Conceptions of Educational Achievement

NANCY S. COLE

Two major conceptions of educational achievement are characterized: achievement as basic skills, and facts versus achievement as higher order skills and advanced knowledge. The impact of such conceptions on the topics pursued by researchers, the ways teachers think about their teaching, and the public’s view of educational goals are noted. In addition, the author argues that present dominant conceptions are inadequate given the importance they have. More adequate conceptions need to (a) integrate divergent views of achievement, (b) carry clear instructional implications, and (c) focus on long-term goals of education.

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Perhaps the most important question in education is, What do we want students to learn? The issue of the desired educational achievements of youngsters is especially acute today. Young people are a decreasing portion of the total population and, consequently, we will need a larger portion of them to be well prepared educationally to meet the future needs of the nation. Because they will face increasingly complex adult roles as citizens and workers, there is an even greater need than in the past for students to attain advanced educational goals. If all children are to develop advanced intellectual capabilities through their schooling, then we must understand and act upon the nature of this desired achievement.

Conceptions of educational achievement—how we view and characterize achievement—affect what teachers teach and how they teach it, as well as what educational researchers study and how they study it. Furthermore, those conceptions influence the nature of the communications between researchers and practitioners. Conceptions of achievement have a broad impact on how practicing educators think about what they do, and such conceptions affect how educators explain the educational enterprise to the public. Conceptions of educational achievement have critically important effects on scholarship, educational practice, and public views of the very nature of schooling.

My first purpose in addressing the conceptions of educational achievement is to call attention to their centrality to our thinking and to their impact on the broader educational enterprise. My second purpose is to suggest that our present conceptions of educational achievement are not adequate to the central role that they play and to describe ways in which our conceptions of achievement need to be improved to have a more positive impact on research and practice.

Different Conceptions and Their Impact

Conceptions of educational achievement change with the times, are influenced by many factors, and take different forms for different people. Even so, it is possible to identify two major conceptions of achievement and to consider ways these dominant conceptions affect research, practice, and the public understanding of education. The two conceptions can be characterized as the achievement of (a) basic skills and facts, and (b) higher order skills and advanced knowledge. This necessarily simplified characterization is not intended to indicate that one is right and the other wrong. Surely, there is considerable “right” in both. The purpose here is to consider the great differences between the two conceptions, the tensions between them, and the substantial differences in impact on thinking about schooling that the two views have had.

Achievement of Basic Skills and Facts

A characterization of the conception. By the 1960s, behavioral psychology dominated conceptions of learning in psychology and in education. The learning theory with which a generation of educators grew up came quite directly from this field. It was heavily based on studies of animal learning and was closely connected with the learning of specific, discrete skills described as precise, well-delimited behaviors.

This conception of learning had the advantages of focusing quite clearly on the desired outcome (e.g., the behavior) and of suggesting specific instructional actions (e.g., reinforcement) that should be followed to produce the desired learning. These advantages, among others, made this conception an effective theoretical base for some areas of education, most notably special education.

The theories that supported behavioral psychology were well suited to the political times of increasing public concern that children were not learning to read, write, nor perform basic arithmetic operations. There was also public concern that students were not learning basic factual information. The result of this merging of theoretical and political orientation was a decade (the seventies) in which the strongly dominant conception of educational achievement in public discussion was in terms of specific, separate, basic skills and facts.

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This conception was promoted by, and in turn promoted, developments in educational measurement. Much educational achievement testing turned away from a long-time concern with testing general skills in broad areas of the school curriculum and turned toward testing smaller, more curriculum-specific skills. This trend, which has gone largely under the name of criterion-referenced testing or objectives-based testing (Popham, 1978), further promoted the notion that important school skills can and should (a) be listed as discrete pieces of desired competence, (b) have immediate behavioral outcomes that can be segmented and individually tested, and (c) be clearly linked to a specific school curriculum. Notions of generalizability of skills or use of information beyond immediate demonstration of "mastery" were overwhelmed by pressing concerns to test curricular goals directly, match curriculum and tests, and assure accountability for learning of the basic skills and facts.

This conception of educational achievement, in interaction with the political times, greatly influenced the way the public came to view education during the 1970s. Furthermore, the demands for accountability that became prominent during this period were shaped by this conception. We see the influence of the conception today in many state-mandated achievement tests, in some notions of functional literacy, in lists of knowledge that all educated people should have, and in studies designed to demonstrate to test curricular goals directly, match curriculum and tests, and assure accountability for learning of the basic skills and facts.

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Such a conception has affected teacher behavior, too. Informal and formal reports abound of teachers paying increased attention to sets of objectives and the tests designed to measure student mastery of them (e.g., Dorr-Bremme & Herman, 1986).

Variations in the conception. Of course, this is an over-simplified view of the conception, if not of its impact. A closer look would identify considerable differences in the conceptions of basic skills (reading, writing, computing) and of facts although both are treated here in a single category. The skill-fact distinction is one that influences thinking about achievement in many important ways. It takes the form of distinguishing things people learn (facts) from things people learn to do (skills) in the context of the basics. In a broader context, the distinction can be described as content versus process learning.

Even conceptions of basic skills, taken separately from facts, present, in reality, a more complicated view. For example, some people believe that reading is the sum of individual skills, such as recognizing letters, associating letters and sounds, pronouncing words in sequence, and paraphrasing meaning—skills that can be listed, directly taught, and subsequently assessed with little ambiguity. On the other hand, the field also has a more complex view of reading that includes the ability to use the skills noted above to construct meaning from text, to guide the reading process with self-correcting strategies, and to use reading as an enabling skill for other learning (e.g., Anderson, Hiebert, Scott, & Wilkinson, 1985).

Similar distinctions can be made in views of writing and arithmetic. Views of writing range from concern with reproducing letters, words, phrases with correct spelling and accepted grammatical form, to concerns with communicating effectively through writing to different audiences. Basic math skills are, to some, the ability to add, subtract, multiply, and divide in response to explicit instruction to do so. To others, the basic skills include being able to use those operations in solving problems in which the problem solver must identify the needed operation(s).

Factual information has not been subject to as many distinct points of view. Public discussion has centered around the facts and information that are desirable for students to know. Even so, complexity is added when analyzing in more detail the type of knowledge that is desired. What does "knowing about" the items on Hirsch's (1987) list mean? Do we want students to know the dates of the Civil War, when it occurred in relation to other events, why it was fought, or its impact on the nation? All might be viewed as factual information, but the different types of knowledge move toward a level of understanding not commonly meant by "facts."

Although, as noted, there are more complex conceptions underlying even basic skills and facts than are typically reflected in public discussions, it seems fair to characterize the predominant conception of achievement of basic skills and facts as one in which achievement is represented by recall of separate facts or simple demonstrations of discrete skills that can be taught, learned, and assessed in direct forms and in short periods of time.

Achievement of Higher Order Skills and Advanced Knowledge

Alongside the conception of achievement as mastery of basic skills and facts, and often competing with it, stands a dramatically different conception of educational achievement. This conception focuses on a more complex level of achievement—the achievement of higher order skills (using such terms as critical thinking or problem solving) and of advanced knowledge of subjects (using words such as understanding or expertise). Explicating these higher order views of achievement has been of concern for centuries. Today these views of achievement counterbalance the view of achievement as a collection of basic skills and facts.

In contrast to the strong roots of the basic-skills-and-facts conception in behavioral psychology, the higher-order-skills-and-advanced-knowledge conception has a long historical tradition in philosophy and more recently in cognitive psychology. In its recent forms, this second conception began to have considerable influence in the late 1970s and the 1980s, in part a reaction to the simpler view of achievement described earlier. Even today, however, these more complex conceptions of educational achievement represent a less well organized trend with more diffuse impact than the basic skills trend, probably because of the greater complexities they attempt to capture.

Because this conception of achievement as higher order skills is more diffuse and represented by thinking arising out of several different contexts, it is not simply characterized or described. Here I note a few of its individual manifestations to provide a sense of this second conception of educational achievement.

Conceptions based in philosophical traditions. Educational philosophers have traditionally been concerned with issues closely tied to the nature of educational achievement. The role of education in society and the determination of appropriate educational goals are closely related to conceptions of desired educational achievement. For example, one need not read much of Dewey (1900, 1916) to see conceptions of
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form learned, and the latter as the combination of principle and use of principle, often in practical situations. Broudy is concerned that we have underemphasized the associative uses of schooling (increasing the web of associations students have) and the interpretive uses (translation of ideas, giving meaning). The last two uses provide what Broudy calls the allusionary base of thinking and represent critically important uses for schooling in terms of future thinking and learning.

The replicative and applicative uses of schooling include some of the conceptions of achievement described here as basic skills and facts, although they go beyond the simple version of that conception. However, in the associative and interpretive uses of schooling, Broudy is describing types of achievement he believes have a lasting and potent impact on students who achieve in this way.

As with the first conception, there is a process-content distinction that can be made within the higher order conceptions. Ennis focuses on a general process-type of skill, and Broudy, while retaining some of this process orientation, moves as well to advanced knowledge and understandings that provide the allusionary base (complex information as well as process).

Cognitive science approaches. The most cohesive recent source of development that represents these higher order conceptions of achievement comes through cognitive science approaches to the study of learning and instruction. These approaches have focused on understanding high levels of expertise as a route to understanding learning.

For example, according to Glaser (1984, 1988) and Rabinowitz and Glaser (1985), expert knowledge demonstrates:

- a coherence of what is known (relatedness)
- knowledge of domain-specific patterns or principles
- use of patterns and principles in problem solving
- recognition of situations and conditions for using knowledge
- highly efficient performance
- use of self-regulating skills (meta-cognitive strategies, such as forward reasoning)

These characteristics, presumably describing a desired goal of education as well as a conception of educational achievement, differ markedly from the characteristics associated with achievement as basic skills and facts noted earlier. Gone are the discrete skills and facts that can be listed and taught in the short term. In their place are a more integrated coherence of knowledge and its use—a new kind of mix of content and process.

Further, as cognitive science approaches have been used to better understand what school children comprehend about what they are learning, results have appeared that would not have been expected from conceptions of achievement as basic skills and facts. Students work problems correctly using arithmetic rules in which they have been instructed, but when probed, often show lack of understanding of the operations they used or the principles involved in using them (Baroody, 1987; Resnick, 1987; Saxe, 1988). They can repeat science facts and principles, but in explanations of events fail to use them. Furthermore, they often fail to use those skills and facts in new problem situations in which they would be relevant (Bransford & Johnson, 1972).

By contrast, children can be taught to use self-guiding and monitoring strategies in learning to read, as we see from reciprocal teaching (Palinscar & Brown, 1984), reading recovery (Clay, 1985; Pinnell, DeFord & Lyons, 1988), and many other studies of reading behavior. As noted above, reading itself has come to be viewed as a higher order skill involving use of personal knowledge to construct meaning from text, use of monitoring and self-correcting strategies, and use of schema or patterns to guide reading (Anderson, Hiebert, Scott, & Wilkinson 1985; Anderson & Pearson, 1984; Bransford & Johnson, 1972).

Other examples. Many other examples of this general trend of concern with higher order thinking and advanced knowledge from roots less specific than philosophy or cognitive science can also be found. Sizer’s intellectual focus for essential schools (1983, 1986) and Boyer’s concern with deeper, more general learning in high school (1983) and college (1987) are obvious examples. Even amid a back to the basics mood,
we find the business community promoting a concern for high school graduates who have learned how to continue learning, having developed higher order problem solving and reasoning skills (Committee on Economic Development, 1985).

Clearly, conceptions of achievement in terms of higher order thinking and advanced knowledge have attained prominence and influence. Also, they contrast markedly order thinking and advanced knowledge have attained critical role of guiding thinking about education. Three I have characterized two major conceptions that have

Needed Dimensions of Our Conceptions

I have characterized two major conceptions that have dominated thinking and writing about educational achievement in recent years—achievement as basic skills and facts and achievement as higher order skills and advanced knowledge. In my view, neither conception is sufficient to the critical role of guiding thinking about education. Three characteristics of an adequately rich notion of educational achievement, missing in these present conceptions, are noted next. If conceptions of achievement are to assist us to meet the challenges to education, the conceptions must address the following areas:

- the need for an overarching framework for understanding the two separate conceptions and their relations to each other, along with a more suitable language to address the issues the two different views present
- the need to attend explicitly to the implications of our best and richest conceptions of achievement for curriculum and instruction
- the need to more clearly relate our conceptions to both the short-term and long-term purposes and goals of schooling

Needed: An Integrative Framework

Lack of integration in present conceptions. The fact that we have two such different conceptions playing dominant and conflicting roles illustrates a major limitation that our field must overcome. At present, neither conception provides a good basis for the integration of the other, and proponents of each conception pay little attention to the other. Little in the skills and facts conception points to anything beyond. The higher order skills and advanced knowledge views often acknowledge the existence of more elemental skills and knowledge, but generally offer little sense of their importance or how they are used in the higher order activities. The public understanding of education is hurt by allowing these two disconnected conversations about educational achievement to continue separately.

In terms of public understanding of the integration of the two, it appears that we have come little further than Bloom and colleagues took us over three decades ago (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956). At that stage in our history, we recognized the two conceptions as different levels of a hierarchy of achievement. Today that view seems inadequate and not in any real sense integrative. Even so, views that focus only on one or the other aspect of achievement may do greater disservice in terms of the public view of education than an inadequate model that addresses both. We must make progress in understanding educational achievement in ways that acknowledge all the parts noted here—basic skills, facts, higher order skills, and advanced knowledge.

Cognitive science seems to come the closest to providing that needed integration in its recognition of facile, efficient, routinized use of basic learning in expert performance (e.g., see Anderson, 1983, on automaticity). However, in expert performance much of the knowledge base of an expert is used in ways that make it difficult to recognize, understand, or explain. Thus, although there has been progress in this line of thought and promises to be much more, a framework for understanding and reconciling quite different views of achievement will not come easily.

Problems of language. One of the problems in making our conceptions more adequate in this regard seems to be that our language has carved up our concepts in ways that make it very hard to put them back together again. The word achievement, for example, has come to be associated more with the conception of basic skills and facts than with the conception of higher order skills. By contrast, we often speak of the latter as abilities rather than as achievements. We seem to associate achievement with things that can be instructed in reasonable time periods and ability with things that may be less quickly instructable. We also think of abilities as more freely generalizable to future actions than achievements.

In fact, people seem to find it difficult to think and talk about school instruction to produce the types of things we call abilities. Yet surely problem solving, critical thinking, expertise, and associative and interpretive capabilities develop over time with experience, instruction, and learning. These abilities are important achievements that we want school experiences to help develop. To consider an adequately broad conception of achievement to encompass these issues, we will have either to correct the limitations of our present terms, or to create new terms.

To have an impact on public views of education, we must develop both broader conceptions of achievement and a language for communicating with the public that more adequately represents the breadth of achievement that we would wish for all school children.

Needed: A View to Instructional Implications

A characteristic that deserves careful consideration in judging the adequacy of any conception of educational achievement is the extent to which it has implications for curriculum and instruction. This was a strength of the conception of the behavioral psychologists and has been a weakness of the higher order thinking conceptions. With the public using our conceptions to drive instruction and accountability of the schools, we require conceptions that provide good instructional guidance toward important achievements.

Cohen (1987) described our ancient instructional inheritance in terms of teachers as tellers, knowledge as facts, and learners as passive accumulators. Surely, instruction as delivery of information by a teacher to passive recipients remains a common public view of the instructional process and a view quite consistent with many aspects of the basic-skills-and-facts view of educational achievement. Today’s reformers, like Dewey long before them, present quite a different picture of teaching and learning. For example, Sizer
(1988) and Schlechty (1984) speak of "student as worker" and stress that reciprocal teaching engages the student in active work. Teaching as telling is incompatible with this active learner role. We see new conceptions of teaching arising—teaching as coaching or as guiding and monitoring learning. We also see increased attention to the context and processes of learning and their connection to what is learned (Brown, Collins, & Duguid, 1989; Saxe, 1988).

Conceptions of educational achievement have many implications for the instructional process that must be examined more explicitly and be made a part of the public communications of the conceptions. Conceptions of achievement and how students reach desired states of achievement must be woven together. With integrated conceptions of achievement, language that helps explain and develop those conceptions, and ideas about instruction to produce the desired educational achievement, we will be many steps forward in meeting our responsibility to the nation's educational system.

Needed: A View to Long-Term Educational Goals

Even with all these accomplishments, there will still be another requirement if conceptions of educational achievement are to have the needed impact on thinking about schooling. This requirement concerns the issue of not only what we want students in school to learn today, tomorrow, and this year, but what we want them to remember and be able to do many years hence.

Some years ago, Cooley and Lohnes registered the concern that evaluations of educational programs need to recognize and better accommodate long-term as well as short-term educational goals (1976). We see some of the same concern in Broudy's Uses of Schooling (1988). Broudy sees the allusionary base as learning that stays with and changes the learner, a long-term goal.

One way to address the issue is to ask: What do we remember from our high school or college education that makes us different, educated people today? Something prepares us to respond in new ways, to make connections, and to put new information in an already learned context. If we have such long-term goals, we must attend to them explicitly and with great care.

We seem to focus too much on the immediate goals of schooling. Although most educators believe in the importance of long-term goals, we focus on this year's goals often without reference to what the student needs to be prepared to do next year. We have lost a sense of connectedness in our curriculum and in our schools. We treat specific educational objectives as ends in themselves, even though most of what we want children to learn in school could be constructively viewed as means to further learning and growth (Phelps & Cole, 1988).

Present conceptions of educational achievement as basic skills and facts tend to focus attention on the short-term goals of schooling. We must have conceptions of achievement that help us attend to the long-term goals. Such conceptions will surely have some flavor of the higher order skills and advanced knowledge conceptions described here. They also must be sufficiently rich to inform us simultaneously about the short-term goals and how those will help us to reach the long-term goal of producing educated adults.

Summary

Several points have been made. First, conceptions of educational achievement are prime means by which we communicate a sense of the goals of education. Second, currently popular conceptions of educational achievement are not sufficient to that task. Third, to provide more guidance to researchers, practitioners, and the public, conceptions of achievement need to be better in at least three ways: (a) in providing a more comprehensive, integrated framework and language for describing the intellectual goals of schooling; (b) in providing clearer consideration of instructional implications that follow from the nature of desired educational achievement; and (c) in providing attention to the long-term as well as short-term educational achievements desired for this nation's students. Creating such richer conceptions is an enormous and difficult challenge, but one that is essential to substantially improving the educational enterprise.

Notes

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1 Although the name criterion-referenced became popular after Glaser & Nitko (1971) used the term, there is little relation between the popularized version and the Glaser-Nitko approach. The popular application has involved a largely unconnected pool or list of objectives (each linked to test items) whereas the Glaser-Nitko proposal was for tests linked to a scale of increasing competence or achievement corresponding to an instructional pathway toward increasingly advanced forms of learning.

References


Erratum
“Corporate Mergers in the Publishing Industry: Helpful or Intrusive?” by H. C. Rudman, January/February 1990 issue of Educational Researcher: Contrary to information provided in Table 1, page 15, MacMillan (London) and St. Martin’s Press are not owned by Maxwell Communications.

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