as taking part in their own complex and contextualized learning processes. By viewing Katie through this dual lens, I can see both the teaching skills she already exhibits with her fifth graders and the learning process that she is going through. Whether it is from her history of babysitting or from her preinternship education courses, Katie clearly came into this internship with knowledge of how to work closely with children. She is comfortable forming relationships with students and knows how to engage in their learning process. She is less comfortable with her own learning process, however, and does not feel as though she is growing. This is especially true in regard to working with larger groups of students, where she has no background experience.

The dual lens may be most illuminating when looking at Katie's pedagogical approach to teaching versus learning. I am struck by how, even as she craves behaviorist processes as a learner—still wanting to be told what to do and given the solutions—she continues to embrace more progressive techniques as a teacher. Despite having experienced mostly rote learning in her own K–12 schooling, Katie has already adopted some of the same approaches I learned through UNH's teacher preparation. She knows that it is OK for her students initially not to know the right

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answer and that it is important for them to build their understanding by working through the frustrating process of learning. Many interns using these kinds of techniques have seen them in practice for years—their teachers used progressive pedagogies when they were K–12 students. This “apprenticeship of observation” can sometimes even be a problem in learning to teach; having long witnessed teaching from the vantage point of a student and not realizing all of the aspects that are hidden from their view, interns may have a naive sense of confidence in their understanding of the skills of teachers (Darling-Hammond & Bransford, 2007; Lortie, 1975). Katie, on the other hand, has the opposite problem. She is employing these techniques without the benefit of years of either watching them at work or experiencing them firsthand.

By viewing Katie as a learner, we can see that she is doubly challenged; these techniques cannot be learned by rote—the method she is accustomed to as a learner—and the process to develop them is slow and frustrating. It is disheartening to get it wrong at first, especially when children are counting on you, and it is even more difficult to accept that doing so is part of the learning process. While Katie is becoming a teacher, she will also have to develop who she is as a learner so that she can maintain her confidence as she learns. What will that process entail, what scaffolds will she need, and how can we best structure teacher preparation to support Katie and all those learning to teach?

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Notes

¹ Teachers and interns have given consent for their real names to be used, but all K–12 student names are pseudonyms.

² In sharing the finished portrait with Katie and Kristen, both responded that there is actually a rule. Kristen informed me, “If a C or G is followed by an A, U, or O, it is generally a hard sound. If a C or G is followed by an I, E, or Y, it is generally a soft sound.” Katie shared that later that day, Kristen had explained the rule to her, and she did correct the students’ understanding the next morning. As an aside, this does mean that my original dismay of the *Are You Smarter than a 5th Grader?* feeling was well warranted.

³ A full explanation of the three pathways to learning to read can be found in the original text (Knight & Fischer, 1992). In short, the traditionally understood pathway for learning to

read is represented as starting with (1) word definition, followed by parallel development of (2a) letter recognition and (2b) rhyme recognition, which then converge in development of (3) reading recognition, followed by (4) rhyme production and, finally, (5) reading production. The alternative pathways have separate branches that did not ultimately unite to jointly lead to reading production. For example, one alternative includes three separate branches from (1) word definition: One branch is (2a) reading recognition directly followed by (3a) reading production, a second branch is (2b) letter identification, while the third branch is (2c) rhyme recognition followed by (3c) rhyme production.

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