

COMMENTARY

Toward an Ecological Approach to
Perceptual Learning and
Development: Commentary on
Michaels and Beek

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The following commentary addresses an oversight in Michaels and Beek's keynote presentation at the Third European Workshop on Ecological Psychology. Michaels and Beek criticized the ecological approach for lack of progress toward understanding processes of change, yet these authors failed to cite any of the recent work on perceptual-motor learning and development. The primary purpose of our commentary is to offer readers a list of review papers which summarize current theoretical and empirical advances in the area of perceptual learning and development.

We write to redress an oversight in a 1995 issue of *Ecological Psychology*. In their keynote presentation at the Third European Workshop on Ecological Psychology, Michaels and Beek (*Ecological Psychology*, 7, pp. 259-278) lamented lack of progress toward understanding processes of change. Unfortunately, Michaels and Beek did not cite any of the recent, plentiful work on perceptual-motor learning and

development by ecological psychologists, and in his commentary, Smitsman (same issue, pp. 279–283) also failed to reference any of the relevant work. Readers are left wondering whether the authors intended a critique of this work or were simply unaware of its existence.

This oversight is surprising because the International Society for Ecological Psychology has always placed strong emphasis on learning and development. Most striking, Eleanor Gibson delivered the keynote lecture, "Learning to Perceive and Perceiving to Learn," for the inception of the Center for the Ecological Study of Perception and Action at the University of Connecticut in 1989, and she was the first visiting scholar at the center. Furthermore, the first article published in *Ecological Psychology* addressed the development of mobility (Gibson & Schmuckler, 1989, *Ecological Psychology*, 1, pp. 3–25). In 1993, the society presented Gibson with a lifetime achievement award "for her pioneering and fundamental contributions to the scientific understanding of learning, perception, reading, perceptual learning, and perceptual development; for her leadership in the creation of ecological psychology as a field concerned with perceiving and acting in a meaningful world." Catherine Best, Gibson, and others organized a symposium on perceptual learning in infancy at the 1993 International Conference on Event Perception and Action in Vancouver, British Columbia. Gibson also presented the keynote address, "An Ecological Psychologist's Prolegomena for Perceptual Learning and Development," to the Ecological Society at their Fall, 1994 meeting in Storrs, Connecticut.

Moreover, this work on learning and development is recognized by the larger scientific community. Gibson received the Century Psychology Series Award for her 1969 book, *Principles of Perceptual Learning and Development*. Gibson and Spelke (1983) co-authored a chapter on "The Development of Perception" in the prestigious Mussen *Handbook of Child Psychology*. Gibson's keynote address to the American Psychological Society in Chicago, "Has Psychology a Future?," presented an ecological approach to perceptual learning and development (*Psychological Science*, 5, 1994, pp. 69–76), and she was recognized in the American Psychological Association Centennial Series published in *Development Psychology* in 1992 (Pick, 28, pp. 787–794). In 1992, Eleanor Gibson received a National Medal of Science from President Bush "for her conceptual insights in developing a theory of perceptual learning; and for achieving a deeper understanding of perceptual development in children and basic processes in reading."

Interested readers of *Ecological Psychology* are referred to the following review papers (organized chronologically) for summaries of current theoretical and empirical advances by ecological psychologists (and other developmental psychologists) on perceptual learning and development:

- Gibson, E. J. (1969). *Principles of perceptual learning and development*. New York: Appleton-Century-Crofts.
- Gibson, E. J., & Spelke, E. S. (1983). The development of perception. In P. H. Mussen (Ed.), *Handbook of child psychology: Vol. III. Cognitive development* (pp. 1–76). New York: Wiley.

- Gibson, E. J. (1987). What does infant perception tell us about theories of perception? *Journal of Experimental Psychology: Human Perception and Performance*, 13, 515–523.
- Gibson, E. J. (1988). Exploratory behavior in the development of perceiving, acting, and the acquiring of knowledge. *Annual Review of Psychology*, 39, 1–41. (reprinted in 1995 in *Advances in infancy research*, Vol. 9, which was dedicated to Gibson in recognition of her significant contributions to developmental psychology)
- Walker-Andrews, A. S. (1988). Infants' perception of the affordances of expressive behaviors. In L. P. Lipsitt & C. Rovee-Collier (Eds.), *Advances in infancy research* (Vol. 5, pp. 173–221). Norwood, NJ: Ablex.
- Ruff, H. A. (1989). The infant's use of visual and haptic information in the perception and recognition of objects. *Canadian Journal of Psychology*, 43, 302–319.
- Gibson, E. J. (1991). *Odyssey in perception and learning*. Cambridge, MA: MIT Press.
- Gibson, E. J. (1992). How to think about perceptual learning: Twenty-five years later. In H. L. Pick, P. Van den Broek, & D. C. Knill (Eds.), *Cognition: Conceptual and methodological issues* (pp. 215–237). Washington, DC: American Psychological Association.
- Adolph, K. E., Eppler, M. A., & Gibson, E. J. (1993). Development of perception of affordances. In C. Rovee-Collier & L. P. Lipsitt (Eds.), *Advances in infancy research* (Vol. 8, pp. 51–98). Norwood, NJ: Ablex.
- Hofsten, C. von. (1993). Prospective control: A basic aspect of action development. *Human Development*, 36, 253–270.
- Bushnell, E. W., & Boudreau, J. P. (1993). Motor development and the mind: The potential role of motor abilities as a determinant of aspects of perceptual development. *Child Development*, 64, 1005–1021.
- Bahrack, L. E., & Pickens, J. N. (1994). Amodal relations: The basis for intermodal perception and learning in infancy. In D. Lewkowicz & R. Lichliter (Eds.), *The development of intersensory perception: Comparative perspectives* (pp. 205–233). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Best, C. T. (1995). Learning to perceive the sound pattern of English. In C. Rovee-Collier & L. P. Lipsitt (Eds.), *Advances in infancy research* (Vol. 9, pp. 217–304). Norwood, NJ: Ablex.
- Goldfield, E. C. (1995). *Emergent forms: Origins and early development of human action and perception*. New York: Oxford.
- Bertenthal, B. I. (1996). Origins and early development of perception, action, and representation. *Annual Review of Psychology*, 47, 431–459.
- Gibson, E. J. (1997). An ecological psychologist's prolegomena for perceptual development: A functional approach. In C. Dent-Read & P. Zukow-Goldring, (Eds.), *Evolving explanations of development: Ecological approaches to organism-environment systems* (pp. 23–45). Washington, DC: American Psychological Association.
- Bertenthal, B. I., & Clifton, R. K. (in press). Perception and action. In D. Kuhn & R. Siegler (Eds.), *Handbook of child psychology: Vol. II. Cognition, perception, and language*. New York: Wiley.
- Adolph, K. E. (in press). Learning in the development of infant locomotion. *Monographs of the Society for Research in Child Development*.

