



Questioning for Meaning: Enhancing Questioning Strategies of Teacher Candidates through the Understanding by Design Approach

Victoria Seeger, Sue Wood and Dustin Romans

Understanding, crafting, and asking questions is a critical skill for all teachers, maybe even more so for social studies content, an area where educators may lack broad, in depth knowledge of the content. Having the ability to ask high level, critical thinking questions of students takes time and practice and a skill not often mastered or present in teacher candidates or new teachers. Even many seasoned teachers have difficulty

Victoria Seeger, PhD
Victoria Seeger is an Associate Professor at Northwest Missouri State University. She is the Coordinator of the Completion Program at Northwest-Kansas City.

asking questions that promote thinking and assist students in making connections about their learning. When teacher candidates learn about questioning through a specific model promoting deeper thinking through critical questioning, their thinking about questions and questioning changes. Consider this vignette as a teacher candidate discusses questioning in a social studies methods course while learning the basics of lesson design.

A Vignette about Questioning

As part of her instruction in a social studies methods course, the faculty member explained Mager's ABCD (1997) model of writing learning objectives, A representing the audience, B the expected behavior, C the condition under which the objective would be accomplished, and D the degree to which the objective would be accomplished. The instructor went on to emphasize the importance of distinguishing between a learning objective and a learning activity. Finally, the instructor adamantly discussed the importance of writing the learning objective before the learning activities are designed. Upon completion of the instructor's discussion about learning objectives, one of the students in the classroom raised her hand and respectfully asked, "Professor, I understand what you are telling us about writing objectives prior to writing the learning activities, but it seems to me that the ABCD process asks us to determine the condition under which the objective will be accomplished while we are designing the objective. Can we really determine the condition prior to at least thinking about the activity? Would it not be better to say that our learning objectives should include A, B, and D, and that we will determine the condition as we design

She received her PhD from Kansas State University.

Sue Wood, EdD

Sue Wood is an Assistant Professor and Coordinator of Elementary Education and Master's in Curriculum and Instruction programs at Northwest Missouri State University. She received her EdD from the University of South Dakota.

Dustin Romans

Dustin Romans is a 5th grade teacher at Mill Creek Upper Elementary School in the Belton School District in Belton, Missouri.

meaningful learning activities?”

The instructor was impressed by the insight exhibited in asking the question. After several years of teaching the ABCD model of instructional objective design, this question had never been posed. Most teacher candidates simply accept the instructor’s description and expectations around using the Mager (1997) model of objective writing. It gave pause to wonder about the ability of most teacher candidates to develop and frame questions and also what to wonder about the impact of this student’s recent participation in an intense two-day workshop conducted by Dr. Jay McTighe, explaining the Understanding by Design (UbD) curriculum design model. The two ideas were explored and became the impetus for developing this article. We will first briefly explore research that has been conducted to determine the ability of teacher candidates to frame meaningful questions, followed by a summary of the results of the interviews of the four students who attended the McTighe workshop to determine their perception of the impact of the two-day workshop on their own questioning abilities.

The Critical Nature of Teacher Questioning

Research over the past 30 years has revealed the significance of a teacher’s ability to ask questions to increase student achievement. We know that teachers who can question effectively across the levels of Bloom’s (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths & Wittrock, 2001) taxonomy are better able to determine the depth of children’s thinking. A good question may mean the difference between constraining thinking and encouraging new ideas, and

between recalling trivial facts and constructing meaning (Kamii & DeVries, 1978; Kamii & Warrington, 1999; Schwartz, 1996; Stone, 1993). We also know that even though research is clear about the importance of including questions from the higher levels of Bloom's taxonomy, the predominant types of questions being asked in classrooms across America remain at the factual level (Kamii & Warrington, 1999; Schwartz, 1996; Stone, 1993).

Related to social studies, Parker (2011), notes the critical nature of teachers being skilled at asking questions as an assessment tool and the ability to ask questions is essential to any strategy a teacher is using with students in the classroom. As with any skill, to be good at questioning, one must practice in order to assist teachers with understanding and to help them dig deeper to further explain their responses (Parker, 2011). Van Cleaf (1991) discussed the ability to facilitate good social studies discussions by extending "the effectiveness of questioning techniques" (p. 234). He further explains questions that are not well thought out can be misleading, confusing and lead to answers that are incorrect (Van Cleaf, 1991). Both Parker (2011) and Van Cleaf (1991) discuss the Socratic nature of questioning to take students beyond what they currently know to deeper understanding. And, Parker (2011), notes that teachers do not necessarily have the answers, but the questions.

How well do teacher candidates' question? While the research into this idea is rather sparse, there are at least two ideas that could be further explored. Both ideas reveal the significance of pre-service preparation in fostering the kind of deep questioning skills that will serve to increase student achievement.

Ralph (1999a; 1999b) synthesized the body of research on oral questioning skills of teachers and found that the following processes provide the cornerstones of effective oral questioning and that instruction in these skills needs to be included in teacher candidate preparation programs: 1) to ask questions to gauge student understanding; 2) to pose clear, concise questions; 3) to use a variety of "cognitive levels" of questions based on Bloom's (Anderson, et al, 1991) taxonomy; 4) to implement a pattern of directed questions with adequate wait-time (rather than patterns of "undirected" or "targeted" questions); and 5) to distribute oral questions equitably in a group.

Moyer and Milewicz (2002) conducted research into the ability of teacher candidates to effectively question students in mathematics interviews. The purpose of the project was to examine the types of questions posed by teacher candidates and to engage teacher candidates in an analysis of their own questioning. The results of the study revealed that teacher candidates' skills in questioning improved and deeper questions were asked after they had been instructed in the processes synthesized from the research of Ralph (1999a; 1999b). While these processes are seemingly very basic, teacher candidates did not have the skills until instructed in them.

The student in the vignette described at the beginning of the article had been immersed in the Understanding by Design model, first at the two-day workshop, but also in work completed in the social studies methods class in designing a unit using the Understanding by Design process. At the heart of the Understanding by Design curriculum model are essential questions (Wiggins &

McTighe, 2011). Wiggins and McTighe (2011) define essential questions as, "questions which cause genuine and relevant inquiry into the big ideas of the core content, provoke deep thought, lively discussion, sustained inquiry, and new understanding as well as more questions. Essential questions require students to consider alternatives, weigh evidence, support ideas and justify their answers" (p. 73). Students spent a substantial amount of time crafting essential questions at the two-day workshop as well as in the social studies methods class.

Was the student's ability to question directly related to her work with UbD? Is there a difference in students' abilities when they have been instructed in this model? Kelting-Gibson (2005) revealed that teacher candidates who were instructed in the backward design model of curriculum design attained a higher level of performance when displaying content knowledge and making connections between the content and other disciplines, and developing plans that reflected current research on best pedagogical practices, including questioning. Similar results were found in the areas of recognizing students' skills, approaches to learning, interests, and cultural backgrounds and assessing instructional goals and communicating the criteria for those assessments.

Transformation of Teaching and Learning through Essential Questions

The teacher candidates that were immersed in learning about questioning through the Understanding by Design model and then through their social studies methods course have revealed changes in not only their understanding about how to ask questions, but in the significance of questioning for students and the critical

nature of developing skills that transform practice and, thus, learning. Each has learned how to “deliberately self-assess their question[s] against specific criteria” (Wiggins & Wilbur, 2015, p. 12). The students’ reflections support the notion that constructing meaning entails being able to focus on central ideas and essential questions and that we design questions for a discipline enabling transfer of current learning to new learning (McTighe & Seif, 2011). This was reflected in the teacher candidates’ comments about questioning having a new, more critical, purpose wherein questions are not likely to have one “right” answer, but instead, transgress over multiple content areas and serve students over time. They cited now having the ability to craft questions that challenge students, the containment versus encouragement of new ideas referred to earlier (Kamii & DeVries, 1978), so that they can think critically about their learning:

“...learning about essential questions improved my ability to question on a deeper level. Essential questions that can be applied to different content areas taught me that questioning can venture beyond the surface of a content area and into the relationships found among content areas. I am capable of creating questions that encourage students to think about concepts and their relationships and applications to other situations.”

“...they [questions] are not created and used for just one unit, or even one subject. These questions have longevity. They can be used at any time, and should be something we ask often.”

The teacher candidates are considering the questions

they imbed in their lesson and unit planning with greater discernment, now asking their students questions that are “open-ended and debatable” and considering how they will be used by students for long-term learning. One teacher candidate noted that she “doesn’t leave questioning unplanned,” and thinks about the end results when forming the questions she wants to ask during a lesson. Another noted that she constructs “purposeful questioning that directs students toward more critical thinking and analysis of the concept at hand.” This planning with the end in mind has been a part of teacher preparation for a long time, but it has only been through the Understanding by Design process that our students are now internalizing the meaning of planning for a lesson or a unit and perhaps, more importantly, questions that will achieve that end goal.

Equally important when designing essential questions is assisting our students in making connections so that their learning is truly meaningful across content areas (Kelting-Gibson, 2005). Wiggins and McTighe (2008) advocate for learning goals that transfer the students’ learning “to new situations both within school and beyond it” (p. 36). One of the teacher candidates noted that she is finding ways to make sure she knows how the content is relevant to her students, the first step in bridging those content areas. “The questions should connect the information to the lives of the students or make the content relevant.” Seeing how questioning encourages concept relationships and application across areas is all part of critical thinking and must be promoted before entering the teaching field when careful scaffolding (with instructors or mentors) may not be present to assist the novice teacher with this critical skill.

Fostering learning to go beyond test-taking has also been a learning outcome for our teacher candidates as they have become skilled at crafting essential questions.

McTighe and Thomas (2003) noted the importance of standardized testing as one indicator of how students are progressing in their learning, but also caution educators that focusing only on those kinds of assessments results in a very narrow curriculum. This is echoed in the work of Kamii and Devries (1978) in their discussion of students that are adept at recalling trivial facts rather than constructing meaning. Our teacher candidates already understand these concepts after their work with essential questions. Depth in questioning takes students beyond surface-level questions or those that require yes or no responses, “We do not want students to be ‘yes no’ machines,” instead, “we want our students to be successful thinkers” capable of doing well when taking standardized tests, but thinking beyond those tests.

Promoting research in the classroom is also on the minds of our teacher candidates in their lesson and unit planning. Having immersed themselves in the Understanding by Design process, they now realize how all of this focus on questioning relates to research in the classroom in order to “guide [the students] own research and exploration.” Deep questioning “encourages students to dig deeper” and “research topics in depth.”

Finally, our teacher candidates are building skills for discourse in the classroom. The focus on questioning has furthered their depth of understanding that allows students plenty of time to respond to questions and to engage in peer discussions--critical for our 21st century learners. One of the teacher candidates even reflected upon her own learning process as a young student saying

that she avoided responding to questions posed by her own teachers because she knew those questions had right and wrong answers and fearful that by risking a response she might be incorrect. She believes that many essential questions do not have answers that could be categorized as correct or incorrect, and instead sees the value in giving students “the ability to talk and defend their reasoning,” give “current perspectives and views, listen to others, and then create a concrete understanding of the topic in question” when they respond to questions. She notes that in the end, “students may not agree, but the goal of questions should not be to get to the right answer; they should be to stimulate thought processes.” Another teacher candidate said, “In deep questions, there are usually multiple correct answers and ways to go about answering.”

Implications for Learning

By preparing teacher candidates to carefully consider and craft concise questions designed to take our students further in their learning, we know that students will become critical thinkers prepared to respond to the rigor and challenges that 21st century career paths are demanding. Through immersion in and critically thinking about the Understanding by Design principles and processes, teacher candidates can make significant changes in their abilities to plan lessons and units that not only engage but expand the learning of students in classrooms. Through careful scaffolding by their instructors, our teacher candidates are teaching for meaning that can only lead to learning that prepares for students who can make connections, engage in important discussions with their peers, and prepare them for responding to questions beyond standardized tests.

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