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The Rationality of Educating for Wisdom

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Sternberg's call for an educational focus on teaching wisdom can be viewed as part of a nascent trend to reorient educational psychology away from exclusive focus on the so-called algorithmic level of analysis. The thrust of his research program on wisdom, like those emphasizing rationality as a critical construct in educational psychology, is on aspects of cognition heretofore backgrounded: the goals and beliefs of the learner, thinking dispositions, values, morality, cognitive styles, and the evaluation of cognition in terms of normative criteria.

I very much welcome Sternberg's call for an educational focus on teaching wisdom. Although we have often quarreled about the appropriate terminology in which to couch our arguments (Stanovich, 1993a, 1993b, 1994a, 1994b; Sternberg, 1993, 1994), as cognitive scientists we have been allied in our efforts to broaden the conceptual focus of both education and psychology. The goal I advocate would be more aptly described as educating for rationality (Stanovich, 1994a, 1999, 2001) rather than wisdom—but there are clear affinities between my goal and Sternberg's.

LEVELS OF ANALYSIS IN COGNITIVE SCIENCE

Sternberg's focus on wisdom serves to turn educators' attention toward a different level of analysis in a conceptual hierarchy that has been much discussed in cognitive science. This conceptual hierarchy provides a way to understand the difference between intelligence and rationality, and it is an equally good way to contrast intelligence with wisdom. Levels of analysis in cognitive theory have been discussed by numerous theorists (e.g., Anderson, 1990; Dennett, 1987; Marr, 1982). Although the terminology is enormously variable, cognitive scientists generally recognize that we need to understand human behavior at three different levels: at a biological level, at an algorithmic level concerned with the computational processes necessary to carry out a task, and at what has been termed (see Anderson, 1990) the rational level. The latter level is concerned with the person's goals, beliefs relevant to those goals, and the choice of action that is rational given the goals and beliefs (Dennett, 1987; Pollock, 1995).

Cognitive psychology has been almost exclusively focused on the algorithmic level of analysis and, until quite recently, has given short shrift to concepts at the rational level of analysis. However, Sternberg has been among a handful of investigators (e.g., Ackerman & Heggestad, 1997; Keating, 1990; Moshman, 1994; Perkins, 1995; Sternberg & Ruzgis, 1994) who have emphasized such concepts—for example, thinking dispositions (see Stanovich & West, 1997; Sternberg, 1997). I have previously proposed (Stanovich, 1999) that thinking dispositions should be distinguished from cognitive ability (intelligence) because the two constructs are at different levels of analysis in cognitive theory and do separate explanatory work. Intelligence refers to efficiency of the collection of cognitive processes that it is necessary to posit to understand the algorithmic level of cognitive functioning (Engle, Tuholski, Laughlin, & Conway, 1999; Hunt, 1999; Sternberg, 1985). Thinking dispositions, in contrast, are better viewed as cognitive styles that are more malleable (Baron, 1985). I have conceptualized them as higher level control states that determine goal activation and knowledge recruitment during decision making (Stanovich, 1999). When they vary, they are telling us about the individual's goals and epistemic values—and they are indexing broad tendencies of pragmatic and epistemic self-regulation.

I think that wisdom likewise belongs at the rational level of analysis and thus can become partially dissociated from intelligence just as Sternberg argues. By and large, psychometric instruments such as IQ tests have tapped cognitive capacities almost exclusively and have ignored cognitive styles, thinking dispositions, and wisdom (Baron, 1985, 1988; Stanovich,

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1994a; Sternberg, 1997). Importantly, Baron (1988) argues that, in ignoring dispositions, the IQ concept "has distorted our understanding of thinking. It has encouraged us to believe that the only general determinants of good thinking are capacities, and this attitude has led to the neglect of general dispositions" (p. 122)—a point Sternberg has emphasized in many of his own writings (e.g., Sternberg, 1997). An emphasis on wisdom balances this tendency by directing attention to the possibility of variation at the rational level of analysis.

Thus, thinking dispositions are reflective of rational-level psychological structure. In searching for systematic differences in rational-level psychology that are not explainable by variation in algorithmic capacity, my research program (see Stanovich & West, 2000) is congruent with the new emphasis called for by Sternberg. It is congruent in other ways as well—for although my focus has been on the concept of rationality rather than wisdom, because I conceptualize the former quite broadly, there are many points of commonality in my own approach and Sternberg's.

TAKING A BROAD VIEW OF HUMAN RATIONALITY

My reason for emphasizing the commonalities is that I take an expansive view of the concept of rationality—one that has affinities with Sternberg's concept of practical intelligence (Sternberg et al., 2000) and with his orientation toward wisdom developed in the present target article. In fact, the concept of rationality that is focal to my research program (Stanovich & West, 2000) encompasses the concepts of rational thought in the philosophical and cognitive science literature that bear closest affinities to practical intelligence and wisdom (Nozick, 1993; Pollock, 1995; Sloman, 1999). Specifically, philosophers and decision scientists have distinguished between the rationality of belief and the rationality of action. The rationality of belief—how accurately a person's belief network represents the external world—has been variously termed theoretical rationality, evidential rationality, or epistemic rationality (Audi, 1993a, 1993b; Harman, 1995). The rationality of action—how well a person's actions maximize the satisfaction of their desires, given their beliefs—has been variously termed practical, pragmatic, instrumental, or means–ends rationality (Audi, 1993a, 1993b; Harman, 1995; Nathanson, 1994; Nozick, 1993).

Consider the dictionary definition of wisdom quoted by Sternberg (2001): "the power of judging rightly and following the soundest course of action, based on knowledge, experience, understanding, etc." This definition is nearly identical to the notion of instrumental rationality—choosing the right course of action based on current goals and beliefs. Additionally, the use of the terms "knowledge, experience, understanding" seems to require that the individual's beliefs be good ones—well calibrated to the environment and to the information available. If I am correct in reading in this connotation, then the definition encompasses epistemic rationality as well as instrumental rationality. Thus, this dictionary definition, as given, amounts to saying that to be wise one should achieve exemplary standards of epistemic and instrumental rationality.

But Sternberg's (2001) concept of wisdom goes beyond this dictionary definition—as does my concept of rationality. To understand this further affinity between my concept of rationality and Sternberg's framework for the concept of wisdom, it is necessary to introduce Elster's (1983) distinction between thin and broad theories of rationality. Instrumental theories are most often thin theories—they accept the individual's goals and beliefs as they are, and the evaluation of action centers only on whether the person is optimally satisfying desires given beliefs.

The strengths of the thin theory of instrumental rationality are well known. For example, if the conception of rationality is restricted to a thin theory, many powerful formalisms (such as the axioms of decision theory) are available to serve as normative standards for behavior (Jeffrey, 1983; Savage, 1954). The weaknesses of the thin theory are equally well known (Elster, 1983; Nathanson, 1994). In not evaluating desires, a thin theory of rationality would be forced to say that Hitler was a rational person as long as he acted in accordance with the basic axioms of choice (Savage, 1954) as he went about fulfilling his grotesque desires. Sternberg (2001) mentions this paradox when he notes that "dictators such as Adolph Hitler and Joseph Stalin may have been knowledgeable and may even have been good critical thinkers, at least with regard to the maintenance of their own power."

Likewise, if we adopt a thin theory of epistemic rationality—if we submit beliefs to no normative criteria—then the psychiatric ward patient who acted consistently on his belief that he was Jesus Christ would be judged a rational person. Although some theorists may feel that these aberrant cases may be worth tolerating to gain access to the powerful choice axioms that are available to the thin theorist, others view with alarm the startlingly broad range of human behavior and cognition that escapes the evaluative net of the thin theory (see Stanovich, 1999).

Nevertheless, moving to a broad theory of rationality—one that encompasses epistemic evaluation as well as a substantive critique of desires—comes with a cost. It means taking on some of the knottiest problems in philosophy. For example, one problem is that concerns about practical rationality can always seem to trump epistemic rationality in a way that would seem to render a normative evaluation of the latter virtually impossible (see Foley, 1991). Likewise, a theory of broad rationality that encompasses the evaluation of the content of desires must address some extremely difficult issues (Nozick, 1993; Richardson, 1997). Nevertheless, various criteria have been proposed for deeming a desire irrational. For example, several theorists (see Nathanson, 1994, for a review) have argued that desires that, on reflection, we would rather eliminate than fulfill are irrational. Other theorists ar-

gue that conflicting desires, or desires based on false beliefs, are irrational. Finally, it could be argued that the persistent tendency to develop goals whose expected utility is different from their experienced utility is a sign of irrationality (Kahneman, 1994).

A broad theory of rationality, with its emphasis on evaluating the content of desires, and with its emphasis on properly calibrated beliefs (beliefs accurately reflecting the world and appropriately gauged to the rest of the information in the person's knowledge network) brings rationality and wisdom closer together conceptually. However, Sternberg's concept is in fact even broader than this, as he carefully points out. He notes, for example, that his notion of wisdom is broader than the notion of practical intelligence because wisdom, in his view, uniquely involves the balancing of intrapersonal, interpersonal, and extrapersonal interests. But even on this view, we can trace some affinities to broad notions of rationality. Hargreaves Heap (1992) critiques thin theories of instrumental rationality by noting that they ignore what he terms expressive rationality: "that an action is as much an expression of those beliefs regarding value as it is the execution of a plan to satisfy given objectives" (pp. 21–22). He argues that "making sense of the self cannot be shoehorned into the means-end instrumental framework because it is not an objective which fits the instrumental model" (p. 22). Finally, even among decision theorists more traditional than Hargreaves Heap, there has been considerable work (some quite formal) on intrapersonal temporal discounting and interpersonal utility comparison (Ainslie, 1992; Elster & Roemer, 1991)—precisely the type of formal work that is a necessary prerequisite to a model of the intrapersonal, interpersonal, and extrapersonal tradeoff concerns that define Sternberg's concept of wisdom.

VALUES AND WISDOM: THE NORMATIVE ISSUE

Sternberg (2001) rightly does not shy away from so-called "value" issues in his essay. For example, I think he is correct to argue that psychologists have focused on constructs such as intelligence because they appear value free, and that we should not be paralyzed in our study of wisdom because we all cannot agree on a set of universal values. There is, of course, a strong tradition in philosophy of considering a degree of rationality as a prerequisite for moral action (see Gauthier, 1986).

It is important to emphasize in this context that value issues are not static—they are not in a realm separate from science because they cannot progress. In fact, many cognitive scientists are developing models of what it means to say that values can progress or regress (e.g., Churchland, 1995; Clark, 1996; May, Friedman, & Clark, 1996). This is not to say that these issues will be easily resolved. But we will not make progress unless we take them on. Likewise, the debates about normative models in the study of rationality still are carried out with vigor (Gigerenzer, 1996; Kahneman & Tversky, 1996; Stanovich & West, 2000; Vranas, 2000). Nevertheless, most theorists would argue that, at least from a long-term perspective, normative models have changed in a progressive fashion (Jepson, Krantz, & Nisbett, 1983; Krantz, 1981; Stanovich, 1999; Thagard & Nisbett, 1983).

Like the study of wisdom, the study of rationality and critical thinking is a normative–evaluative endeavor. Specifically, if one's goal is to *aid* people in their thinking, then it is essential that one have some way of *evaluating* thinking. For example, in the current educational literature, teachers are constantly exhorted to "teach children how to think" or to foster "critical thinking." However, the problem here is that "thinking" is not a domain of knowledge. As Baron (1993) noted, "we teach Latin or calculus because students do not already know how to speak Latin or find integrals. But, by any reasonable description of thinking, students already know how to think, and the problem is that they do not do it as effectively as they might" (p. 199). Thus, the admonition to educators to "teach thinking skills" and foster "critical thinking" contains implicit evaluative assumptions. The children *already* think. Educators are charged with getting them to think *better* (Adams, 1993). This of course implies a normative model of what we mean by better thinking (Baron, 1993).

A somewhat analogous issue arises when thinking dispositions are discussed in the educational literature of critical thinking. Why do we want people to think in an actively open-minded fashion? It can be argued that the superordinate goal we are actually trying to foster is that of rationality (Stanovich, 1994a). That is, much of what educators are ultimately concerned about is rational thought in both the epistemic sense and the practical sense. We value certain thinking dispositions because we think that they will at least aid in the former and are essential for the latter. By a parallel argument we could equally well claim that the superordinate goal is to educate for wisdom.

In short, a large part of the rationale for educational interventions to change thinking dispositions derives from a tacit assumption that actively open-minded thinking dispositions make the individual a more rational person—or as Sternberg argues, a wiser person. But that puts a burden of proof on the shoulders of advocates of such educational interventions. They must show that thinking dispositions are associated with the responses and thought patterns that are considered normative (and that the association is causal). This is precisely the empirical evidence that we (Stanovich, 1999; Stanovich & West, 1997, 1998, 2000) and other investigators (Kardash & Scholes, 1996; Klaczynski, 2000; Kuhn, 1991; Schommer, 1994) have begun to compile. Thus, the field is beginning to develop a normatively justified foundation for an emphasis on thinking dispositions. In the nascent area of educating for wisdom, similar preliminary signs of progress are accumulating, and Sternberg's target article (2001; and the empirical work reported therein) represents an important step in this progressive research program.

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