

Using Research as the Means of Improving Classroom Teaching

Dennis W. Sunal



Introduction

Bereiter and Scardamalia (1993, Chap. 4) have provided a picture of teacher expertise and how it develops. They make a very strong distinction between teachers who become very good at what they do, characterized by developing routines and high degrees of automaticity, and teachers who become experts. In their view, though experts do develop routines and high degrees of automaticity, this is not the critical characteristic of expertise. Instead, what distinguishes experts from those who just become competent is what the expert does after reaching the point of accomplishing in routine fashion what once required difficult problem solving. They describe expertise as a process, not an end point, which is characterized by what they refer to as reinvestment and progressive problem solving.

With experience many human tasks can get to the point of automaticity. The advantages here are a) pattern recognition and proceduralization reduce the need for conscious deliberation (problem solving) thereby reducing the need for limited cognitive resources, b) the task can get done with accuracy and effectiveness. According to Bereiter and Scardamalia what looks like expertise, the rapid and efficient application of procedural knowledge after pattern recognition is characteristic of experienced individuals. Those who reinvest now available mental resources to improve performance are, or will become, experts.

We can all become highly skilled at some tasks and carry them out with great automaticity. Some examples are driving, going up and down stairs, brushing one's teeth, doing the dishes, using a calculator, lighting a cigarette, making hamburgers, and delivering mail. For some tasks rapid automatic action is all that is required. Continued practice over long periods of time should lead to high levels of performance and then level off. However, for some human activities, routines and automaticity, while very important, should not be the endpoint. In the professions for example, highly skilled teachers can always improve. There is always more to be learned. Doctors have yet to eliminate all diseases. Clinical

psychologists are not always successful no matter how skilled the therapy. Teachers are not successful in having all students learn.

Perhaps we all know of teachers who, after years of teaching, have it all down. They cover the required material, assign and grade papers efficiently, and handle classroom management with minimum hassle. However, they do not take advantage of opportunities to improve. They do not engage in regular processes of improving their teaching based on student behavior. Essentially, they do not choose to reinvest available cognitive processes to once again engage in problem solving processes. Bereiter and Scardamalia refer to *reinvestment and subsequent "progressive" problem solving as the process of expertise*. In their view, it is this process which both leads to, and is characteristic of, expertise.

The teacher who is successful with many students but continues to look for alternate methods to help improve perceived effectiveness would be engaged in this process. The teacher who revises instruction on a regular basis seeking to improve student learning and to keep up with advances in the profession would be engaged in this process.

Shulman (1986, 1987) has written extensively about teacher knowledge and has proposed a model for the acquisition of new knowledge about teaching. The model he proposes associates new knowledge to several components of classroom interaction and instruction. Shulman has suggested that knowledge acquisition for teachers is cyclical. The cycle begins with the transformation of content into a form that can be understood by specific learners. A teacher then makes a decision concerning the instructional strategies and materials to be used. These components described by Shulman most likely occur as teachers plan for instruction. Teacher planning and preparation is followed by instruction itself, behavior that can be observed. This is what we see a teacher "do" when interacting with students. Though this activity has been preceded by planning and preparation, the delivery of instruction is an activity that is fluid, and often subject to change as teachers make in-flight decisions and employ strategies based on the feedback they receive from students (Clark & Peterson, 1986).

Shulman (1987) considers on-going informal evaluation (formative) of student understanding and misunderstanding, as well as formal evaluation (e.g., recitation, written work, and tests) (summative), to be part of the cycle that allows teachers to learn from experience. The cycle is completed and new knowledge can be acquired when the evaluation is also directed at one's own teaching. The instructional outcomes are compared to the original objectives, and the strategies that were used are evaluated in terms of effectiveness. It is at this point that a teacher can realize new knowledge relating the content, the methods used, and the specific learners. This knowledge can influence future planning and preparation for instruction and the cycle begins again. Shulman notes that new understanding and teacher knowledge do not automatically occur as part of a cycle of teacher planning, instruction, and evaluation. These routine teaching activities provide opportunities for knowledge acquisition that could result in increased teaching effectiveness. New knowledge will help increase effectiveness only if it is used and applied to future instructional situations.

Research studies of expertise come to some very important conclusions:

- 1) ***Experience alone is insufficient*** for the development of expertise. Instead, it is what individuals do with their experiences that determine if they actually improve.

- 2) ***Expertise is not an end point***, it is more like a process. Deliberate practice is on going, even for those who have attained high levels of performance. Progressive problem solving is a characteristic of skilled individuals, e.g., experienced teachers, who choose to reinvest effort to make improvements.
- 3) ***Deliberate choices must be made*** to engage in purposeful behaviors to improve teaching.
- 4) Whether it is deliberate practice, progressive problem solving, or the pursuit of pedagogical content knowledge (PCK), ***expertise is the purposeful application of reflective thought***. Furthermore, ***the cycles of action, analysis and revision are examples of practitioner (action) research***.

Bereiter, C., & Scardamalia, M. (1993). *Surpassing ourselves: An inquiry into the nature and implications of expertise*. Chicago: Open Court.

Clark, C., & Peterson, P. (1986). Teachers' thought processes. In Merlin C. Wittrock (Ed.), *Handbook of research on teaching* (Third edition, pp. 255-314). New York: Macmillan.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57, 1-22.

*Modified from articles Inquiry, Reflection, Assessment, and Accountability and Smith, R. & Tiberius, R. (2007). The nature of expertise: Implications for teachers and teaching, retrieved at <http://teaching.uchicago.edu/pod/smithexpertise.html>

Issues Critical in the Development of Expertise in Action Research

The questions asked during this process generally involve:

- What is action research?
- What role can it play in the classroom?
- What are the elements and characteristics of effective action research in the classroom?
- How does one perform action research?
- What do actual cases of action research look like in the classroom?
- Why should I become an “action researcher”?