

Editorial
The Artistry of Education:
Questions, Constructions, and Creations of Understanding

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Dr. Barbara Garii authors our guest editorial for this issue. She is a former middle school, high school, and college mathematics teacher who taught in Seattle, Washington; Cali, Columbia; and Ouagadougou, Burkina Faso. Dr. Garii's recent work investigates cognition and understanding; particularly how students use metacognitive and reflective practices to enhance learning. Additionally, she has been exploring how adjunct faculty members understand their teaching practices and share pedagogical and curricular knowledge with core faculty members. Dr. Garii's current research project studies how teachers and students co-reflect and co-understand classroom behaviors. In the following editorial, she addresses the connections between the five articles of this issue of the Journal of Authentic Learning with three themes in education: reflective practice, constructivism and the importance of beauty. Preceding introductory remarks by Co-Editor Audrey C. Rule

Education is a visionary profession. Educators share a world of possibilities with their students, and the students themselves use these possibilities to create an unimagined future. Educational leadership suggests an ability to imagine and enact pedagogical and curricular opportunities that strongly support all teachers and all learners.

Educational leaders improve practice by interpreting the nuances of the classroom. They reflect on their experiences, learn from their students, and create new opportunities for understanding the content and context of schooling. They make an impact because they share both their knowledge and their questions as they vary their perspectives, considering problems, issues, concerns, and curricula from many angles and through different lenses. They juxtapose knowledge from different arenas in ways that support the questioning of their own assumptions while simultaneously creating learning scaffolds for themselves and their students, scaffolds that invite contemplation, reflection, humor, and connections.

Educational leadership requires the ability and desire to influence the way we teach, the way we learn, and the way we work together to support students and teachers. While many educational leaders are established professors and classroom teachers, it is heartening to see that preservice teachers, often undergraduates, are entering the ranks of leadership as well. Working together, these three groups — professors, teachers, and preservice teachers — influence the process of schooling by sharing ideas and experimenting with innovative forms and structures. Both individually and collectively, these educational leaders contribute their unique visions of teaching and learning by encouraging their students and their peers to reevaluate what they know and understand about the life of the classroom.

Education leadership is an art. Artists are reflective practitioners (Thornton, 2005), as are educational leaders (Starratt, 2005). Both use their reflective skills to challenge "traditional ideas of art" (Mack, 2005) and reshape our understanding of education

(Starratt, 2005; Scalfino, 2002) while considering and reconsidering traditions and standards. To ensure that students are exposed to viable and valid educational content and form, in ways that support students' different learning styles and academic interests, educational leaders must continuously reevaluate educational traditions. Where does "schooling" take place, how should curricular imperatives be taught, what pedagogical innovations are effective, interesting, and viable?

This issue of the *Journal of Authentic Learning* is bound by three central themes: reflective practice in education; the role of constructivism in learning and teaching; and the experience of beauty in the educational process. The authors suggest possibilities while asking important questions about the expectations of teachers and students. Leadership, and artistry, in education require supportive research to suggest promising new paths. Published research, however, including educational research, is always a work-in-progress, open for interpretation and reanalysis. The articles published here are no exception in that they offer possibilities for us to explore as they ask us to push beyond our own boundaries of teaching experience. These papers also incite unasked questions or provide unintended answers that beg us to consider how learning and teaching may be otherwise understood.

The ability to be self-reflective about teaching practice ensures that pedagogy remains grounded in the classroom and responsive to the needs of students (Chant, Heafner, & Bennett, 2004; Rodgers, 2002). Such reflection — whether the focus is on the curriculum, the pedagogy, or both — allows teachers to develop a nuanced view of their own practice. In this issue, two groups of undergraduates (Barnhardt, Kahn, Leo, Howard, Kempf, & Rule, 2005; Chase, Faulkner, Smithers, Chetney, Schwartz,

Rubas, & Rule, 2005) begin the process of understanding what makes a powerful teacher. They grapple with the creation of unit plans that incorporate a variety of curricular areas and pedagogical concerns.

Using science as a basis for integrating several academic areas, including mathematics, language arts, and art, both groups of preservice teachers reflect on the reality of synthesizing the unit planning skills learned within their own didactic classroom experiences with the hands-on, practical realities of implementing the plan in an early childhood classroom. The act of collaboration — with peers, with fellow teachers, and with the preschool children themselves — creates challenges that must be explored and overcome for the unit to be a successful integration of scientific understandings that, coincidentally, meet the developmental needs of the classroom. Chase and colleagues consider the role of preservice teacher reflection on lesson development and student assessment and use those reflections to consider how lessons may be improved and refined without appreciably changing the structure of the lessons. Additionally, they consider the creation of hands-on materials and contemplate how children define, experience, and react to beauty as part of their learning experience.

Barnhardt and colleagues consider how reflection may be used to extend lessons in new directions that include problem based learning tasks that are age- and developmentally appropriate for young children. Reflection, for these preservice teachers, becomes a self-assessment tool used to ensure the strength of the planning cycle.

Although not considered in these articles, reflection can also be an instrument used to understand, assess, and evaluate the actual learning that occurs in the classroom. What did the children discover and how did

that learning mesh with the goals of the lessons? How were the children able to take their learning out of the context of the classroom?

These two works also explored how preservice teachers construct an understanding of the planning process and the students they are teaching. The preservice teachers recognized that their students would learn more readily if they used manipulatives to help them create their own learning scaffolds. However, it is less clear that the preservice teachers understood that they, themselves, were also creating learning scaffolds for themselves as they developed the science lessons for the children. As the rubber stamps, crayons, and plastic animals were concrete materials for the preschoolers, the lesson plans and, in a sense, the children themselves were the manipulative materials used by preservice teachers. An iterative reflective process allowed the preservice teachers to see their own learning processes mirrored in the ideas constructed by the children, even though the preservice teachers' learning did not occur within a college classroom. Thus, I encourage the authors of these papers to investigate their own understanding of the value of metacognition as they explore their construction of knowledge in the light of what it means to be a reflective practitioner.

Both Rule, Sobierajski, and Shell (2005) along with Bischoff and Read (2005) encourage preservice teachers to actively reflect on their teaching experiences. How do elements of beauty impact learning (Rule, Sobierajski, & Shell, 2005)? What learning occurs when "schooling" takes place outside the classroom (Bischoff & Read, 2005)? Asking and answering these questions offers preservice teachers opportunities to gain confidence in their own practice.

From a different perspective, Mack (2005) asks undergraduate students to reflect

on aspects of art, beauty, and history as students construct their own understanding of cultural change. The act of asking non-standard questions about teaching and learning can only enhance one's ability to understand how and when learning "happens."

How do we discriminate between a beautiful object that is distracting and a beautiful object that invites us in to explore its intricacies and wonder as part of the process of learning and understanding (Flint, 2001)? This is the question raised by Rule and colleagues who consider the conflicting facets of beauty, motivation, distraction and legibility in the development classroom materials. Their findings suggest that while both preservice teachers and fourth graders appreciate well-designed materials, fourth graders may be better able to cope with distraction than the teachers. Or, perhaps, fourth graders still understand learning to be a duality that includes both struggle and resolution, while pre-service teachers primarily recall, or want to support, the successful culminations of learning experiences (Hamermesh & Parker, 2005).

This work raises a provocative question: are all elements of education worthy of continued reflection? As academic researchers, exploration of all questions is valuable. However, within the limitations of the K-12 classroom, teachers must make carefully weighed choices concerning their use of time as they create learning opportunities for their students. Without being explicit, this paper forces us to consider the emphasis of beauty in the classroom. While beauty is important to both teachers and students, the differential value placed on beauty alone suggests that teachers may relax some of their concerns, knowing that students can cope with ambiguity, integrate distractibility, and continue to learn successfully.

Learning to teach science has traditionally been an area of preservice teacher preparation that is fraught with anxiety and tension. Bischoff and Read (2005) stress the importance of offering preservice teachers opportunities to listen carefully to children as the children struggle with the same scientific concepts that the preservice teachers are grappling with (Center for Science, Mathematics, and Engineering Education and the National Research Council, 1996). At the same time, preservice teachers must have opportunities to understand and integrate academic content knowledge, pedagogical abilities, and teaching dispositions in ways that foster improvement and change through self-reflection and self-evaluation (National Council for the Accreditation of Teacher Education, 2002). Bischoff and Read encourage preservice teachers to consider what it means to be a science teacher as these novice teachers combine a variety of pedagogical methods, specific content, and participation in a professional community to prepare science lessons that are taught to young visitors at a campus-based science museum.

Preservice teachers are challenged to reflect on the process of teaching in numerous ways: they learn how to use on-the-spot reflection to assess and evaluate student learning; they practice using self-reflection techniques to assess their own knowledge, skills, and understanding of the academic content; and they consider how reflection is used to enhance participation in a professional team of educators. From this solid grounding, I urge preservice teachers to translate these small-group, mentored experiences into the realities of the whole classroom, with students who represent different learning styles, different knowledge bases, and different learning-scaffold creation strategies. Additionally, novice teachers may use these supported

opportunities to consider how these experiences impact the creation of their own learning scaffolds. The lack of explicit recognition of mirrored constructivism begs for further exploration. Candid discussion of the parallels between K-12 student construction of knowledge and preservice teacher construction of knowledge would allow preservice teachers more easily recognize the non-linear nature of learning and understanding (Rittle-Johnson, Siegler, and Alibali, 2001).

Mack challenges us to consider how beauty and art may be used provocatively to construct historic knowledge and understanding within the confines of a traditional college history classroom. By creating a Dada-ist environment that challenges students' ideas concerning the role of art in society, Mack guides students through a constructivist experience that deepens their understanding of Western European society and culture in the pre-World War II period. In this article, questions of beauty become the tools that students use to reflect on the meaning of historical content as they explicitly and collaboratively construct a scaffold of understanding that illuminates the psycho-social realities of the interwar period. By exploring the interplay of reflection, construction, and beauty outside the pedagogy of teacher education, Mack brings these themes to the forefront and illustrates how these themes are enacted outside of the K-12 environment. From here, Mack is now ready to investigate the teacher's perpetual questions: What's next? What curricular imperatives can be consistently met within this woven pedagogy? What else is embedded in this intertwined pedagogy that supports student learning? Must we explicitly acknowledge this intertwined pedagogy as we design and enact lesson plans?

Together, these articles paint a picture of how teachers think and learn about their students and their classrooms, and the authors implicitly challenge us to consider how we support our own learning and our students' learning through the integration of reflection, constructivism, and beauty. As educational leaders, they are offering us models of differential thinking about the hard questions that confront us in the classroom. As artists, these leaders challenge us to reconsider the way we think, learn, and work collaboratively to ensure that schooling and education do not remain stagnant; they remind us that much "schooling" occurs outside of the strict confines of the classroom. That preservice teachers can bring such insights into their own work suggests that the future of K-12 education is in good hands; that these pedagogical insights are being enacted outside of the K-12 classroom and outside of the teacher education environment suggests that the work of teacher education is seeing the light within other disciplines. Taken together, these articles point to the reality of authentic learning: authentic learning acknowledges the difficult questions raised both implicitly and explicitly by these authors and gives us room to explore possibilities, what-ifs, and potentials.

How do we grow as learners, as teachers, as educators, as human beings? We grow by asking questions, contemplating answers, considering alternatives through different lenses, experiences, and perspectives. The authors of these works have given us, the readers, some initial thoughts for consideration. The next step is for us to step into their shoes, as leaders and as artists, to question our own teaching assumptions and consider, "What's next?"

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