A Key to Successful Teaching is Understanding and Focusing on Student Learning; Implications for Teacher Development

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Teachers' understanding of student learning—particularly students' understanding of academic content, independent of their performance on tests—is an important factor in teaching. A teacher who focuses on what his or her students are and are not understanding, can adjust the curriculum to suit the students' needs, providing appropriate, skillful, and student-centered lessons.

There is evidence, however, that many teachers—especially new ones—do not make student learning a priority. In this paper, we address the issue of teachers' thinking about student learning and how it affects the quality of their teaching. Specifically, we discuss ways that beginning teachers develop an understanding of and focus on student learning.

Coming to understand and focus on student learning is a gradual developmental process. By student learning, we are not referring to students' academic performance on standardized tests, in-class tests, or grades. Instead, we are referring to students' understanding and misunderstanding of academic content, which may or may not be reflected in test scores and grades (Kroll & Ammon 2002). Moreover, we are referring not only to *whether* the students understand the academic content, but also to *what extent* they understand, and *how* they arrived at a particular point in their sense-making process (Lidstone 2002a, 2002b). In this sense, teaching and learning are a reciprocal process—as the teacher teaches, he or she continually notices what and how

the students are learning, and adjusts the lesson accordingly (Fosnot 1989, 1996; Levin & Ammon 1992, 1996).

Specifically, we address teachers' levels of understanding about student learning. This is a pivotal area of teachers' thinking, because it has the potential to make a significant difference in one's teaching (Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992). For instance, if teachers understand what and how their students are thinking and learning, they can continually tailor their curriculum and pedagogy to their students' learning needs. Fosnot stated, "Of utmost importance to good teaching is the ability to probe the understanding of the learner . . . in a sense, to be skilled in the art of 'getting inside the student's head'" (1989, 2-3). Overall, teachers' understanding of student learning is an important factor in teaching (Kroll & Ammon 2002; Ladson-Billings 2001; Levin & Ammon 1992, 1996; Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992).

Student Learning Often Is Not the Priority

It seems that school board members, administrators, experienced teachers, parents, and taxpayers assume that all teachers understand and are focused on student learning, at least in a general way. This is a reasonable assumption. After all, as Ladson-Billings states: ". . . [T]eachers cannot forget their primary mission—helping students learn" (2001, 56). There is evidence, however, that many teachers have a limited understanding of student learning, or are not focused on it (Hollingsworth 1989; Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992).

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First of all, due to the incredible complexity of learning to teach, many beginning teachers focus on aspects of teaching other than student learning, especially during their preservice year(s), and often during their first year or two of inservice teaching (Berliner 1994; Bullough 1989; Bullough & Baughman 1997; Hollingsworth 1988, 1989; Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992; Ryan 1986). For instance, in one study, when beginning teachers were asked directly about what their students were learning, they often had only a vague and general sense of how well their students were understanding the academic material (Lidstone 2002a). When one new sixth-grade teacher was asked by a researcher, "What did your students learn today?" after a lesson observation, she replied:

> I had them write about it in their journals one day, 'What was your reaction to *A Wrinkle in Time?'* Most people wrote that they found it really confusing. I realized that I didn't have a very good understanding of their comprehension of the book as we went along . . . I think part of the problem with the *Wrinkle* unit was that . . . I didn't get to see the worksheets until after the book was over—they just put them in the folder. So I don't think I had a good sense of what they were understanding . . . I should look at these things along the way.

This first-year teacher, Amy, had been working on this unit for about two months, but it was not until the unit was over that she thought to "check in" with her students. It is difficult for a teacher to have appropriate, skillful, and student-centered lessons when he or she does not know what the students are or are not understanding (Fosnot 1989, 1996; Lambert & McCombs 1998; Lidstone 2002a, 2002b). Overall, it seems that understanding and focusing on student learning is a developmental process (Levin & Ammon 1992, 1996; Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992), but until this understanding occurs, the quality of teaching suffers to some extent (Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992).

Further evidence that not all teachers understand student learning well is that many teachers, even experienced ones, teach year after year with a focus on managerial, curricular, and pedagogical issues, but never attain a focus on student learning (Hollingsworth 1989; Lidstone & Hollingsworth 1990, 1992). In the first author's educational psychology course, her teaching credential candidates conducted classroom observations of experienced teachers during the spring of 2002. The experienced teachers focused on student learning and had lessons that were

conducive to student learning in fewer than 50 percent of the 112 observations. It is alarming that so many experienced teachers are not making student learning a greater priority; it is also disconcerting that there are not more models of student-centered teaching for teachers entering the profession.

Overall, there is evidence from the research literature and the field that many teachers, both new and experienced, have a limited understanding of student learning, or do not focus on it. Beginning teachers do not focus on student learning during their first few years of teaching because they are consumed with more immediate areas of teaching, such as classroom management, and curriculum and instruction; even some experienced teachers focus so heavily on curriculum that they never attain a strong focus on student learning.

Why Many Teachers Do Not Emphasize Student Learning

Why do so many teachers overlook student learning and, thus, miss a key factor in effective teaching? We offer four reasons.

First, it is not essential for teachers to understand and focus on student learning in order to conduct a lesson. Developmentally, all (or almost all) teachers eventually become at least fairly competent in classroom management, curriculum, and pedagogy as a matter of classroom survival (Bullough 1989; Bullough & Baughman 1997; Hollingsworth 1989; Lidstone & Hollingsworth 1990, 1992; Ryan 1986). In other words, teachers need to learn about classroom management in order to have an environment conducive to learning, and they need to learn about curriculum and instruction in order to have something to teach, but they do not *have* to focus on student learning in order to teach a lesson. Thus, there is not the same external push for teachers to understand and focus on student learning as there is for them to focus on other facets of teaching.

Moreover, the classroom-based consequences for neglecting these different areas of teaching vary greatly. If teachers do not focus on classroom management, the class becomes unruly; if they do not think through their curriculum and instruction, their lessons are unorganized and most likely "flop." If teachers do not focus on student learning, however, there is often no immediate, dramatically apparent consequence that demands a beginning teacher's attention. Instead, the students just tune out, or do the minimum amount of work, or quietly give up

trying to learn—all of which are dramatic consequences, but they are not immediately noticeable.

In the *A Wrinkle in Time* unit referenced above, for example, Amy taught for two months while her well-behaved, middle-class students went through the "school" routines, but probably did not learn much. If a principal observed the lesson, he or she most likely would determine that the lesson was satisfactory. There was not an immediate, noticeable consequence to Amy's limited focus on student learning; she still taught her unit and the students still completed work.

A second reason why so many teachers do not focus on student learning is that they think it takes too much time and energy both to teach curriculum and to continually check in with students and adjust the curriculum. It seems that new teachers, especially, feel that attending to yet one more area of teaching is overwhelming. When one intern science teacher recently was asked about student learning, she said, "I don't want to know! It is easier to just keep blinders on. That way I can say that I covered the material."

This new teacher, Kimberly, is spending all of her energy preparing her lessons and feels that she will get "off track" if she takes time to discover if her students are really understanding the material. Based on classroom observations, she is doing an outstanding job of covering the material; but examining her performance more deeply, we found that she is doing only a mediocre job of getting her students to understand science. If this teacher, and others like her, could gradually attend to their students' learning, they could create more effective lessons and more positive learning outcomes. They could also avoid the frustration of getting little response from their students.

A third reason why so many teachers do not focus on student learning is that when they become credentialed and begin to teach full time, their attention is directed away from student learning by many classroom dynamics. Some of these factors include pressure for high test scores (Cochran-Smith 2001), rigidly scripted curriculum, mandates to cover large amounts of curriculum, discipline problems, students with emotional and physical problems, the need to document interventions, time spent with parents, and frequent teacher meetings. Beginning teachers, especially, find it difficult to prioritize what is most important to attend to in the busy world of teaching; student learning often gets lost.

This lack of focus on student learning also exists because many teacher educators at both the preservice and the inservice levels do not talk directly about student learning (reason four). They usually are effective in emphasizing the importance of appropriate curriculum and skillful pedagogy, and having effective curriculum and pedagogy is of course as important as focusing on student learning; students cannot learn if the academic task is not well thought through, is not at their academic level, does not make sense, or does not encourage higher ordered thinking (Doyle 1983, 1986). Effective curriculum and pedagogy, while required, are not sufficient factors in good teaching. Ammon stated:

> . . . [I]t is not enough for teachers to be familiar with a variety of methods
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> . . . they must be able to determine what their students are learning from the particular methods they have employed, so that adjustments in method can be made as needed (1984, 98).

Curriculum instruction and student learning should be given equal weight in a teaching credential program, but instead, teacher educators at the preservice level spend a large percentage of their class time on curriculum and pedagogy and little or no time on student learning. For instance, after reading a conference paper on student learning by the first author, a preservice teacher wrote in a response paper:

> The truth is, I had never really thought much about the student learning aspect of teaching, because it's not always something that is discussed in preparatory classes. I mean, I did understand that having the students "get it" is probably the most important thing in teaching, but as a real science, as a real focus, I didn't really know it existed as such. So it was interesting to read real words and research about something that had always been an abstract in my mind.... I see that you have recommended an emphasis on teaching student learning in credential programs. You're the first to mention it in my years at [my credential program]!

Actually, many teacher educators *do* talk about student learning, and at least some of the instructors from the preservice teacher's particular credential program emphasize student learning throughout their courses, although the message may not always be made explicitly. Kristen, the preservice teacher, apparently did not "hear" the student learning theme. In the swirl of learning managerial techniques, lesson planning, curriculum, various pedagogical techniques, the latest computer technology, theories about learning and development, and more, it seems that preservice teachers cannot always attend to the more complex topics, such as student learning.

An explanation for the communication gap may be that good instructors are focused on and understand student learning, and thus feel that they are talking about it constantly. Most preservice teachers, however, have not yet thought about student learning and are spending a tremendous amount of energy just processing the most salient academic content. Thus, any academic content that is implied, but not discussed overtly, gets lost. Instructors need to talk explicitly about student learning in order for preservice teachers to "hear" the subject and process it.

Some preservice teachers had teacher educators who were not focused on student learning. For instance, Amy, the beginning teacher quoted earlier, said she had instructors and supervisors in her teacher education program who did not focus on student learning in their classes or in their supervisory feedback. In fact, out of her various instructors and supervisors, only one was focused on student learning (Hollingsworth 1989; Lidstone & Hollingsworth 1990, 1992). Amy attended many inservices and workshops after she earned her teaching credential, but all were curriculum focused. Amy's principal rarely observed her teaching; when he did, he was present for only a few minutes, during which he focused on behavior management.

Teachers' Understanding of Student Learning

The research indicates that many new teachers and some experienced teachers have a limited understanding of student learning, or do not focus on it. What can be done about this? As a first step to addressing the problem, we will present research on the development of teachers' understanding of student learning. We will then present recommendations for how new teachers can be educated to be more focused on student learning.

In this section, we will focus on Lidstone's (2002a) recent longitudinal study (for a review of other relevant studies, see Lidstone 2002a). Specifically, Lidstone traced three beginning teachers' understanding of student learning from the beginning of their credential program through their second year of in-service teaching—three years of data collection. These teachers earned their multiple-subjects teaching credentials from a nine-month, post-bachelor's degree graduate program at a prestigious university in northern California. All three then worked in public schools. Data collection included reflective journals, regular classroom observations (every two to six weeks), and post-observation interviews.

Four findings from this longitudinal study are particularly relevant to this discussion:

1) Understanding student learning is a developmental process.

2) Understanding student learning develops in a consistent sequence which begins with less sophisticated understandings and gradually evolves to more sophisticated understandings.

3) Understanding student learning is a process that takes time.

4) Understanding student learning may be connected with more effective teaching.

We will discuss each of these findings below.

Understanding Student Learning is a Developmental Process

There is evidence that understanding student learning is a developmental process (Levin & Ammon 1992, 1996; Lidstone 202a, 2002b). Very few teachers start their credential programs with a sophisticated understanding of student learning; it is an area of teachers' thinking that usually is either barely present or quite unsophisticated at the beginning of a credential program (Hollingsworth 1989; Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992). In most cases, however, teachers' understanding of student learning gradually becomes sophisticated, multi-dimensional, and integrated with other areas of teaching. This was clearly shown in longitudinal research with beginning teachers (Levin & Ammon 1992, 1996; Lidstone 2002a).

Understanding Student Learning Develops in a Consistent Sequence

Lidstone's research (2002a, 2002b) has shown that understanding student learning develops in a consistent sequence, and that the advanced levels in the sequence reflect sophisticated thinking about the topic. Specifically, she detected six levels that beginning teachers progressed through while developing their understanding of student learning.

Lidstone found that teachers shifted from thinking about student learning in terms of student interest (Level Zero); to on-task learning behavior (Level One); to academic performance (Level Two); to general learning, or "Did they learn?" (Level Three); to conceptual knowledge, or "What did they learn?" (Level Four); to levels of conceptual knowledge and various ways of knowing, or "How did they learn?" (Level Five). (See Table One, which was previously cited in Lidstone, 2002a.)

In this matrix, it is not until Level Three that teachers think about student learning in terms of the

students' general understandings and misunderstandings. As an aside, it is noteworthy that many educational policymakers often think about student learning only in terms of academic performance (Level Two). Most experienced teachers, however, think about student learning in terms of general student understanding (Level Three) or higher.

In this section, we will describe these six developmental levels (see Lidstone 2002a, 2002b for more thorough descriptions of these levels). We will use quotations from Amy, one of the teachers in the Lidstone (2002a) study, as a way of illustrating how one teacher progressed in her understanding of student learning.

Level Zero: Engagement/student interest: "Did they like it?"

At Level Zero, teachers consider a lesson successful when their students enjoy it, which is typical of many beginning teachers (Hollingsworth 1988, 1989; Lidstone 2002a, 2002b; Lidstone & Hollingsworth 1990, 1992; Ryan

1986). For instance, when Amy was asked at the beginning of her preservice year about her goals for teaching reading, she responded: "Well, I'd like everyone to think it is an exciting thing. Just get them excited."

Engagement is, of course, an important factor in student learning, but it cannot be the only factor. Students could enjoy a lesson and not have learned anything from it, because the academic content was either too easy or too difficult for them. A teacher educator, when teachers are focused only on engagement, however, at least they are noting students' responses to the lessons, which is better than being solely curriculum-focused.

Level One: On-Task Learning Behavior: "How much did they get done?"

At Level One, teachers discuss on-task learning behavior; they consider the lesson successful when their students *complete their work*. They talk about the amount of work accomplished, instead of about

Table 1   Teacher Development Matrix: "Talk about Student Learning"

0. Did they *like* it? Students' Interest in Task/Engagement Only/Emotional Response Focused on students' emotional response. No mention of learning. "They were bored." "They liked it."
1. How much did they get *done*? On-Task Learning Behavior/Vague Not focused on students' learning. On-task behavior is the emphasis as well as work output. "They weren't behind." "They all participated."
2. How did they *do*? Academic Performance/Products/Grades/Correct Answers Focused on "How they did" instead of on learning. "They did well." "Grades were poor."
3. Did they *learn*? General Learning; Broad; Vague Distinguishes between performance and learning, but not between rote learning and conceptual understanding. The teacher is most interested in *did* students learn instead of what and how they learned. "They are grasping Social Studies."
4. *What* did they learn? Conceptual Knowledge Differentiates between rote learning and conceptual understanding. Wants more than fact learning. "They confused main idea with the main action."
5. *How* did they learn? Various Ways and Levels of Understanding In synch with students' learning. Aware of *levels* of learning, *how* students learned, and appreciates multiple solutions to a problem. "People generally can finish the sequence, but the way they describe the problem and their method of arriving at a solution are so different. And they're all right."

what and how their students learned. For instance, when Amy was asked during the middle of her preservice year how her lesson went, she responded, "I felt that not a lot of work had been done." Of course, students could complete work and not have learned anything because the work was too easy. Or they could complete work successfully by copying from their neighbor and not understand the work at all. The completion of academic work is one step up from merely being engaged in the lesson, but it does not give us a lot of information about what the students learned from the lesson, or how they learned it.

Level Two: Academic Performance: "How did they do?"

At Level Two, teachers think about student learning in terms of students' academic "successes" or "failures" (i.e., correct answers, test scores, grades, and academic products) instead of what these outcomes tell them about their students' understandings and ways of learning. Teachers consider the lesson successful when their students *do well* on their academic work. For instance, toward the end of Amy's preservice year, she made statements such as, "She *was able to answer* the questions that I asked her. In the vocabulary exercise she *did well. . . ."* [Italics added.]

Of course, students could do well on their academic work and still not have learned anything new, because the work was too easy. Alternately, a student could perform poorly on a quiz or test due to test anxiety, yet actually understand the academic work. Successful performance on academic work gives us more information about student learning than do engagement and task completion, but it still does not tell us much about what the students understood from the lesson or how they learned it. At this level, the teacher wants to know whether or not the students got the answer right, not what they understood about the work, whether it was easy or difficult, or how they came to understand it.

Level Three: Beginning Understanding of Student Learning: "Did they learn?"

At Level Three, teachers consider the lesson successful when their students demonstrate that they are *generally understanding* the material. For instance, during the end of Amy's preservice year, the way she talked about student learning shifted again. She now used words like "understand," which was noticeably different from her Level Two quotations, and she clearly was thinking about her students' understandings and misunderstandings. When Amy was asked about her lesson during February of her first year of teaching, she responded: "Well, a lot of the kids just didn't understand what was happening to

the characters at various points. It's science fiction, and they didn't understand it." This is a pivotal juncture. Amy was now focused on her students' minds and general learning instead of only on their interest level (Level Zero) or task-completion (Level One) or academic performance (Level Two).

Level Four: Conceptual Knowledge: "What did they learn?"

At Level Four, teachers consider the lesson successful if their students have a *conceptual understanding*, instead of only a general understanding, of the academic material. Teachers at this level are no longer satisfied assuming that students learned if they give "pat" answers. Unless teachers are convinced that the students have some depth of understanding in regard to specific subject matter, they will not say that their students have learned. For instance, during April of Amy's first year of teaching, when asked "What would you look for in their work?" she stated:

> I don't know. Just having answered the question, if they spit out a simple answer or spent some time and added something in there that's not in the book, some additional thing that they connect to it. It seems that that person would have a higher understanding.

Amy now recognized the distinction between knowing if her students could answer factual questions correctly and knowing if they were understanding the material conceptually. Amy's thinking had evolved; she was able to recognize *levels* of student learning and now clearly saw that factual knowledge was just the first layer of students' understanding of academic material.

Level Five: How Students Learn.

At this level, teachers notice *different levels* of conceptual understanding and how their students are learning a particular task, and they consider a lesson successful if their students demonstrate independent, higher-ordered thinking. This can be demonstrated in several ways. For instance, the lesson would be considered successful if the students were able to arrive at their own solutions to a problem, or to think through a topic in their own way, or to take a position on a topic and defend it, or to internalize a new skill that they'd learned.

Kate, a beginning teacher in her second year, demonstrated Level Five thinking in the following comment:

> One thing that I've definitely noticed is that they've internalized the idea of editing. On their own, they will read to each other. They don't edit the same way I would want them to, but they *edit for sense now*. They think about it. [Italics added.]

This is a Level Five quote, because Kate realizes that her students have moved from: a) following external directions about editing to internalizing the process of editing; and b) editing in a mechanical way to editing for sense. Thus, Kate understands *how* her students are approaching this task.

In sum, Lidstone (2002a) found that beginning teachers progressed through six levels of understanding student learning. Although these levels were entirely based on cognitive shifts evidenced in research data, other researchers have discussed the importance of some of these distinctions. For instance, Kroll's and Ammon's work (2002) emphasizes the differences between the levels in the matrix—especially at the higher levels— by pointing out:

> ... [T]he question of what learners already know is a question about the *quality* of their knowledge as well as the quantity. It is not simply a matter of asking 'How much does a particular group of learners know?' Nor is it just a matter of asking whether or not their understandings are correct. To be sure, understanding is an important thing to ask about. However, the key question isn't 'Do learners understand?' but 'How do they understand?' (15).

In Table 2, we provide a second example of a teacher's progressions in understanding student learning. In this table, we use beginning teacher Sara's quotes over three years to demonstrate the development of her thinking about student learning. Sara, like Amy, was a teacher in the Lidstone 2002a study.

Understanding Student Learning Takes Time

We have discussed the idea that understanding student learning is a developmental process that develops in a specific sequence. We would like to add that understanding student leaning is a process that takes time; it is a complex area of teacher development and often is slow to develop.

For instance, in the Lidstone (2002a) study, Amy began her credential program with a Level Zero understanding of student learning. It took until her second year of inservice teaching for her to reach Level Four, which is defining learning in terms of students' conceptual understandings.

Sara began her credential program at Level Zero and progressed through the first few levels quickly; she was able to view learning in terms of students' conceptual understandings (Level Four) halfway through her preservice year. But Sara took almost three years (including her preservice year) to reach Level Five, the most sophisticated level of understanding student learning; she first needed to resolve her issues with curriculum before she could fully focus on student learning (Hollingsworth 1989; Hollingsworth, Teel, & Minarik 1992; Lidstone 2002a, 2002b).

Table 2   Sara's Development in Understanding Student Learning

0. Engagement/Student Interest: Did they like it?" "They're really eager to learn and they really enjoy reading . . . It seems to me . . . that I need to vary things quite a bit for them so they don't get bored...." (Fall, preservice year).
1. On-task Learning Behavior/Products: "How much did they get done?" "When you check their things, they're not behind at all" (Fall, preservice year).
2. Academic Performance: "How did they do?" "[On the test] Matt, Teaman and Marcell all did fairly well in learning prime/composite numbers...The rest *failed*" (Winter, preservice year).
3. General Understanding: "Did they learn?" "Kids are finally *grasping* social studies...because I am making them actively participate" (Spring, preservice year).
4. Conceptual Knowledge or Specific Understandings: "What did they learn?" "Students were making assumptions that once countries got independent, they had more freedom and that's not the case in all countries. Students didn't get this" (Spring, preservice year).
5. Most Specific Understanding: "How did they learn?" "People generally can finish the sequence, but the way they describe the problem and their method of arriving at a solution are so different" (Spring, second year).

Sara, reflecting on her own learning-to-teach process at the end of her third year of inservice teaching, stated:

> I really thought curriculum was key in my student teaching, and I think that's not a real priority. Not to say that a teacher shouldn't know her curriculum well and study curriculum, and be well-versed in a variety of curriculum. But when you actually teach, that's of secondary importance. *It's the students and what's happening and how they're getting excited, and what their problems are and where they are at that's the number one priority.* And the curriculum interfaces with that whole atmosphere. That would probably be the most significant change, I think, in the way I see things. [Italics added.]

It appears that it usually takes beginning teachers at least a few years to understand student learning at a sophisticated level and to focus on it because of the complexity of the developmental process. This may seem like a simplistic point, but actually, time seems to be a greatly underemphasized factor in teacher development and teacher education (Ammon & Kroll 2002; Levin & Ammon 1992). If teacher development is to be a goal of teacher education, versus just learning what is necessary to survive one's first year of teaching, than we need to allot time to this process at both the preservice and the inservice levels (see Levin & Ammon 1992, 1996 for a description of a two-year credential/master's program).

Understanding Student Learning is Connected with Effective Teaching

The connection between a teacher's level of understanding student learning and actual student learning was only informally studied, but it was apparent from the data that a teacher's thinking at the higher developmental levels allowed the teacher to understand students' minds, understandings, misunderstandings, and learning in a way that was not possible at the lower developmental levels. This understanding affects curriculum, instruction, and assessment, which, in turn, affect student learning.

Specifically, it is our assumption that a teacher who is at the most basic level in his or her thinking does not teach as well as when he or she is at a more sophisticated level. During Amy's preservice year, when she was asked, "What did your students learn today?" she answered, "I don't know what they learned, and I don't know what I wanted them to learn." Two years later, when she was asked the same question, Amy replied, "They'll really have to read things well and understand the sequence of what is going on, because they will have to pull things out of a sequence and still keep it in a sequence."

Amy's thinking about student learning had become both more complex and more student focused. It seems reasonable to infer that Amy was a more effective teacher during her second year of teaching than she had been during her preservice year, and that her students learned more from her lessons, or at least were given more of an opportunity to learn.

Implications for Teacher Development

In this section, we outline a few ways to address the problem of teachers having a limited understanding of, or not focusing on, student learning. As a start, we offer two suggestions for teacher development, which have been derived, in part, from the previously described research. They are: 1) Take a developmental view of teacher education; and 2) Make student learning a higher priority in teacher education..

Take a Developmental View of Teacher Education

It is important that teacher educators move beyond just teaching teachers what they need for tomorrow's lesson to generally supporting their development as teachers. This is pivotal. It would be helpful if teacher educators tried to guide teachers' development as skillful, competent, and student-focused professionals. Ammon and Kroll state:

> Teacher educators, like teachers in general, are probably inclined to focus more on learning than on development.... A concern with development is important, because it leads us to take a long view on the goals of instruction—to focus not only on helping teachers do as well as they can in the classroom right now, or on preparing them for better teaching in the near future, but also on what we want them to be like much later, as experienced, expert teachers . . . taking a long view shifts the focus from
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> . . . particulars to broader understandings that will enable the teacher to comprehend the particulars of her work in productive ways (2002, 14).

Teacher educators also need to have a clear picture in mind of the developmental spectrum with regard to teachers' understanding of student learning. We have provided many concrete examples of teachers who were not focused on student learning, as well as some examples of teachers who had progressed to the upper levels of the matrix. The following is one more example of a student-learning-focused teacher.

Diane is an intern teacher in a first-grade class. On her second day of having her own classroom, she casually wrote her previous instructor (the first author) over email:

I did that line-drawing proofreading exercise with the students, even though I thought it was too sophisticated for them. But they actually did it very well, and perhaps a quarter of them really got the idea of examining one's own work. Two even showed evidence of planning as they did the work. With the numbers, because one girl's pen ran out of ink and she had to switch to crayons, *I was able to see how she did them* and was excited to see that she had actually figured out a pattern and done it that way. [Italics added.]

Diane is very focused on her students' learning and even discussed *how* one of her students learned, which is a Level Five understanding of student learning. If teacher educators have a clear image of what this kind of thinking looks like, it will be easier to nudge beginning teachers towards this goal.

It is important to convey to beginning teachers that learning to teach is a developmental process (Ammon 2002a, 2002b). Ammon states, ". . . it is the ongoing process of knowledge construction that leads to the kind of broad, progressive changes we generally call 'development' (2002a, 5). Teaching is extremely complex and cannot all be learned during a credential program, or even during the first two years of inservice teaching. If teacher educators can clearly communicate this to beginning teachers, then beginning teachers may feel less pressure to "learn it all at once" and may focus more on their gradual growth as teachers.

This does not mean that we should avoid talking about student learning until the beginning teacher has resolved his or her issues with classroom management, curriculum, and instruction. Instead, we should talk about student learning regularly, but know that understanding this sophisticated area of teaching is a slow, incremental process. Feiman-Nemser, an experienced professor of teacher education, states, "Even if beginning teachers are preoccupied with their own performance, it does not follow that mentor teachers should avoid focusing their attention on student learning" (2001, 24). She suggests instead that mentor teachers "help beginning teachers attend to pupils' thinking and sense making even when they are concerned about their own adequacy and teaching performance" (24). This should provide the beginning teacher with a basic schema for student learning, which later can be developed more fully.

The idea of development also affects how instruction and supervision are conducted; teacher mentors can encourage beginning teachers to understand and focus on student learning through nudges, small steps, and gentle pushes. In the situation with Kim-

berly, the intern science teacher, a supervisor could have her: a) write about what her students learned from one lesson or even part of a lesson; b) really focus on how well her students understand the most foundational concepts she wants to convey; and/or c) spend five minutes a day "checking in" with what and how the students are learning. Through this kind of coaching, focusing on student learning will not be so overwhelming, and the beginning teacher eventually will integrate it into his or her practice.

Lastly, education leaders may wonder if development in teachers' understanding of student learning can be accelerated. We think that development *can* be accelerated, but it has its boundaries. For instance, in Sara's case, she had been encouraged to focus on student learning all through her credential program; she most likely was developing in the area of understanding student learning as quickly as she could. Amy, however, did not have supervisors or master teachers who were focused on student learning and thus, her development certainly could have been accelerated.

Make Student Learning a Higher Priority in Teacher Development

Beginning teachers often need to be drawn to the most significant aspects of teaching in order to help them ascertain, for themselves, what is important and what is extra in the realm of teaching. Teacher educators at the preservice level have an opportunity to provide preservice teachers with a basic understanding of student learning, which can evolve over time. This can be done in many ways:

1. *Talk about student learning directly.* Instructors and mentors need to present it as a *content area* to be taught in credential program courses, instead of assuming that students are making the connections to student learning on their own; usually they are not. An instructor can teach teachers to make student learning the center of their teaching and can explain how pivotal student learning is to successful teaching.

2. *Tie student learning to other curricular areas.* For instance, when teaching lesson planning, it is important that the preservice teachers have a solid grounding in how to plan objectives for a particular content area, *and* they need to plan *what they want their students to learn* from the particular content area. Both areas are important, and both are necessary for successful lessons.

3. *Have preservice teachers analyze lesson observation write-ups.* Lesson write-ups would be detailed descriptions of a lesson and of the students' responses to the lesson, based on class-

room observations by current or past preservice teachers. Current preservice teachers can analyze these lessons by considering "Is the teacher aware of his/her students' learning?" This exercise has proven beneficial in increasing preservice teachers' awareness of and understanding about student learning.

4. *Provide assignments focused on student learning.* Preservice teachers could do a lesson observation and analyze the lesson (in writing) with regard to student learning. They could interview one or two students about their understanding of a specific skill or concept.

5. *Discuss why teachers have trouble staying focused on student learning.* Doing so may help beginning teachers recognize these factors and work around them.

6. *Show preservice and beginning teachers the Lidstone matrix.* Becoming aware of the six levels of development may help beginning teachers to trace their current thinking and determine where they would like it to go. It may also reinforce for them the idea that learning to teach is a developmental process.

Teacher education at the inservice level is through on-site staff development, workshops, and conferences, unless novice teachers are involved in a mentoring program. Student learning can be emphasized through each of these avenues. In some ways, emphasizing student learning may be even more pivotal at the inservice level than at the preservice level, because many beginning teachers are now better prepared to focus on this issue; they are beginning to resolve, or have resolved, many of their managerial and instructional issues and can shift their cognitive focus to student learning.

In Lidstone's (2002a, 2002b) study, all three teachers spent their preservice year focusing primarily on management, curriculum, pedagogy, and motivating students; student learning was not yet a major focus for any of them. Thus, the first few years of teaching are a powerful opportunity for inservice instructors to make the link between curriculum and instruction and student learning.

Instructors for staff development, workshops, and conferences, however, seem to talk primarily about curriculum and instruction. Although we think that creative, student-oriented curriculum and instruction are important and inspiring, teachers and students would benefit if they were more often tied to student learning. Specifically, we propose that the instructors teaching curriculum and instruction-

based staff development and workshops consider explicitly connecting their methods to student learning. It would be helpful if, after instructors explained the method itself, they also discussed how students of various ages might respond to and learn from the specific method.

In regard to cooperative learning, an instructor could discuss age-specific issues involved in teaching a classroom of students to work in small groups. Moreover, we also would offer an inservice and/or a Saturday-type workshop session, specifically on student learning. For this course, we would use strategies such as viewing and analyzing videotapes of lessons or reading and discussing case studies that involve student learning. Lastly, we would hire inservice instructors who were themselves focused on student learning.

Conclusion

Understanding and focusing on student learning is a long developmental process, but moving toward it is essential for successful teaching. The data in this small study indicate that beginning teachers progress through six distinct levels of development on their way toward understanding student learning. In the first, Level 0, teachers think only in terms of student interest in their lessons. In Level 1, they begin to focus on how much work students get done. In Level 2, they consider how well the work is done.

Level 3 begins the shift toward understanding and focusing on student learning. At this level, teachers begin questioning whether the students actually learned from their lessons. Level 4 goes one step further and focuses on *what* the students learned from the lesson. Finally, Level 5 focuses on *how* the students learned what they learned.

Education leaders can help novice teachers begin their journey toward understanding student learning first and foremost by making a focus on student learning a priority. Student learning needs to be talked about directly. It needs to be tied to other curricular areas and included in preservice teacher education. At the inservice level, it needs to be a part of on-site staff development programs, workshops, conferences, and mentoring programs. Above all, education leaders must make teachers of every experience level aware that while there may be no immediately noticeable consequences of neglecting student learning, doing so can have the very real outcome of students tuning out, doing the minimum amount of work required, or quietly giving up trying to learn altogether. ❏

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