

Education for Thinking
By Deanna Kuhn
Harvard University Press, 2005

- In the absence of understanding what good thinking is, in the real-life contexts in which it matters, educators are more likely to agree on promising educational activities and settings for fostering thinking than on what the thinking skills are that they seek to induce in these settings. They may end up having much to say about *how*, but relatively little about *what* it is important for students to achieve.
- For all their conscientious efforts to teach their students, teachers do not often consider what their students think they are learning and why they think it might, or might not, make sense to learn it. Yet students' ideas about these matters are likely to play a critical role in what they take away from the many hours they spend in classrooms. If students cannot answer the question, "Why would I want or need to know this?" they will find it difficult to direct more than superficial attention to what is being taught. Even if they remember the information for a test, it remains unconnected to anything else they think about or know and inevitably will soon be forgotten.
- The hard-working students from the best-practice school were the ones who expressed cynicism about the value of their studies, not the struggling-school students who exhibited so little day-to-day interest in their schoolwork. Adults' most important role is to introduce students to the kinds of intellectual activities that have a value that becomes evident in the course of engaging them and developing the skills they entail. Students must discover this value for themselves; but by serving as guides and coaches as students engage such an activity, adults model both their own commitment to the activity and a belief in its worth.
- Inquiry and argument are these kinds of activities. Students readily experience and appreciate their value as they engage in them and gain mastery of the skills they entail. They are empowering. Once they are found useful in pursuing individual and collective goals, no further incentive is needed for practicing and perfecting the skills they entail.
- At the multiplist (sometimes called relativist) level of epistemological understanding, knowledge consists not of facts but of opinions, freely chose by their holders as personal possessions and accordingly not open to challenge. Knowledge is seen as emanating from the knower, rather than the known, but at the significant cost of any discriminability among competing knowledge claims. That ubiquitous slogan of adolescence – "whatever" – holds sway. The multiplist may come to equate lack of discriminability with tolerance. Because everyone has a right to their opinion, all opinions are equally right.
- The transition from multiplist to evaluator is another story. It is helping young people climb out of the multiplist well that requires the concerted attention of parents and educators, especially as it is this progression that is critical to the development of intellectual values.
- How does a teacher help a student to analyze and interpret data or to think critically and logically to make the relationships between evidence and explanations? What teachers have to settle for is assessment of the activities themselves rather than the skills that students do or do not display in engaging them. If an activity seems a rich one – that is, one that students maintain sustained involvement in over a period of time without losing interest – then it is deemed an inquiry activity successful for the age group. But even in these relatively favorable circumstances, teachers would be hard-pressed to identify just what skills the students are acquiring or to document other progress.

- Mrs. O regularly emphasized how essential it was to acquire the academic skills she was teaching because of their importance in students' future school careers. On the other hand, she gave little attention to why the subject matter itself might be important.
- Students' written reports on their inquiry activities consisted largely of accounts of what they did rather than of what they found out. They did not present an argument in which data were used to justify claims. If both data and conclusions were present, they were likely not to be linked. Students did not relate results to their own knowledge.
- Coordinating new evidence with existing mental models of a domain is exactly what students are asked to do in inquiry learning.
- The most fundamental constraint and the one that most directly and seriously undermines inquiry learning, is lack of firm differentiation between inferences deriving from existing beliefs and inferences deriving from the evaluation of new evidence. If students are not clear whether their claim is based on their existing beliefs or on the new information they have examined; and, in the latter case, if they are not clear about what that information is, they are not in control of the process of theory-evidence coordination into their own thinking. Inquiry learning, for such students, is at best a limited enterprise. They may learn a little about their topic, but they will not be learning how to learn.
- Four-year-olds show a fragile distinction between the two kinds of justification, "how do you know? And "why is it so?". In other words, the evidence for their claim (the outcome cue in this case) versus their explanation as to why it is plausible (the theory-generating cue). Rather, the two merge into a single representation of what happened, and the child tends to choose as evidence of what happened the cue having greater explanatory value as to why it happened. Thus, in the race example, young children often answered the "how do you know (he won)?" question not with evidence ("he's holding the trophy") but with a theory of how this state of affairs makes sense ("because he has fast sneakers").
- Much emphasis in the current enthusiasm for inquiry learning as the centerpiece of a contemporary curriculum has been on making rich sources of information available, especially via the internet, letting students conceive their own questions and affording them the freedom to pursue those questions. Too little attention has been paid to identifying the intellectual skills that students need to develop if they are to make use of modern technology not as an end in itself but as a resource in the service of inquiry.
- As well as having the conviction that there is something to find out, they must see finding out as worth the effort it entails. If they do not, despite educator's best intentions, inquiry activities run the risk of being reduced to undirected search for something that might turn out to be interesting or, alternatively, simply demonstration of what is already taken to be true. In the latter case, the inquiry context becomes an opportunity to illustrate what the student already conceives of as the way things are, rather than a context of discovery and analysis
- Three phases of the inquiry process: inquiry, analysis and inference.
- Young children's theory revision occurs implicitly and effortlessly, most often without conscious awareness of intent. Young children think with their theories, rather than about them. The intention to seek knowledge transforms implicit theory revision into intentional inquiry, or what may also be called scientific thinking. Theory revision becomes something I do, rather than something that happens to me outside of conscious awareness. The process of theory-evidence coordination becomes explicit and intentional.
- The inference phase is the culmination of inquiry. The investigator must come to terms with what has been accomplished: What can I claim and how do I know?

- The important educational implication is that this meta-level or metacognitive development is at least as important a goal as cognitive development. If nothing has been done to influence the meta level, newly acquired behaviors will quickly disappear once the instructional context is withdrawn and students resume meta-level management of their own behavior.
- Educators commonly see one of their major roles as helping students to acquire broader and deeper understanding of the physical and social world around them. Yet it is the capacity to advance these understandings that is involved in development skills of inquiry. Doing so is at least as important as an educational goal.
- Research has demonstrated the superiority of collaborative over individual reasoning and problem solving.
- As educators, our goal is twofold: to improve the quality of students' arguments and to expand the range of topics they regard as worth arguing about.
- A further obstacle that teachers face in seeking to develop students' argument skills has more to do with the culture in which young people grow up today, one in which what one thinks is more important than why and reasoned argument is not highly valued in much of American culture.
- In neither classroom did students direct their remarks to one another. This communication pattern worked against the continuity and sequence characteristic of genuine discourse. Each student's utterance was a new, and isolated, communication to the teacher. As a result, the other risk – of the activity consisting of nothing more than opportunities for self-expression – escalated.
- Children tend to regard knowledge as entirely factual while adolescents regard it as consisting of nothing but opinions, chosen by their owners like personal possessions and not open to challenge.
- Tolerance can translate into a willingness to listen to another's view but not to engage it. The disinclination to continue is partly one of being reluctant to invest the intellectual energy that discourse requires. But equally it is one of fearing that to criticize another's view is disrespectful, hostile, and ultimately injurious. The argument and the person are not distinguished, leaving injury to one tantamount to injury to the other.
- A multiplist epistemology requires significantly less intellectual energy to maintain than any other. It is not surprising that many adults never develop beyond it.
- Modern American culture is not one that holds intellectual values in high esteem. The implicit message underlying the constant reports of pollsters on every conceivable topic is that we are much more interested in what people think than why.
- My claim in this chapter has been that it is well worth the effort and challenge to identify argument as an educational goal and to press for the conditions necessary to realize it. Together with inquiry, it constitutes the best possible education we can offer young people for life.
- Students must learn to ask "what, and how, does the writer know?" while preserving the distinction between their own and the writer's perspectives and knowledge. In addition, they must accurately represent available data, distinct from the writer's claims and from their own knowledge.
- Epistemic characteristics of an argument pertain to its form rather than to its content. Epistemic characteristics apply to any argument of a given general form; non-epistemic characteristics apply only to the argument's particular content. Appreciating the epistemic characteristics of an argument thus reflects understanding of the structure of argument itself.
- Constructing individual arguments, especially in writing, may not be the most effective way to build argument skills. Students often do not understand the purpose of their writing, beyond fulfilling a course requirement. They lack the missing other with whom they are disagreeing, the individual in contrast to whom they can articulate their own position.

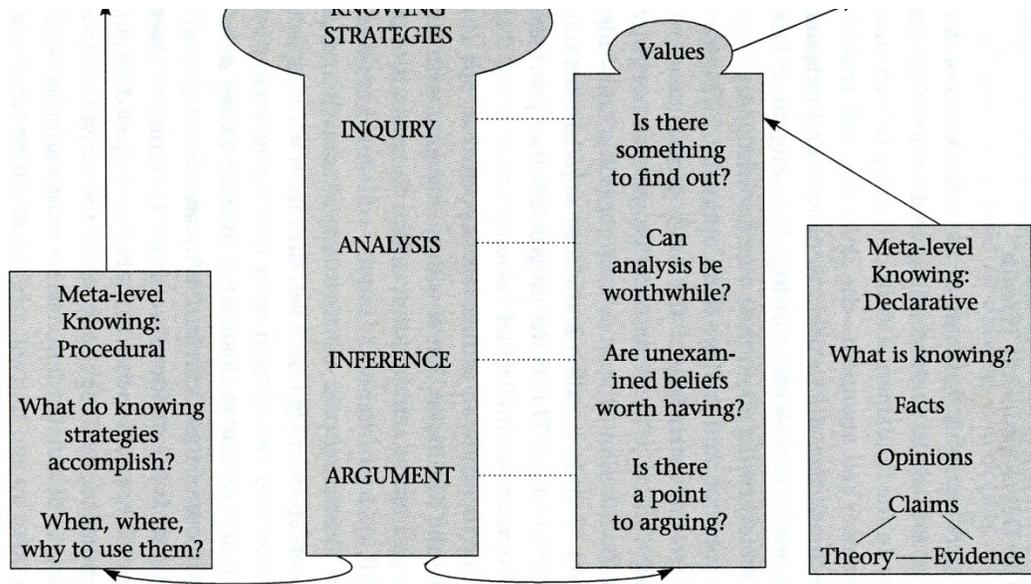


Figure 9.1. Developing skills, understanding, and values. From D. Kuhn (2001).
 How do people know? *Psychological Science*, 12, 1–8.