

Are critical periods critical for early childhood education?



FPG Snapshot # 1 Dec '02

The role of timing in early childhood pedagogy

The use of the term 'critical periods' as an argument to justify expanding early childhood programs has been challenged in recent years.

In his article, Dr. Don Bailey Jr. reviews the research on critical periods and concludes that reliance on that argument is neither warranted nor necessary, since other fully justifiable arguments of early childhood initiatives exist.

However, he reframes the question as one of timing of critical experiences necessary for healthy development of all children.

"I suggest that the importance of timing lies not within a set of age parameters but rather in the match between experiences provided, the child's developmental status, and the child's need or readiness to learn a particular skill or concept," says Bailey.

In 1999, the National Center for Early Development & Learning sponsored a working conference, *Critical Thinking About Critical Periods*. The conference brought together experts in neuroscience and early childhood development to synthesize and integrate what is known about critical periods, brain development and early learning.

A book resulting from that conference (*Critical Thinking About Critical Periods*) describes the historical context of critical periods, summarizes the research in various developmental domains, and discusses implications for research, policy and practice. A distillation of this writing yields six key conclusions:

- 1. Critical periods have been clearly demonstrated in basic biological research with animals.** This research has never really tested the assumption that there is a critical period for providing higher quality experiences than those typically available to an organism in the normal course of its development.
- 2. Conducting definitive research about critical periods in human development is virtually impossible.** It is likely we will never be able to have a definitive answer to the quest for critical periods in human development, and especially for the notion that the early years represent a generalized critical period.
- 3. Despite strong evidence for the existence of critical periods, even basic biological research is now suggesting that processes once considered irreversible may not be so well entrenched.** Research is reinforcing concepts such as resilience and plasticity in development rather than fixed and unalterable courses.
- 4. While critical periods may be applicable to basic processes, it is less likely that they will apply in the same way to higher-level functions.** Clearly, enriched or enhanced environments are necessary for higher-level skills to develop. However, the windows of opportunity for learning these higher functions are much broader and less constrained than what might be required for basic functions, and thus, defining a critical period for any of them will probably be impossible.
- 5. In human learning, once a person is developmentally able to learn a new skill, the time frame within which the individual could learn the skill is likely to be very long.**
- 6. Although a window for learning may exist for a very long time, it may be harder to learn a new skill or it may not be learned as well after the window has been open for a long period of time.** Research suggests that learning new things does become more difficult with age.

This *Snapshot* is based on "Are critical periods critical for early childhood education? The role of timing in early childhood pedagogy," an article by Dr. Donald B. Bailey Jr. and published in *Early Childhood Research Quarterly* (2002) Vol. 17 pp. 281-294. Bailey is director of the FPG Child Development Institute, University of North Carolina at Chapel Hill.

A justifiable rationale for early childhood initiatives

Efforts to improve or expand services for young children are currently underway and likely to be part of national and state agendas for years to come. If we should not use the critical periods argument, then what are the legitimate bases for these efforts? At least five facts comprise a fully justifiable rationale for early childhood initiatives.

1. Windows for learning open at birth. The first few years are foundational in nature and constitute a period of fundamental organization at both the neurological and behavioral level.

2. Many children experience environmental circumstances known to compromise development. The most pervasive and devastating of these is poverty, but the list also includes maternal depression, child abuse, single parenthood and dangerous neighborhoods. Initiatives need to reduce or prevent the immediate consequences of these circumstances.

3. Many children enter school not ready for the demands and expectations of the school environment.

4. Quality matters in a world where quality is scarce. If we know that quality matters and that many children are prevented from experiencing quality, then public efforts are needed to assure equitable and full access to high quality care.

5. Early intervention programs make a difference. Most reviews of research conclude that intensive, well-funded, comprehensive, and high-quality early intervention programs can significantly alter the developmental trajectories and subsequent school success of children at risk of school failure due to disability or disadvantage.

If you want to know more

Bailey, D.B., Bruer, J.T., Symons, F.J., & Lichtman, J.W. (2002) *Critical thinking about critical periods*. Baltimore: Paul Brookes Publishing Co.

Burchinal, M.R., Roberts, J.E., Nabors, L.A. & Bryant, D.M. (1996) Quality of center child care and infant cognitive and language development. *Child Development*, 67, 606-620.

Maxwell, K.L., Bryant, D.M., Ridley, S.M., & Keyes-Elstein, L. (2001). North Carolina's kindergartners & schools: Summary report. Chapel Hill: UNC. FPG Child Development Institute.

Pianta, R.C. & Cox, M. I. (1999). *The transitions to kindergarten*. Baltimore: Paul Brookes Publishing.

Consider 'critical experiences' and 'teachable moments'

The central question we ought to ask now is, *when and how is timing important for critical experiences?*

Two aspects of this question should be noted: First the emphasis shifts away from critical periods to *critical experiences*. In other words, what are the experiences that are absolutely necessary for all children to maximize school success, mental health, and social development?

Once essential experiences are identified, then questions of sequence and timing become relevant. It is likely that these experiences need to occur in a certain order relative to each other and relative to the child's developmental status to be maximally effective.

More knowledge and research are needed in these areas as well as individualized assessment of children within the context of the sequences.

The concept of "teachable moments" is also fundamental to reconceptualizing critical periods. A teachable moment is when a child is most receptive to learning from experience and may be thought of in two ways. From a child's perspective, teachable moments occur when children show that they are motivated to learn something new, either by their behavior, their interest, or their questions. They may also emerge in the context of certain *critical events*, usually times when children are vulnerable or challenged, and thus, more open to environmental influences.

Conclusions

Early childhood educators need to refocus their attention on critical experiences, those experiences that every child needs to support healthy development. The important task will be to combine knowledge from general and individual developmental and pedagogical sequences and apply that knowledge in the context of teachable moments and critical events.

Policymakers need to refocus their attention on standards and support that make the appropriate timing of critical experiences equally available for all children.

Snapshots are summaries of research articles, books and other publications by researchers at the FPG Child Development Institute at UNC-Chapel Hill. Permission is granted to reprint this article if you acknowledge FPG and the author of the article on which this *Snapshot* is based.

For more information, call Loyd Little at 919-966-0867 or email <loyd_little@unc.edu>

<www.fpg.unc.edu>