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Shifting Attention:

Using Learning Self-Assessment Tools during Initial Coursework to Focus Teacher Candidates on Student Learning

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Introduction

The relentless press for steadily improved student learning outcomes requires that prospective teachers enter the classroom knowing how to fine-tune their teaching to meet the learning needs of individual students. Frequently, teacher candidates have difficulty conceptualizing their students as learners, looking more immediately to their own performance as teachers (Fuller, l969; Kagan, l992; Oosterheert & Vermunt, 2001). As Ross and Bruce (2007) argue, self-assessment can be an effective technique for influencing improvements in self-efficacy, goal setting, and effort regulation among teachers. Applied to teacher preparation, we examined the use of two learning self-assessment tools in early teacher education coursework to examine the benefits of encouraging candidates to reflect on their own learning in order to support the learning of their future students.

Previous research in teacher education argues that self-assessment plays a critical role in a competencies-based curriculum because it requires candidates to analyze their own performances (Airsian & Gullickson, 1994; Ross & Bruce, 2007; Sluijsmans, Dochy, & Moerkerke, 1999). Conceptually derived from work by Schön (1983, 1987) on the reflective practitioner, by Elliot (1978) on teacher self-monitoring, and by Rogers (1983) on promoting personal responsibility for learning, self-assessment may be a critical feature in developing teachers who practice and promote self-regulated learning. It is crucial, then, for teacher candidates to explore ideas about themselves as learners to help understand ideas about cognition, motivation, and other concepts related to self-regulated learning (Dembo, 2001; Gordon, Dembo, & Hocevar, 2007; Zimmerman, Bonner & Kovach, 1996). To influence conceptual change in candidates, we must help them to articulate their ideas about learners and learning (Dole & Sinatra, l998).

Self-Assessment and Self-Regulated Learning in Teacher Education

Teacher preparation programs have the shared goal of helping candidates think and act flexibly across an expansive knowledge and skill base that includes student learning and motivation, educational goals and purposes, subject matter understanding, curriculum and assessment, general and subject-specific pedagogy, child development, cultural proficiency, and organizational culture. A central task of teacher preparation is to expose candidates to the wide range of understandings and skills they will need to teach well. This transfer of knowledge to practice is not automatic, however, as candidates bring with them a set of tacit and often stubborn beliefs about teaching, learning and schooling (Lortie, l975). Thus, a second task of teacher preparation is to help candidates analyze their beliefs so that they can lay the foundation for a teaching practice that aligns with their goals. As Feiman-Nemser (2001) notes,

> … [P]rospective teachers need opportunities to critically examine their taken-for-granted, often deeply entrenched beliefs so that these beliefs can be developed or amended. Teacher candidates must also form visions of what is possible and desirable in teaching to inspire and guide their professional learning and practice. Such visions connect important values and goals to concrete classroom practices. (p. l017)

Examining teacher candidates' beliefs about student learning and their implications for teaching provides a critical foundation for ongoing preparation and learning. Oosterheert and Vermunt (2001) argue that a shift in teacher concern typically moves from concerns about self, to concerns about teaching, and finally to concerns about student learning (see also Fuller, l969; Kagan, l992). As we argue in this paper, self-assessment can help to shift candidate concerns from self to students.

At all levels, teachers are responsible for helping their students to learn both content and how to learn the content. To explicitly model the learning process, teachers must first understand themselves as learners who are proactive, self-aware, and strategic in selecting the processes and resources that enable them to reach their learning goals. As learners, teachers set professional goals, monitor their developing understandings about the teaching and learning process, engage in self-assessment, and adapt to different instructional demands because they have an array of learning strategies from which to operate. In short, teachers who engage in these processes are acting as self-regulated (Cleary & Zimmerman, 2002; Zimmerman 2002) and meaning-directed (Vermunt & Vermetten, 2004) learners.

Our perception as instructors, however, is that a significant number of candidates enter teacher preparation with the mindset of students and not learners. These candidates engage in what we refer to as "studenting" behavior, which is similar to a combination of Vermunt and Vermetten's (2004) reproduction-directed and undirected learning patterns. In contrast with self-regulated or meaning-directed learners, students focus on "jumping the hoops" necessary while using the least amount of effort. These individuals are often minimally engaged in developing new understandings, looking only to fulfill basic instructional demands by cramming for exams or writing papers the night before they are due. Students are often less adaptive in that they report applying the same learning strategies in different contexts, whether or not they are effective.[1]

Teacher education, then, must help candidates "…develop and change their existing frame of reference in accordance with current understanding of what constitutes good teaching and learning" (Oosterheert & Vermunt, 2001, p.134). If it is true that teachers teach the way they were taught, then it is important for candidates to explore how they have been taught and more specifically, how they approach learning (Dembo, 2001). To date, few pedagogical tools exist for helping teachers assess themselves as learners and their instructional practices with respect to student learning (Weinberger & McCombs, 2003).

By studying the role of self-assessment as a deliberate intervention during teacher preparation coursework, we address McLaughlin's (2002) concern that "research on teachers' learning typically is more concerned about the content of teachers' learning than with the processes that stimulate, support and sustain it" (pp. 95-96). Ultimately, by helping prospective teachers to recognize and explore their motivational beliefs and strategies around learning, we believe they will be better prepared to not only support their students' learning, but to also support their own learning to teach (Beijaard, Verloop, & Vermunt, 1999; Feiman-Nemser, 2001).

Connecting Theory to Practice through Self-Assessment

Self-assessment can also help teacher candidates connect theory to practice. Specifically, Boud and Falchikov (1989) argue that conceptual self-assessment allows teacher candidates to develop competencies in reflection, self-monitoring, and self-regulated learning. One of the first courses in a teacher preparation program is often in developmental or educational psychology where teacher candidates are introduced to the formal study of learners and learning theory. Yet this introductory course is rarely linked to sustained field experiences that would help candidates to contextualize the material. One approach to reducing the gap between theory and practice is for teacher candidates to reflect on their own learning as they begin to explore theories of development and learning and their relationship to teaching (Pierce & Kalkman, 2003). By providing candidates with an opportunity to examine their own learning, programs help candidates to articulate prior knowledge about cognitive and metacognitive strategies, and motivational beliefs more generally, so that they might later draw upon these understandings and beliefs when discussing learning theory and its application to teaching.

Reflecting on one's beliefs also helps teacher candidates to start forming habits that will serve them effectively for later professional learning and development (McCombs, 2003). This is particularly important during early coursework, when the focus for candidates must be on the personal changes that will influence and guide their emergent views of professional issues over time. As Oosterheert and Vermunt (2001) note, to change teacher beliefs one needs to focus on the mental models and habits associated with learning. The intent with this course was to influence candidates' habits around self-regulated learning through the use of a deliberate self-assessment strategy involving two previously validated instruments.

The MSLQ: Assessing Self as Learner

The *Motivated Strategies for Learning Questionnaire* (MSLQ) is an internationally recognized survey instrument that measures motivational beliefs, cognitive and metacognitive strategies, and self-regulated learning strategies (Duncan & McKeachie, 2005). The 15 subscales (see Appendix A), including goal orientation, value, self-efficacy, and rehearsal, elaboration, and organization strategies, as well as critical thinking, effort regulation, help-seeking, resource management, and peer learning, have been shown to have both internal consistency and statistical reliability (Pintrich, Smith, Garcia & McKeachie, 1991; 1993).

VanderStoep and Pintrich (2003) designed a text around the MSLQ for use in college-level learning-to-learn courses. Similarly, we incorporated the MSLQ as a tool for helping candidates to identify their beliefs about motivation and cognition as related to learning. The scales of the MSLQ, coupled with explicit discussion in class, allow candidates to explore aspects of their learning and relate these findings to theory and research. For example, when discussing theories of motivation, we are able to make connections to the five motivational constructs on the MSLQ and use candidates' experiences to understand these theoretical frameworks. As Dole and Sinatra (1998) argue, explicit connections between candidates experience and the new educational ideas allows for a transformation of both thinking and behavior around learning.

The LCB: Assessing Self as Teacher

The *Learner-Centered Battery* (LCB) was designed as a set of self-assessment tools for K-20 teachers to develop awareness of their beliefs about learners, learning and teaching (McCombs & Lauer, 1997; McCombs & Whisler, 1997). Much of the scholarship on the LCB inventory has focused on its use as a professional development tool with elementary, middle and high school teachers (McCombs & Lauer, 1997; McCombs & Whisler, 1997; Pierce & Kalkman, 2003, Weinberger & McCombs, 2003). This work has shown the LCB to be effective in transforming instructional practice. The thirty-five items designed to assess teacher beliefs from the LCB have demonstrated validity and reliability (McCombs & Whisler, 1997).

The LCB survey contains three scales: learner-centered beliefs about teaching and learning, non-learner-centered beliefs about learners, and non-learner-centered beliefs about teaching (see Appendix A). These scales are particularly appropriate for early teacher education because they are broad enough to pick up on general orientations to teaching. While surveys may not provide candidates with a rich, sophisticated understanding of their learning, they do allow candidates the opportunity to chart their beliefs over time. As candidates gain classroom experience and test their pedagogical ideals with students, we would expect beliefs about teaching to change.

While the MSLQ and the LCB were not developed collaboratively, the surveys make complimentary self-assessment measures (c.f., Duncan & McKeachie, 2005; McCombs & Whisler, 1997). McCombs (1997) argues that self-assessment affects professional learning because teachers are more likely to take personal responsibility for their actions. In sum, teachers are able to choose aspects of their beliefs that they wish to challenge, rather than having these aspects challenged by others.

Research Method

While others have advocated the importance of helping pre-service teachers see themselves as learners (see Dembo, 2001; Randi, 2004), this qualitative study set out to examine the effectiveness of such practices in the context of teacher education coursework. Two questions guided this research: (1) What do teacher candidates report learning about themselves, as learners, after completing the MSLQ and LCB self-assessment tasks? (2) How do teacher candidates' beliefs as learners inform a developing understanding of themselves as teachers?

To address our questions and examine the role of self-assessment in developing greater awareness in teacher candidates' learning, we collected a sample of candidates' assigned written work across one term of study in an introductory educational psychology course. In sum, twenty-three sets of student data were collected, representing the full composite of candidates possible with respect to gender, age and final course grade. Each set consisted of four written artifacts, although two stood out as particularly rich examples of candidates' thinking about learning: an early analysis of candidate's MSLQ and LCB self-assessment scores and a final reflection over the course. Our intent by collecting and analyzing these artifacts was to understand how candidates' interpreted, experienced and drew upon these self-assessment exercises to construct their role as prospective teachers.

The introductory course examined here is the first in the required sequence of a large secondary preparation program in the Midwest. The first author designed and taught the course studied, whereas the second authored served in a research-only role. As a regional university, the majority of students come from surrounding communities and fit the standard demographic of a teacher preparation program: mostly middle-class and white with close to equal numbers of female and male students seeking secondary education certification.

Data Collection: Embedding Self-Assessment in Coursework

During the first week of the course from which this data is drawn, candidates individually completed the MSLQ and LCB measures. After completing the surveys, but prior to returning scores, the class reflected on what it meant to be a "student" or a "learner." This discussion provided the context for candidates to consider their scores in depth the following week. It was also a deliberate attempt to engage ideas that candidates held about teaching and learning, as well as a tool for helping them to discern important and generative distinctions between the two.

During the second week of the course, candidates received their MSLQ and LCB score reports. Their task was to use the brief narrative descriptions of each scale, along with the published scale means (McCombs & Whisler, 1997; VanderStoep & Pintrich, 2003) to compare and contrast their scores. Drawing on additional print sources, they were then asked to write a reflection on what the scores meant to them, e.g., Did they agree with the assessment? Were any scores surprising? Was there anything they would like to change?

This initial reflection provided candidates with an early opportunity to explore course concepts about motivation, cognitive and metacognitive strategies, and teacher beliefs. Since candidates had not yet been introduced to terms like "learner-centered" or "non-learner centered," this exercise alerted candidates to the vocabulary surrounding these concepts and served as a prompt for later discussion of these teaching orientations. In the final written task of the term, candidates were asked to provide specific evidence of their professional growth across the term. Ideas mentioned in this open-ended reflection were understood to be salient to the candidate across the course.

Data Analysis: An Iterative Process of Uncovering Patterns and Relationships

Data analysis for this study followed an iterative process common to qualitative inquiry. Our first task was to read the data, make general observations and identify patterns and themes within and across cases (Hammersley & Atkinson, 2004). We paid particular attention to the course ideas and concepts that surfaced most frequently in students' writing, e.g. self-regulated learning; goal orientation theory. Using our research questions as a guide, we then coded the data for specific references to self-as-learner, self-as-teacher, and students-as-learners. To ensure consistency in coding, we conferred every five cases (Miles & Huberman, l994).

Our initial analysis using these three descriptors was useful in helping to narrow our analytical lens. The initial self-assessment task asked candidates to reflect on and explain their MSLQ and LCB scores, and also to identify personal goals relative to those scores. This essay revealed an almost exclusive focus on self-as-learner, with much less attention paid to self-as-teacher and especially students-as-learners. Additionally, there was little self-critique and goal-setting. In contrast, final course reflections demonstrated deeper and more expansive thinking, e.g., candidates' reported increased attention to their developing identities as teachers and their obligation to students as learners. Still, these documents continued to show an emphasis on the reporting of strengths over areas of weakness, and candidates were not uniformly explicit about how those strengths would serve them as teachers.

As we considered these global observations and thought about students' relative "newness" in the teacher preparation program, we became particularly interested in a finer grained comparison of candidates' initial MSLQ and LCB self assessment and their final course reflections. To what extent could we find evidence of shifts in thinking or action for individual candidates and could we see discernable patterns across students, e.g. weak claims becoming stronger over time? We further coded the self-assessment data for shifts in thinking and/or indications of future growth in understandings of self-as-learner, self-as-teacher, or students-as-learners. We assumed that unqualified score explanations in the self-assessment would be a poor predictor of changed behavior, whereas summary statements that suggested areas for future growth would be a marker of possible change. We then looked for evidence of these shifts in the final reflection.

Additionally, we coded statements as direct or indirect, and strong or weak using a chain of concepts typology (LeCompte, Preissle, & Tesch, l993). Direct claims were characterized by first person statements and strong claims were characterized by clear and concrete illustrations. Thus, for each belief statement, we noted whether the statements were written in active or passive voice. We also noted whether the statement represented clear intent (e.g., When I am a teacher, I will use X in my teaching) or whether the statement represented a tentative, conditional, or rhetorical claim (e.g., I should use X when I am a teacher).

Finally, we compared and contrasted patterns within our code typology (e.g. teacher-strong-direct versus teacher-weak-indirect) to identify three categories of shift in thinking, from significant and moderate to no shift. In this case, we were interested in what we might learn about those who seemed to make demonstrable leaps in their thinking and those who did not. Were there common characteristics among these students that would help us teach them better? In this round, we coded data independently, agreeing on the significant/moderate/no shift categorization in 16 of the 23 cases in our sample. For each of the seven remaining cases, we discussed and agreed upon the categories before moving on. In addition, we jointly examined the low to no shift cases for identifiable patterns, finding three themes in the cases where we saw little movement, which we discuss below.

Findings

Learning about Learning, Self, and Students

Our first research question asked what secondary candidates discovered about themselves as learners after completing the MSLQ and LCB self-assessments. Almost without exception, candidate's initial self-reflections were focused on self with few references to teaching and students. This was expected, considering that the primary intention of the assignment was the assessment of learning. Further, this assignment was placed early in the course when students' ideas about teaching were still nascent. Nearly all learner codes were direct and strong, as highlighted in the following data excerpts.

> Resource management may be an area where I need to give more effort. I am not the type to call others from class or ask for help. (Jason)
>
> My main problem as a critical thinker is my unwillingness to hear new ideas that counter my own deeply held beliefs. (Marin)
>
> I like to get things done as soon as I know about them… I make a list of when something such as an exam is occurring and then I make myself a study schedule. (Lauren)

In these excerpts, candidates used concrete and personal examples to reflect on their self-assessment scores. Through this task, students were able to identify their strengths as learners, but also the areas where they could continue to improve. As many of our students shared, this was likely to be the first time they had talked publicly about their learning. Several candidates also used this task as an opportunity to begin exploring issues they will likely face as teachers, as highlighted below where one candidate, Lauren, begins to question the teacher's role in a learner-centered classroom.

> According to the survey results, I put more emphasis on learner-centered classrooms. This troubles me slightly because while I do believe that active learning is important, there needs to be teacher control in the classroom. (Lauren)

In this example, we see the clash between Lauren's beliefs and her emerging concerns as a teacher. Responses like this demonstrate the added potential of self-assessment for bringing concerns to the surface and prompting questions that can be addressed in class or in private conversation as the semester unfolds. We now look more closely at the relationship between candidates' developing insights about teaching and self-regulated learning and their experience with the MSLQ and LCB self-assessment tools.

Connecting Self-Assessment to Teaching. In contrast with the first written reflection's narrow focus on self, candidates' final reflections were nearly equally devoted to issues of self, learning, and teaching. Importantly, half of the candidates spontaneously drew upon the ideas and terminology introduced in the self-assessments when considering their future as classroom teachers. As illustrated by the following excerpts, several spoke directly of the self-assessment task, while others referenced the follow-up discussion about students and learners that took place in class after the self-assessments were complete.

> *Reflections on the self-assessment task:*
>
> The reflection I learned the most from was my self-assessment reflection… This assessment allowed me to see the areas that I need to work on to become a more successful person and teacher. (Candace)
>
> The self-assessment told me what kind of learner I was. I found that I am intrinsically motivated… That helped me with why I want to be a teacher and acted as an accurate descriptor of who I am as a learner. (Andrew)
>
> *Reflections on the students vs. learners discussion:*
>
> We talked a lot at the beginning of the semester about the distinction between a student and a learner and through this discussion I have further developed my concept of a learner… If used correctly (self-assessments), they can help me access students' prior knowledge, experiences, and perceptions of their own learning. (Katharine)
>
> The first thing I learned is to not teach each student as a student, but to make them into a learner. I realized that I was a learner and I have to guide the children that I will be teaching to start thinking and acting like I do. (Sheila)

As we further studied the differences in substance and depth among the final essays, we noted that when candidates were able to provide examples from personal experience, our understanding of their learning was enhanced. Similarly, self-assessment helped students make linkages—at first concrete and then abstract—between course content and personal experience. Self-assessment also prompted concept transfer by encouraging students' to own their own learning. We see this in the following comment, where Jason used the final reflection to articulate the value he saw in self- versus teacher-driven assessments.

> Some self-assessments such as the MSLQ or Teacher Beliefs Survey tend to have more of an intrinsic realization about who we are, rather than a label being put on anyone. This way each individual can see factors that may need to be addressed and focus on them rather than being prejudged. (Jason)

Another candidate noted that the self-assessment survey was only the beginning of the process, stating: "I learned a lot about how I learn and not just from taking the survey. I learned about how I learn and comprehend information by actually learning something" (Robert). This candidate was able to see how self-assessment was a tool for deliberate reflection, allowing him to make connections with course content.

Connecting Self-Assessment to Understandings of Self-Regulated Learning. Another example of where we saw concept transfer was with regard to self-regulated learning, where nearly all of our teacher candidates mentioned self-regulated learning, either explicitly or by example, in their final reflections. As Caitlin, a non-traditional teacher candidate shared:

> Self-regulated learning is not a concept I was familiar with before this class. Twenty years ago when I attended high school, this wasn't the focus of secondary education. I remember my institutional learning experience as formulaic and predictable, aside from one gifted class. …This [education course] has enlightened me to the fact that being able to breeze along didn't really help me learn. It makes me a little bit sad, wondering what I might have accomplished in the right environment. I plan to challenge my students and help them grow as learners. (Caitlin)

Caitlin has personalized her understanding of self-regulated learning by first considering her own experience as a high school student, and then reflecting on the experience she wants for her future students. One of her classmates, a more traditional candidate, echoed this sentiment, highlighting the potential of self-assessments to link abstract theories with personal experience as candidates begin to construct an understanding of their role as prospective teachers.

> I was taught throughout high school and college to think and perform in mundane, repetitive ways. This course helped me to not only access [a] critical way of thinking at all times, not just when needed, but how to actually help my students learn to think in this way as well. Self-regulated learning is one of the best tools that I could have learned in this class. (Sheila)

Yet a third candidate, Ella, spoke of the value she now holds for the idea of self-regulated learning:

> My recognition of the value and importance of self-regulated learning has become a crucial part of this class… I have begun to force myself to stay intrinsically motivated, review my work and resubmit it after fixing my mistakes, and even to teach myself information that could be pertinent to the class. (Ella)

As these excerpts illustrate, the self-assessment task helped to prime candidates' experience by alerting them to vocabulary and concepts they would encounter later in the course. Further, since self-evaluation is a part of self-regulated learning, these candidates were able to personally experience this part of the process. In reading students' final reflections, it became clear that they had begun to use language offered in the course to interpret and evaluate their own experience, which was suggestive of a preference for "self-regulated learning."

Learning about Teaching

Our second research question examined how candidates' beliefs about themselves as learners informed their understanding of themselves as teachers, including how these understandings may have changed over time. In addressing this question, our first step was to place candidates into three groups, each representing significant, moderate or minimal change in reported beliefs. Through analysis of their written assignments, we identified four candidates (17%) who demonstrated a significant shift in their reflections across the term, 11 candidates (48%) who demonstrated a moderate shift, and eight cases (35%) that fell into the low or no shift category.

Among those who showed a significant or moderate shift, we observed greater attention to self-as-learner, as well as a growing attention to self-as-teacher and students-as-learners. In these essays we found stronger and more direct connections between personal experience and course content. Further, candidates frequently elaborated on their thinking, in addition to discussing concrete applications of course concepts. Overall, there were stronger tendencies to link learning and teaching in complex and applied ways. These qualities grew from the self-assessment to the final reflection, with shifts clearly linked to course content and goals.

To illustrate, teacher candidates whose documents were coded as moderate showed an especially clear understanding of self-as-learner. These teacher candidates had a strong general conception of learning and how it relates to being a teacher. For example, in the following self-assessment, Randy stated:

> I need to work on the extrinsic motivation, and shift it towards a goal of wanting to learn for the knowledge. This goes along with the idea of being a self-regulated learner as well as being a task-focused student. The scores are a good insight to what I have to work on to improve myself as a learner. (Randy)

Later, in his final reflection, Randy wrote:

> And the most important aspect of becoming a teacher is the fact that teachers are always learning, therefore effective teachers find and try new methods to try and relay information to students… Only by self-reflection/evaluation will a teacher be able to get better and grow as a teacher and a learner. (Randy)

In the excerpt above, we see a candidate who grasps the need for the teacher to be a learner. Still, these comments do not provide specific recommendations for actual teaching practices. Similarly, another candidate described her self-assessment in the following ways:

> My learner-centered beliefs [scores] are higher than the mean, because I do believe the focus of the classroom and learning is centered around the learner, not solely on the teacher… I believe the classroom should be centered on more active participation and engagement, rather than the teacher controlling everything that happens in the classroom. (Susan)

Later, in her final reflection, Susan was able to articulate this point more clearly:

> One of my strengths is that I am able to make connections to many things and see that many concepts fit together. …I read the Ridley, McCombs, & Taylor article and immediately made connections to this class, and also others that are not self-regulated learning … [in another course] I have had the opportunity to teach with group members this semester…I write reflections every time I teach, so I am able to reflect on my progress…I have come to understand what goes into teaching, how to make lessons interesting while still conveying a point, and what I get out of it. (Susan)

This candidate has a general sense of who she is in the self-assessment that is expressed more explicitly in the final reflection. However, she does not present specific applications of how she would approach creating a self-regulated learning environment. As teacher educators, it has been helpful to notice this tendency in student responses. As the first required course of the teacher preparation program, we would not expect candidates to have a fully-developed sense of their identity as future teachers, but we do want to see their commitment to developing as teachers who are capable of attending to students' learning. Further insights can be taken from those who were coded in the significant and no shift categories.

Making a Commitment to Student Learning. Notably, the 17% of candidates whose documents were coded as demonstrating a significant shift were able to go beyond a global understanding of themselves as learners to show signs of learner-as-teacher. In these essays, candidates not only drew upon the concreteness of their own experience, but were equally articulate about the classroom they hoped to one day lead, and what it might take to get there. These essays richly incorporated the concepts and vocabulary of the course. Further, these candidates saw the intention behind the way the course was structured and delivered. One teacher candidate revised her self-assessment toward the end of the semester, noting:

> I feel that it is important for any teacher to have a classroom that is learner-centered.… [R]elated to this are non-learner [centered] beliefs in terms of teaching. My score on this refers to having student control in a classroom versus teacher control. [Professor] is a great example of this. She allows students to control where the learning goes and is there to guide us and clarify certain concepts. This would be my goal for how I want my classroom to be. (Holly)

In her final reflection, this candidate goes on to describe how her experience as a learner in the course has helped her imagine the kind of teaching she aspires to as a future secondary teacher.

> The most important thing I feel that I am taking away from this class is how to make students become learners… As a learner myself, I have learned to make improvements in my own work and show [my own] progress. When putting my work collection together, I started to see the method to why [the professor] has been giving me 'Rewrites' on most of my work. [She] knows that if we are motivated to succeed then we will keep revising papers to keep improving. (Holly)

Holly repeats this idea in her conclusion.

> If I can take the information that has been presented to me in my education classes and apply it to my classroom, then I think that I can be a successful teacher. I think that my goal will be to make an impact on my student and help them see themselves as learners and show them that they are the ones that control their own learning. (Holly)

The Importance of Candidate Professional Growth and Learning. A second example of significant shift appears in the next example, as Jason describes his understanding of critical thinking. This excerpt indicates how he is working to apply course content on a personal level, using the term "transformed" to capture the significance of this for his learning.

> The challenge was to no longer look at things and take them for what they are, rather to look at something and dissect why the certain event happened. This is where my focus from student to learner transformed. …I guess I have changed my approach and started to think how can I manipulate this information and in what ways. (Jason)

We see this candidate's interest in linking course content to practical experience more clearly in the following example, taken from later in the same paper.

> I recently had an experience in class where my Calculus teacher gave us the chance to teach for a day. I dove headfirst into the opportunity knowing that I may be wrong, but how do I continue to learn and prosper if I am never wrong? This is when it all hit me that making mistakes can be beneficial to teaching and learning alike. Once we make a mistake and think critically about that mistake there is a greater chance that we will not proceed the same way the next time we approach the same situation. (Jason)

As these illustrations show, a small but significant percentage of candidates are able to use the self-assessment task to reflect on their own learning processes, and to draw upon these understandings as they envision in surprisingly concrete and practical terms their future classrooms.

The Developmental Nature of Candidate Thinking. Finally, we observed that candidates who reported little to no shift fell into one of three categories: (1) candidates who appeared to have foreclosed on their ideas prior to the start of the course, (2) candidates who were just beginning to grasp the idea of self-as-learner, and (3) candidates whose self-assessments were more in depth than their final reflection, perhaps as a consequence of end-of-semester timing and weariness.

We return to a candidate we introduced earlier in the paper; a student whose beliefs remained steady throughout the course. In discussing her self-assessment results, this candidate remarked about how she was troubled by her LCB score. Lauren wrote: "I put more emphasis on a learner-centered classroom. This troubles me slightly because while I do believe that active learning is important, there needs to be teacher control in the classroom." She concludes her thoughts by indicating an interest in seeing how her beliefs might change over time:

> At the moment, there is not much that I would like to change about my thinking on learning strategies and learning in general. However, I will stay open-minded about these ideas…I am interested in finding out how much my opinions change in one semester. (Lauren)

In her final reflection, Lauren returns to these comments:

> Looking at my self-reflection paper, while discussing how my test scores indicated that I put an emphasis on learner-centered classroom, I discussed that this was not the only way that students may find beneficial to learn. Some need less freedom and more guidance from the teacher. While this only gives two examples of how people learn, I do realize that there are many other ways out there. (Lauren)

This particular candidate had a negative experience with reform mathematics in high school and was frustrated by what she perceived as a lack of teacher support. Thus, while Lauren was willing to acknowledge other approaches to teaching, her writing showed a strong preference for the one that fit her own learning processes. This particular example reminds us of just how powerful students' prior experiences are in shaping their beliefs. Here, the self-assessment task helped us to identify Lauren's beliefs so that we could better address their relationship to her understandings of self-as-teacher and students-as-learners.

For candidates who were just beginning to understand what it means to be a learner, we did not observe strong attempts to expand upon this idea in the final reflection. Rather, these candidates seemed to know what was needed in order to become a learner, but had not yet internalized the process. One candidate stated it as follows:

> This assessment helped me to learn a few key things about myself. First, that I need to stop being lazy and do the work. Next, that I need to find the motivation to keep school a priority. And finally, that I believe all students, including me, have the potential to learn. (Rebecca)

Rebecca's superficial response suggests to us that course-related opportunities to internalize and personalize these concepts were missed. She goes on to say in her final reflection:

> I am drawn to [teaching] because of my own nature. …I plan on being a life-long learner and one of my future goals is to instill that same curiosity and thirst for knowledge that I possess. (Rebecca)

This candidate's self-assessment demonstrates a "student" approach. While she makes a semantic case for moving toward becoming a learner, she is not able to provide specific evidence of this movement. Thus, it may still be a future goal for this candidate, or in a worst-case scenario, not in her future at all.

The third group of teacher candidates whose documents do not manifest a shift include those individuals who were more specific and clear in their self-assessment reflections than they were in the final reflections. One candidate described his self-assessment reflection this way,

> As a learner, I've discovered many assumptions I had about my own learning process were either mistaken or in need of revision. For instance, there is little method and technique to my studying. Recognizing that good organization and a coherent method would strengthen my cognitive strengths and would reduce my inefficient learning patterns is an important step. (Joshua)

At the end of the term, this same student writes:

> I will construct time/study methods that will allow me to systematically explore assignments and projects to my own intellectual satisfaction, and not only to the expectations of an instructor or mentor. (Joshua)

As the excerpt above highlights, a small group of students seem to regress in their responses, latching on to cliché phrases in order to satisfy instructor expectations at a minimum level of engagement. It is reasonable to assume that a candidate might run out of time to complete the assignment, or lose interest in the course and merely "student" through the final task of the semester. It is also possible that students may be self-selecting out of the program.

Discussion and Implications

Focusing Attention on Student Learning

As this study reveals, deliberate self-assessment interventions can be an effective method for helping secondary candidates articulate and interrogate their notions about learning strategies, which in turn can help them to connect with and apply abstract concepts from the literature on learning theory to future instructional practices. As the data illustrate, many of our candidates were able to use their self-assessment results as advance organizers over the course of the semester, interpreting concepts like critical thinking and self-regulated learning through the lens of their own processes and experiences as learners. They were further able to examine theories of cognition and motivation from a personal position, giving these ideas new relevance. By the final reflections, many candidates' references to learning reflected a more sophisticated understanding of the learning process.

Moreover, through the self-assessment process we begin to see candidates approach their role as model learners. When asked to explore their development throughout the course, many were able to use the explicit language of self-regulated learning in ways and contexts that seemed to indicate a preference for this idea. Some mention taking more responsibility for their own learning, while others mention shifts in their motivation, from extrinsic to intrinsic. Still others mention the idea that they needed to learn to study differently from the way they had previously.

These candidates have begun to shift toward a meaning-directed learning pattern (Vermunt & Vermetten, 2004), where they are attempting to make sense of their own learning processes. Importantly, these same candidates increasingly talked about how they wished the same for their future students. Thus, we see in the data how a significant number of candidates are beginning to connect an understanding of their own learning to their developing ideas about classroom teaching practices.

These data further suggest that candidates are using their identity as learners to formulate an emerging identity as teachers. As life-long students, they bring extensive classroom experience, resulting in a range of beliefs and predispositions that are implicit, powerful and enduring (Knowles & Holt-Reynolds, 1991; Pajares, 1992). As such, these beliefs and predispositions are likely to influence practice if left unexamined (Beijaard, Verloop, & Vermunt, 1999; Feiman-Nemser, 2001). For example, without an intentional analysis of "the other side of the desk," teacher candidates' immediate focus during preparation is primarily on authority-based teacher attributes such as management skills and knowledge of content, not students' learning (Ethel & McMeniman, 2002; Gould, 2000; Knowles & Holt-Reynolds, 1991).

To prompt a shift in perspective, we believe it is important to make teacher candidates' beliefs explicit in order to facilitate the kind of critical thinking needed to develop a more theoretically-grounded approach to teaching and learning, especially one that focuses more centrally on students as learners (Dembo, 2001; Knowles & Holt-Reynolds, 1991). Our findings support this claim. Developing greater awareness of one's self as a learner serves to inform the development of one's identity as a teacher who pays attention to students as learners.

Self-Assessment as a Pedagogical Tool

These data demonstrate that interventions that employ deliberate learning-focused self-assessment can be a useful exercise for helping candidates to unpack their assumptions and beliefs about the profession and about themselves as learners. Although previous research has demonstrated the utility of autobiographical reflection in understanding one's identity as a teacher (Carter & Doyle, 1996; Holt-Reynolds, 2000), teachers are typically not asked to look back at themselves as "model learners" in order to understand learning and teaching. Teacher candidates need to see both where they have been and where they currently are as learners as they develop a vision for who they would like to become as teachers.

This is particularly true when assessment is designed for learning (see Stiggins, 2005). Our students used self-assessment to understand their own learning as well as learning theories more generally. For this to happen, however, candidates had to feel safe when exploring their attitudes and beliefs. As teacher educators, it is important that these assessments be placed in a low-stakes context. It is also important to remember that any assessment of learning should avoid deference to particular political beliefs, sociological ideologies, or personality characteristics that may be peripherally related to pedagogical practice (Damon, 2005). Formal and deliberate self-assessments like the MSLQ and the LCB may have high value for teacher educators precisely because they are not assessing candidates' ideologies.

Additionally, because these self-assessments are embedded within a course, teacher candidates may feel more inclined to view the results as ideas to consider rather than as particular ideologies. When approached this way, self-assessments like the MSLQ and LCB can be used to further explore candidate's commitment to learning and teaching, as well as provide teacher educators with the rare opportunity to identify and assess teacher candidates' preconceived notions about learning and teaching. Deliberate self-assessment may make it easier for instructors to observe and respond to the needs of the candidate and to help the candidate interrogate his or her beliefs in a constructive, growth-producing manner.

In order for self-assessments to have an impact on teacher candidates, however, they need to be employed consistently and responsively (Weinberger & McCombs, 2003). For example, it is critical that faculty using self-assessment tools, like the MSLQ and LCB, have a solid understanding of how to administer and interpret these tools for conceptual self-assessment, as opposed to practical or evaluative self-assessment (Boud & Falchikov, 1989). The study findings reported here did not happen accidentally, but resulted from a deliberate and sustained intervention by a skilled teacher educator. It may also be important to explore strategies for building upon and extending the emphasis of these tools programmatically. Candidates in our secondary education program are continually asked to frame their reflections around learning: first their own, then their students. Reflective self-assessment is well suited for coupling with programmatic approaches that prompt further reflection on students' learning.

Study Limitations

At the same time, it is important to acknowledge the limitations of these types of self-assessments. When students complete self-report tasks in the context of a course, particularly when those same tasks are assessed and graded, we can predict students' tendency toward reporting socially desirable results. Without fully understanding the purpose of the surveys, candidates may provide answers they feel the instructor wants to hear, or they may not otherwise be fully honest for fear of losing points on an assignment.

There are also limitations related to the sample of participants. Like many teacher education programs across the country, our candidates are from a predominantly White, middle-class demographic, and presumably, from socio-cultural contexts where White, middle-class values are supported. The present study examines individual experiences with conceptual self-assessment in the context of class discussion around fostering self-regulated learning. These constructs and processes are contextualized within the various social and organizational structures of schooling. For example, discussions may use concepts in the self-assessment to explore concepts like gender differences in motivation (Wigfield & Eccles, 2002) or stereotype threat (Steele, 1997). Finally, we cannot presume that the patterns identified in this group of candidates will hold steady across gender, race, class and geographic differences. Nor can we assume that all groups (be they candidates, or the students of those candidates) will find the understandings about learning advocated here to be culturally comfortable or relevant. Since previous research on self-assessment has not addressed diverse populations, we encourage others to similarly implement, study and report the use of self-assessments in a range of diverse teacher education contexts.

Preparing Learning-Focused Teachers

It is worthwhile, then for teacher preparation programs to consider the adoption of learner-centered principles (APA, 1993) throughout coursework. While these principles appear to be part of what many of us consider best practice, teacher candidates often experience opaque exposure to these principles. Even when we embed learner-centered principles in our own practice as teacher educators, it may be difficult for our candidates to apply these principles in their instructional practice. To this end, self-assessment tools can help candidates "see" the thinking behind our actions, as well as the actions of their students. At the same time, it is important that we continue to test the effectiveness of self-assessment in shifting beliefs and attitudes for a diverse range of candidates entering even more diverse school settings.

The careful and skillful use of self-assessment interventions around learning can help candidates begin to develop the self-regulatory capacities they need to be more skilled as learners, thus more effective as teachers (Dembo, 2001). Teacher education programs can further help to make the learning process transparent by incorporating explicit instruction in cognitive strategies, metacognitive strategies, and elements of self-regulated learning. When candidates develop the vocabulary and syntax around learning and teaching, they can begin to internalize these ideas to their beliefs about teaching. As one of our candidates noted, "I now feel like I hold my own learning in my hands."

Note

[1] Studenting and learning are often cued by classroom practices and procedures. For example, when students experience teacher-centered instructional practices that fail to engage them as learners (e.g., lectures and recitations), we can predict studenting behaviors driven by a set of motivational beliefs and learning strategies that are adopted to meet the minimal demands of these practices (e.g., surface strategies or cheating behaviors). Since the instruction that many high school and most early college students experience tends toward teacher-centered, it is understandable when candidates engage in studenting rather than learning behaviors when they enter the teacher preparation program.

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Appendix A

Sample Items for Scales from the MSLQ and the LCB

MSLQ Motivation Scales

Intrinsic Goal Orientation

"In a class like this, I prefer course material that really challenges me so that I can learn new things."

"The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible."

Extrinsic Goal Orientation

"Getting a good grade in this class is the most satisfying thing for me right now."

"If I can, I want to get better grades in this class than most of the other students."

Control of Learning

"It is my own fault if I don't learn the material in this course."

"If I don't understand the course material, it is because I don't try hard enough."

Task Value

"I think I will be able to use what I learn in this course in other courses."

"Understanding the subject matter of this course is very important to me."

Self-efficacy

"I'm certain that I can understand the most difficult material presented in the readings for this course."

"Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class."

Cognitive and Metacognitive Scales

Rehearsal Strategies

"When studying for this course, I read my class notes and the course readings over and over again."

“I make lists of important items for courses like this and memorize the lists.”

Elaboration Strategies

“I try to relate ideas in this subject to those in other courses wherever possible.”

“I try to apply ideas from course readings in other class activities such as lecture and discussion.”

Organization Strategies

“I make simple charts, diagrams, or tables to help me organize course material.”

“When I study the readings in a course like this, I outline the material to help me organize my thoughts.”

Metacognitive Strategies

“When reading for a course like this, I make up questions to help focus my reading.”

“I try to change the way I study in order to fit the course requirements and the instructor’s teaching strategies.”

Critical Thinking Strategies

“When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.”

“Whenever I read or hear an assertion or conclusion in this class, I also try to think of possible alternatives.”

Self-Regulated Learning/Effort Regulation

“I work hard to do well in classes like this, even if I don’t like what we’re doing.”

“Even when course materials are dull and uninteresting, I manage to keep working until I finish.”

Self-Regulated Learning/Time Management and Study Environment

“I make sure that I keep up with the weekly readings and assignments in courses like this.”

”I have a regular place set aside for studying.”

Collaborative Learning Orientation

“When studying for a course like this, I often try to explain the material to a classmate or a friend.”

“I try to work with other students from class to complete course assignments.”

Help-Seeking Orientation

“When I can’t understand the material in courses like this, I ask another student in the class for help.”

“I try to identify students in classes like this whom I can ask for help if necessary.”

LCB Scales

Learner-Centered Beliefs

“I can help students who are uninterested in learning get in touch with their natural motivation to learn.”

“Accepting students where they are—no matter what their behavior and academic performance—makes them more receptive to learning.”

Non-Learner-Centered Beliefs About Learners

"Even with feedback, some students just can't figure out their mistakes."

"Innate ability is fixed and some children just can't learn as well as others."

Non-Learner-Centered Beliefs About Teaching

"If I don't prompt and provide direction for student questions, students won't get the right answer."

"I know best what my students need to know and what's important; students should take my word that something will be relevant to them."