Applying Constructivist Theory to "Redefine" Teaching and Teacher Education: Two Universities' Perspectives

Paul J. Vermette
Department of Education
Niagara University

James C. Shuman
Department of Education
St. Lawrence University

Abstract

The authors make the case that constructivist theory provides a meaningful approach to answering Darling-Hammond's (l999) call for the profession to "re-define teaching." The case is extended to teacher education as the arena where new teachers develop their own conceptualizations and definitions of teaching. Employing a constructivist approach within the structure of the article, the authors describe how the re-definition is being applied in their own teacher education programs at Niagara University and St. Lawrence University, and they challenge readers to consider ways to impact their own programs in similar ways by applying constructivist theory.

Introduction: "Teaching does not equal telling"

If you are like many of us working in teacher education at this time, the above statement is filled with meaning and promise, and yet, paradoxically, is *not genuinely believed* by many teachers, laypeople and policy makers. Six years ago, Linda Darling-Hammond, then Chair of the National Commission on Teaching and America's Future, stated that "the traditional image assumes that teaching…is mostly telling and learning is mostly listening and reading" and then cited "a need to redefine teaching" (Darling-Hammond, l999, 29). Given the realities of American life, the current research on human cognition, the presence

of standards, and the needs of our working citizens, it is time to take up Darling-Hammond's call to effect a genuine "redefinition" of teaching.

This article seeks to examine the meaning of this Darling-Hammond's statement for classroom teaching and the teacher education profession. To us, the passage is the clearest and most important piece of thinking about schooling in this age of reform; we see it as a clarion call for focused change and as the standard for a new concept of "teaching." Her conceptualization may become the prevailing *vision* of the educational enterprise, as it already has at both of our own University-level teacher education programs.

Consider your initial responses to the following four questions as you read the passage from Darling-Hammond:

1) **When does learning take place?**
2) **How does a single lesson touch all students in a class?**
3) **What do teachers *do* to cause learning?**
4) **What qualities, abilities and dispositions are held by the finest teachers?**

Here is the passage:

> Providing the kind of preparation that teachers need to meet current demands for stepped-up student learning requires a fundamental re-definition of the act of teaching. The traditional image, based on a classroom in which a teacher lectures and students take notes, assumes that teaching is mostly talking and learning is largely listening and reading. Under this model, teachers need little more than the ability to string together comprehensible lectures. But research on cognition and learning suggests that this kind of

> teaching does not help most people learn. Students learn best when new ideas are connected to what they already know and have experienced; when they use real-world problems to apply and test their knowledge; when they are given clear, high goals with much practice in reaching them; when they can build on what they have learned; and when their own interests and strengths are a springboard for learning.
>
> The complex learning needed to use knowledge for problem-solving and invention rather than rote recall depends on immensely skillful teaching that does far more than "cover the curriculum." It requires teachers who can present critical ideas in powerful ways and systematically organize a learning process that builds on students' prior knowledge and addresses their different needs. Expert teachers need to be diagnosticians and planners who can take all of the variables into account and teach in a reciprocal relationship to their students' learning. The task is not one that can readily be "teacher proofed" through curriculum packages, textbooks, or testing systems, as schools have tried to do for most of this [20th] century. To teach so that all students actually learn, teachers must learn about their disciplines so that they can translate what they know into effective curriculum, teaching strategies and assessments.
>
> (Darling-Hammond, l999, 29)

We contend that Darling-Hammond's call to re-define teaching embraces the tenets of constructivist theory:

1) Learning begins with the interests of the learner.

2) Learning happens when students construct knowledge by integrating prior knowledge with new information.

3) Learning happens best when learners can apply new concepts and information to authentic tasks using problem-solving and critical thinking.

(Flynn, Mesibov, Vermette, & Smith, 2004)

In the following sections, we describe how the teacher education programs at Niagara University and St. Lawrence University have developed their curricula to respond to Darling-Hammond's call for a re-definition of teaching, preparing prospective teachers to apply constructivist theory in their own practice. It is

hoped that, using the four questions stated above, readers will reflect on the theoretical implications explained and fully examine the practical applications being reported in this article.

Applying Constructivism in Teacher Education at Niagara University

There are five critically important implications for constructivism in teacher education programs flowing from Darling-Hammond's statement. The ways in which Niagara University's Teacher Education Program is attending to them are listed below:

Modeling. Foremost is the need to assure that the teaching done in teacher education is itself constructivist and integrative; it must model the concepts presented in this article. If students are not exposed to this type of instruction and reflect on it, they will *not* be able to generate it on their own or recognize its utility when they do see it in action.

Ultimately, higher education is not known as a hotbed of active learning, either in education courses or in the liberal arts courses that dominate many programs. Students who score well in college courses are often ones who "study" well (i.e., they read and remember) and who attend well in listening situations like lectures. Such college experiences *do not prepare them* for effectively reaching today's diverse students in K-12 classrooms. In short, prospective teachers' own learning histories are powerful levers *against* acceptance of the re-definition.

Several years ago, Don Mesibov of the Institute for Learning Centered Education stated that, “Secondary teaching in New York will change *when* the [state-level] examinations change and when college teaching changes.” (l998) If he is correct, college-level educators must teach in the ways that model how learners learn best, connecting new ideas to individual prior knowledge bases, using real world cases for analysis, and challenging students to do work of high quality using their own interest and experiences as springboards. This creates in a genuine paradigm shift for college teaching, such as the one that Tagg (2003) suggests *is* taking place: l) from the teaching classroom to the learning-centered classroom, and 2) from student remembering to student understanding.

At Niagara University, several events have occurred to move us closer to this ideal new state. First, the Teacher Education Department has committed itself to Constructivism, making it the cornerstone of the rationale for our NCATE-approved “knowledge-base” in teaching. Second, we are committed to (INTASC standards-based) portfolio assessment, forcing us to create a student-centered focus. And third, the development of a campus-wide Committee on College Teaching and Learning (CCTL) has engaged the entire University to move toward active, integrated learning. The University adopted this approach as a plank in its next strategic plan, and the interdisciplinary nature of the CCTL assures that the constructivist approach is becoming the universally accepted norm for instruction throughout the disciplines.

Experiencing Theory in Practice. A second implication is that teacher education courses dealing with human learning and development issues must be tied *directly* to classroom learning experiences *and* the field work that is linked to those courses. Often the very course that purports to teach Vygotsky's theory and Piaget's theory fails to reflect their theories in its instructional design! In addition, courses often fail to incorporate reflection on the principles of learning or activities that both demonstrate and engage students in them, completely undermining the vast potential value of the learning experience for our students.

Teacher education fieldwork and student teaching present the greatest opportunity to demonstrate the new definition in action. Largely through the efforts of Niagara supervisor Ted Werner, a well defined constructivist supervisory process has been developed for use in student teaching. (Vermette, Harper, Rinaldo, & Werner, 2004) What was once a "right and wrong" evaluation system has become a much more reflective process, one that is tightly aligned with the program's standards and the constructivist approach used and studied in Methods courses. Supervisors are far less likely to monitor progress than they are to facilitate it; they are more likely to ask "good questions" than to give "good advice." They frequently respond to student teachers' questions with ones of their own, just as the in-class instructors do. Field supervision, the least studied aspect of teacher education, has become the ultimate laboratory of the constructivist commitment at Niagara.

Reframing Past Experience. A third implication of Darling-Hammond's statement is the need for students to analyze their own past learning histories, those of their associates, and their own current experiences. Much can be drawn from deep reflection on the successes *and* failures realized in past and present attempts to learn.

Most often the *vision* of schooling drawn from Darling-Hammond is so far removed from students' idealized versions of their own schooling that (a) a reality check is needed and (b) a felt need for change must be developed. Teaching often doesn't look the way that Darling-Hammond's passage suggests, and new teachers must realize the need for change before a commitment to the new vision can be internalized. One cannot simply take the paradigm-shift from teacher-focus to student-focus for granted; it must be forged through many and varied learning opportunities in the teacher education program.

Envisioning Restructured Classrooms. A fourth implication is the recognition of a fundamental shift in classroom structure. The utility of collaborative learning is now unquestioned. (see Marzano, Pickering, & Pollock, 2001) Cooperative Learning is a staple in every teacher educator's "toolbox." (see Vermette, l998) However, it may be that we are just at the beginning of its actual practice in teacher education classrooms on the college level. Four examples of

cognitive/emotional outcomes are resulting from restructured classroom settings using collaborative groupings in Niagara's teacher education courses:

1) Solving a problem or creating a presentation or a tangible representation with trusted fellow students is often the most enjoyable and meaningful part of a course.

2) Teams of student "thinker-learners" are more likely to produce effective consideration of new ideas than individuals working alone. Thoughtful analysis of a case study by a small group produces both challenges and support for individuals' positions. When one considers that all meaningful dialogue is "upper level Bloom", the power of collaborative discussion is redoubled.

3) Students who generate new ideas frequently want to *share* them with trusted peers, both to get recognition and to get feedback. If presented only to a professor, a new idea may not get the quality or quantity of response needed for further reflection.

4) Working together in college classes allows one person to knowingly feel a responsibility to others and to recognize the impact of his or her efforts. Student grades reflect this outcome. In situations where students interdependently collaborate, this reality is most evident (and powerful). It is like the real world, where the work of one member of an organization has a profound effect on others. Grading is different, too, as each individual grade *does* impact on the grades of others.

Collaboration *within* teacher education courses thus allows students to envision the restructured classroom called for by Darling-Hammond. Even if directly contrasting 12 (or 16) years of successful traditional schooling for a prospective teacher, using and modeling collaborative teaching strategies can provide a new level of understanding for students studying to be teachers.

Sustaining Institutional Learning. The final implication drawn from Darling-Hammond is that programs must adopt a "continuous improvement" mentality and philosophy. Many programs pay lip service to this approach but have not

fully explored its potential. Monitoring outcomes, analyzing them, and effecting change based on them "teaches" new teachers by example. Completing a teacher education program that employs sustained institutional learning will help students better understand the change process and the reform movement as it unfolds in their own lives.

Applying Constructivism in Teacher Education at St. Lawrence University

St. Lawrence University is nationally selective liberal arts college of approximately 2000 students. It has a small secondary teacher education program at both the graduate and undergraduate levels. The University has a long history of looking at teacher education from a student-centered perspective. Here are the ways that Darling-Hammond's five implications are evidenced at St. Lawrence University:

Modeling. Many of the members of the faculty are committed constructivists. Their courses model the practices that they want their students to develop. This is both true for full-time faculty and for adjunct faculty who are practicing professional teachers recruited from local school districts to teach courses on teaching. Adjuncts are hired for their ability to model constructivist practice and to explain the supporting research. They are "master teachers" in their own schools, tying the University program to existing quality schooling in the region. Interestingly, several new courses that focus on the use of constructivism have been generated from these partnerships.

St. Lawrence is a founding partner of the *Learning Centered Resource Collaborative.* Each summer the Collaborative hosts a week-long planning conference at St. Lawrence, in which the principles of constructivism are utilized (and examined) and education professionals (teachers, school staff, and administrators) complete a self-determined project for implementation in their home district. Many participants are teachers from the wider University geographic area, and the summer conference assists St. Lawrence in generating experience with, and confidence in, constructivist theory. Many students in the University's education program attend the conference and learn about constructivism from it. The conference itself, and the University's role in the conference, are modeling at its best.

Experiencing Theory in Practice. Every teacher education course at St. Lawrence requires a field experience, and many students volunteer to do well beyond the mandated 100 school-based hours. The Department of Education has created an integrated set of expectations that allow each individual to develop his or her own understandings of the contemporary classroom. The requirements assure that students have multiple opportunities for analysis of their observations, insights and generalizations. Reflective journals are required in every course, and student reflection is integrated into the coursework regularly. At the end of each course, students are asked to write an essay on their own

"emerging professionalism" – a running record of their progress as developing teachers throughout their teacher education program.

Student teaching, the culmination of the program also allows for experiencing theory in practice. Cooperating teachers are selected for their strengths both as mentors and their own abilities to teach using constructivist strategies. Reflection is emphasized (again), and the student teachers' end-of-semester electronic portfolios always include another final reflection on emerging professionalism. In short, experiencing constructivist theory in practice, and reflecting on it, is an integral part of the entire teacher education program in systematic ways.

Reframing Past Experience & Envisioning Restructured Classrooms.

These aspects of the re-definition are exceedingly difficult to accomplish. Like many institutions, St. Lawrence is in the midst of its transformation. Developing a large cadre of teachers committed to the new *vision* is occurring, but only gradually. Changes in teacher education can only progress in relationship to the realities of local schools. Assisted by dedicated local practitioners and the work of the Collaborative, the vision is slowly and permanently changing.

Happily, many of the education courses at St. Lawrence are of a form suggested by Darling-Hammond. Prospective teachers experience and examine cooperative learning groups, utilize authentic project-based assessment, use techniques such as jigsaws and carousels, and routinely build in approaches

reflecting Choice Theory, multiple intelligences, and journaling. Learning from these activities is essential to reframing past experience.

Sustaining Institutional Learning. While the history of the program has been aligned with constructivist belief, the advent of national accreditation demands has enhanced our work and our time-table. Outcome measures have been established and aligned with program goals. They are checked at "gateposts" in each student's journey through the program, and through surveys of our alumni. The results are studied by faculty and audited by a University committee charged with monitoring progress and making recommendations. The structure of the data sets was developed by a team of University teacher educators at a previous Summer Constructivist Conference, as mentioned above. Thus, on-going assessment is allowing us to make data-based decisions for growth and change.

Summary (and a Return for Closure)

At the beginning of the article, we asked you to consider some answers to four focusing questions; we hoped that this process would help readers to reflect on our program descriptions. To close, we re-visit the four questions and provide our own responses.

1) When does learning take place?

Darling-Hammond states that learning best takes place when individual students create their own new meanings and understandings, not (necessarily) when the

teacher presents or tells. The principles inherent in her statement are student-centered, not teacher-centered, and they are aligned with the descriptions of teacher education we offer in this article. To Darling-Hammond, students (learner-thinkers) learn when they solve problems, create products, or share their ideas. (see Gardner, l999). Learners must be active agents of their own change, and teaching must create the conditions to provoke the necessary cognitive engagement.

It may sound simple, but the next generation of teachers must think far more about their individual learners' cognition than about their own presentation skills. This is a significant paradigm shift for education, and it is well represented by the use of constructivist strategies such as journaling, learning centers, cooperative learning, and projects.

2) How does a single lesson touch all students?

Most of the time, the old fashioned lessons simply do not touch all students; they were likely never intended to reach them all in the first place. Typically, the lessons had been set up to provide information and opportunities for those students who wished to participate and/or keep a record of it. However, the use of springboards that start sessions with the individual students' prior knowledge and understandings, and which culminate in the individual creation of an authentic product, has turned the [teacher centered] lesson plan into a [student-centered] "planned learning experience." (Vermette, Harper, Rinaldo, &Werner,

2004) This is essentially what Darling-Hammond has asked for: a new kind of teaching that involves every student in meaningful thinking on important content on a regular basis.

3) What do teachers *do* to cause learning?

Piaget suggest that learning occurs when schema change through reflection on (or reaction to) experience; Vygotsky suggests that dialogue and exchange of ideas change minds. Darling-Hammond suggests that thoughtful experience leads to deep understanding, as do Dewey (1916), Bruner (1966), Brooks and Brooks (1993), Wiggins and McTighe (1998), and a host of others. In none of these cases is *teacher-telling* the direct cause of learning. The "reciprocal relationship" called for by Darling-Hammond suggests that the teacher's most important role is that of *motivator* – s/he helps students commit to the cognitive actions necessary for thought and learning. This facilitative role may well challenge the traditional image of the "master teacher," but it truly recognizes the internal realities of human thought. We offer a new, two-part slogan: "Telling is *not* teaching; student analysis and integration *is* learning."

4) What qualities, abilities and dispositions are held by the finest teachers?

Teachers who succeed, that is, teachers whose students think, share, read, solve problems, get higher test scores, invent neat things, have powerful insights, recognize their own biases, obey good laws, seek truth, contribute to the

common good, and develop their own goals, are generally those who assume that:

1) learners do the learning
2) youngsters are to be treasured and cared about
3) their job is to help each student reach his or her potential
4) they should nurture and support individuals
5) schools are *not* assembly-lines
6) they should motivate students to think for themselves
7) test scores are not the only measure of success
8) the classroom should feel like a 'community of learners"
9) they should be like researchers of their own experience
10) they are professional decision-makers acting in their students' best interests
11) they are on a continuous development journey.

Nothing in this list is inconsistent with Darling-Hammond's expectations for re-defined teaching. Darling-Hammond is moving us to a far more complex job description than most Americans currently hold for teachers, but one that is both more beneficial and more attainable in the near future.

Our answer to Darling-Hammond's call is encapsulated in the teacher education programs in which we work. We believe that teaching must embrace learner-centered constructivism and a commitment to every student. We believe that in order for teaching to be truly re-defined, all of teacher education must also embrace this approach. Making the changes needed to create, disseminate, and effect a genuine re-definition of teaching is not an easy task, yet we are committed to continuing the shift and ask others to do so as well. Changing paradigms is complex, chaotic work, but in this case, the payoff will be worth the effort.

References

Brooks, J. G., & Brooks, M. G. (1993). *In search of understanding: The case for constructivist classrooms*. Alexandria, VA: Association for Supervision and Curriculum Development.

Bruner, J. (1966). *Toward a theory of instruction*. Cambridge, MA: Harvard Univ. Press.

Darling-Hammond, L. (l999). Educating teachers: The academy's greatest failure or its most important future? *Academe*. 85, 1, 26-33.

Dewey, J. (1916). *Democracy and education*. New York: MacMillan.

Flynn, P., Mesibov, D., Vermette, P.J. and Smith, R.M. (2004). *Applying standards-based constructivism: A two-step guide for motivating students*. Larchmont, NY: Eye-on-Education.

Gardner, H. (l999). *Intelligence reframed: Multiple intelligences for the 21st century*. New York, NY: Basic Books.

Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works: Research-based strategies for increasing student learning*. Alexandria, VA: Association for Supervision and Curriculum Development.

Mesibov, D. (l998). Private correspondence.

Tagg, J. (2003). *The learning paradigm college*. Boston:MA: Anker Publishing.

Vermette, P.J. (l998). *Making cooperative learning work: Student teams in K-12 classrooms*. Saddle River, NJ: Prentice-Hall/Merrill.

Vermette, P., Harper, L., Rinaldo, V., & Werner, T. (2004). From "lesson plan" to "planned learning experience:" Shifting the focus of novice teachers' thinking. (in preparation).

Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.

