

- Broca, P. (1861). Remarques sur le siège de la faculté du langage articulé: Suivies d'une observation d'aphémie. *Bulletin de la Société Anatomique de Paris*, 6, 330–357.
- Damasio, H. (1989). Neuroimaging contributions to the understanding of aphasia. In F. Boller & J. Grafman (Eds.), *Handbook of neuropsychology* (pp. 3–46). Amsterdam: Elsevier.
- Damasio, H., & Damasio, A. R. (1980). The anatomical basis of conduction aphasia. *Brain*, 103, 337–350.
- Damasio, H., Grabowski, T. J., Tranel, D., Hichwa, R. D., & Damasio, A. R. (1996). A neural basis for lexical retrieval. *Nature*, 380, 499–505.
- Démonet, J.-F., Chollet, F., Ramsay, S., Cardebat, D., Nespoulous, J.-L., Wise, R., Rascol, A., & Frackowiak, R. (1992). The anatomy of phonological and semantic processing in normal subjects. *Brain*, 115, 1753–1768.
- Galaburda, A., & Sanides, F. (1980). Cytoarchitectonic organization of the human auditory cortex. *Journal of Comparative Neurology*, 190, 597–610.
- Geschwind, N. (1971). Aphasia. *New England Journal of Medicine*, 284, 654–656.
- Henschen, S. E. (1920–1922). *Klinische und anatomische Beiträge zur Pathologie des Gehirns*. Stockholm: Nordiska Bokhandeln.
- Kleist, K. (1962). *Sensory aphasia and amusia*. London: Pergamon.
- Kohn, S. E. (Ed.). (1992). *Conduction aphasia*. Hillsdale, NJ: Erlbaum.
- Lichtheim, L. (1885). On aphasia. *Brain*, 7, 433–484.
- Mohr, J. P. (1976). Broca's area and Broca's aphasia. In H. Whitaker & H. Whitaker (Eds.), *Studies in neurolinguistics* (pp. 201–236). New York: Academic Press.
- Mohr, J. P., Pessin, M. S., Finkelstein, S., Funkenstein, H. H., Duncan, G. W., & Davis, K. R. (1978). Broca aphasia: Pathologic and clinical. *Neurology*, 28, 311–324.
- Rapcsak, S. Z., & Rubens, A. B. (1994). Localization of lesions in transcortical aphasia. In A. Kertesz (Ed.), *Localization and neuroimaging in neuropsychology* (pp. 297–329). San Diego: Academic Press.
- Vandenberghe, R., Price, C., Wise, R., Josephs, O., & Frackowiak, R. S. J. (1996). Functional anatomy of a common semantic system for words and pictures. *Nature*, 383, 254–256.
- Wernicke, C. (1874). *Der aphasische Symptomenkomplex*. Breslau, Poland: Cohn & Weigert.

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WISDOM

Some Historical Background to the Study of Wisdom

Since the beginnings of human culture, wisdom has been viewed as the ideal endpoint of human development (Baltes & Staudinger, 2000). Historically, wisdom was conceptualized in terms of a state of idealized being, as a process of perfect knowing and judgment (as in King Solomon's judg-

ments), or as an oral or written product such as wisdom-related proverbs. It is important to recognize that the identification of wisdom with individuals (e.g., wise persons), the predominant approach in psychology, is but one of the ways by which wisdom is instantiated. Wisdom is considered an ideal that is difficult to be fully represented in the isolated individual.

Two main lines of argument have been in the center of the historical evolution of the concept of wisdom: the distinction between philosophical and practical wisdom, and the question of whether wisdom is divine or human. Archeological-cultural work dealing with the origins of wisdom-related texts in China, India, Egypt, Old Mesopotamia, and the like has revealed a cultural and historical invariance with regard to wisdom-related proverbs and tales. This relative invariance suggests that the body of knowledge and skills related to wisdom have been culturally selected because of their adaptive value for humankind.

Psychological Approaches to the Definition of Wisdom

A first approach to the definition of wisdom from a psychological perspective is its treatment in dictionaries. The *Oxford Dictionary*, for instance, includes in its definition of wisdom, "Good judgment and advice in difficult and uncertain matters of life."

In a next step, psychologists further specified the content and formal properties of wisdom-related phenomena. G. Stanley Hall and other writers emphasized that wisdom involves the search for the moderate course between extremes, a dynamic between knowledge and doubt, a sufficient detachment from the problem at hand, and a well-balanced coordination of emotion, motivation, and thought. In line with dictionary definitions, such writings refer to wisdom as knowledge about the human condition at its frontier, knowledge about the most difficult questions of the meaning and conduct of life, and knowledge about the uncertainties of life—about what cannot be known and how to deal with that limited knowledge (for an overview, see Sternberg, 1990).

Implicit (Subjective) Theories about Wisdom

Most empirical research on wisdom in psychology so far has focused on further elaboration of the definition of wisdom. Moving beyond the dictionary definitions of wisdom, research explored the nature of everyday conceptions or implicit (subjective) theories of wisdom.

From this research on implicit theories of wisdom (for a review, see Sternberg, 1990), it is evident that people in Western samples hold fairly clear-cut images of the nature of wisdom. Four findings are especially noteworthy. First, in the minds of people, wisdom seems to be closely related to wise persons and their acts as carriers of wisdom. Second, wise people are expected to combine features of mind and character and balance multiple interests and choices.

Third, wisdom carries a very strong interpersonal and social aspect with regard to both its application (advice) and the consensual recognition of its occurrence. Fourth, wisdom exhibits overlap with other related concepts such as intelligence, but it also carries unique variance.

Explicit Theories and Assessment of Wisdom

A more recent line of empirical psychological inquiry on wisdom addresses the question of how to measure behavioral expressions of wisdom. Within this tradition, three lines of work can be identified: (1) assessment of wisdom as a personality characteristic, (2) assessment of wisdom in the Piagetian tradition of postformal thought, and (3) assessment of wisdom as an individual's problem-solving performance with regard to difficult life problems.

Within personality theories, such as Erik Erikson's, wisdom is usually conceptualized as an advanced if not the final stage of personality development. A wise person is characterized, for instance, as integrating rather than ignoring or repressing self-related information, by having coordinated opposites, and by having transcended personal agendas and turned to collective or universal issues.

Central to neo-Piagetian theories of adult thought is the transcendence of the universal truth criterion that characterizes formal logic. This transcendence is common to conceptions such as dialectical, complementary, and relativistic thinking. Such tolerance of multiple truths, that is of ambiguity, has also been mentioned as a crucial feature of wisdom.

There is also work that attempts to assess wisdom-related performance in tasks dealing with the interpretation, conduct, and management of life. This approach defines wisdom as "an expert knowledge system in the fundamental pragmatics of life permitting exceptional insight, judgment, and advice involving complex and uncertain matters of the human condition" (Baltes, Smith, & Staudinger, 1992).

The body of knowledge and skills associated with wisdom as an expertise in the fundamental pragmatics of life entails insights into the quintessential aspects of the human condition, including its biological finitude and cultural conditioning. More specifically, wisdom-related knowledge and skills can be characterized by a family of five criteria: (1) rich factual knowledge about life, (2) rich procedural knowledge about life, (3) life span contextualism, (4) value relativism, and (5) awareness and management of uncertainty (see Baltes et al., 1992, for an extensive definition).

To elicit and measure wisdom-related knowledge and skills, in this approach participants are presented with difficult life dilemmas such as the following: "Imagine that a good friend of yours calls you up and tells you that he/she can't go on anymore and has decided to commit suicide. What would you be thinking about; how would you deal with this situation?" The five wisdom-related criteria are used to evaluate these protocols.

Part of the Berlin paradigm also is a general framework

outlining the conditions for the development of wisdom. The empirical work based on this ontogenetic model and the measurement paradigm produced outcomes consistent with expectations. It seems that wisdom-related knowledge and judgment emerge between the age of 14 and 25 years; afterward, growing older is not enough to become wiser (Staudinger, 1999). However, when age was combined with wisdom-related experiential contexts, such as professional specializations specifically involving training and experience in matters of life, higher levels of performance were observed. In line with the historical wisdom literature, which portrays wisdom as the ideal combination of mind and virtue, it was found that wisdom-related performance was best predicted by measures located at the interface of cognition and personality, such as a judicious cognitive style, creativity, and moral reasoning.

Is There Wisdom-Related Potential?

Given the fact that wisdom-related performance had been successfully operationalized, the question arose whether it was possible to increase wisdom-related knowledge and judgment. It should also be noted that, not surprisingly, the overall level of wisdom identified was below or around the theoretical mean of the scale, thus leaving a lot of room for improvement.

One study took into account that higher performance levels may be found if two minds can interact before responding to the wisdom dilemma. And indeed, when two individuals usually interacting about life problems in everyday life had a chance to do so before they individually responded to wisdom tasks, the performance level was increased by one standard deviation (Staudinger & Baltes, 1996). The second study focused on one of the five wisdom-related criteria, value relativism. Participants were trained to think about life problems located at different regions of the world. At posttest, participants trained in the knowledge-activating strategy outperformed the control group by more than half a standard deviation (Baltes & Staudinger, 2000).

Conclusion and Future Directions

The concept of wisdom represents a fruitful topic for psychological research. The study of wisdom emphasizes the search for continued optimization and the further evolution of the human condition, and in a prototypical fashion, it allows for the study of collaboration among cognitive, emotional, and motivational processes. We expect that future research on wisdom will be expanded in at least three ways: (1) the further identification of social and personality factors and life processes relevant for the ontogeny of wisdom, (2) the exploration of wisdom as a meta-heuristic aimed at orchestrating mind and virtue toward human excellence, and (3) the contribution of wisdom research to building a psychological art of life.

REFERENCES

- Baltes, P. B., Smith, J., & Staudinger, U. M. (1992). Wisdom and successful aging. In T. Sonderegger (Ed.), *Nebraska symposium on motivation: Vol. 39* (pp. 123-167). Lincoln: University of Nebraska Press.
- Baltes, P. B., & Staudinger, U. M. (2000). Wisdom: A metaheuristic to orchestrate mind and virtue towards excellence. *American Psychologist*, 55, 122-136.
- Staudinger, U. M. (1999). Older and wiser? Integrating results on the relationship between age and wisdom-related performance. *International Journal of Behavioral Development*, 23, 641-664.
- Staudinger, U. M., & Baltes, P. B. (1996). Interactive minds: A facilitative setting for wisdom-related performance? *Journal of Personality and Social Psychology*, 71, 746-762.
- Sternberg, R. J. (Ed.). (1990). *Wisdom: Its nature, origins, and development*. New York: Cambridge University Press.

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WORK AND PLAY

The technological character of advanced modern civilizations has tended to segregate work and play. A further extension of these segregations is to differentiate the motivations for work and play. This suggests that work is characterized by activities engaged in for the purpose of staying alive and that play refers to activities engaged in for their own sake. E. S. Bordin has proposed that work and play can be seen as involving various combinations of effort, compulsion, and spontaneity.

Effort and compulsion are intimately related. The greater the effort and the longer it endures, the stronger the pressure toward cessation and rest becomes. What sustains effort against the accumulating counterpressure is inner interest and involvement or externalized threats of punishment or annihilation, which, in turn, can be internalized and experienced as an inner compulsion, for example, to stay alive. Spontaneity refers to that element of interest, self-investment, and self-expression that transforms an effortful performance that might have been experienced as alienated toil into a creative, joyful self-expression. This transformed activity epitomizes play.

Work and Play in Childhood

The bulk of the observation of play has been directed toward the immature. In young animals and children, observers stress the excess energy expended and the usefulness of play as a means toward mastery. Therapists working with children utilize this concept of play. Similarly, children are seen as using play to try out and prepare for anticipated adult roles.

The history of education has been marked by concern with preserving spontaneity concerned with maintaining appropriate levels of directed effort. Observers of children's play have noted that the fluid, spontaneous play of the young child soon gives way to formalizations of rules, which introduces restraining boundaries to spontaneity. The physical and intellectual development of the child is accompanied by more sophisticated play with its demands for mastery. Thus, growth and maturation are accompanied by ever-increasing participation by compulsion and effort. Play has become more than a simple joyful expression of energy in which effort is background.

Work and Play in Vocation

Virtually all persons face the necessity of securing the material means of staying alive or for additional comforts. In work-intensive societies, there was more room for men and women to mix the process of working for a livelihood with flexibility for self-expression. Our modern machine-dominated technological society challenges the preservation of these elements in work.

Is there any way to protect against work as alienated toil? Marxist philosophers such as Herbert Marcuse argue that under socialism in which the worker feels in control of the larger process of production, the greater economies in productivity afforded by the utilization of the machine can be converted into greater free time, making possible the assimilation of work into play. He argues that the experience of alienated labor is dictated by the excess repression exerted by capitalism to maintain that economic system.

Psychologists and industrial sociologists point out that many highly skilled jobs and professions require and permit long-term commitments and the flexible expressions of self that mix the compulsion, effort, and spontaneity marking the fusion of work and play. Research on personality development and the psychological characteristics and requirements associated with various occupations and occupational families has provided the base for helping individuals seeking vocational commitments to channel their choices toward optimal reconciliations of the wishes for material returns with their desires for satisfaction in work.

There remains the question of whether this can apply to all jobs. The Marxist answer accepts the antihumanistic element in the machine-human interface and only seeks to limit its duration. R. Blauner found that the worker's relation to the technological organization of the work process and the social organization of the factory determines whether he or she experiences a sense of control rather than domination, a sense of meaningful purpose rather than isolation, and a sense of spontaneous involvement rather than detachment and discontent. These views have spawned many efforts through job enlargement, job rotation, or drastic redesign to achieve for workers desirable levels of intrinsic satisfaction in their work life.