



## Commentary: It is Time for Societal Support to Foster All Young Children's Optimum Brain Development?

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During the past twenty-five years evidence for the importance of early brain development has multiplied [1]. It is now common knowledge that the experiences children have during their prenatal to five or six years of life will greatly influence the richness and types of neural connections in their brains. The complex development of these synaptic connections (as well as their later pruning) affects human intellectual, social, and emotional growth during childhood and also affects adult competence [2]. Of course, those who care for and teach young children have long been aware of the great expansion of knowledge and wide variety of behaviors that young children exhibit across these early years. In fact, it often seems that young children learn new behaviors (and make new neural connections) many times a day! When early childhood educators learn about the processes of synaptogenesis, they are able to give many examples of how this dynamic process is exhibited in child behaviors.

Researchers have found that much brain building occurs even during the prenatal age period. At birth infants have about 100 billion neurons in their brains but many of these are not connected in communication networks [3]. During the infant and early childhood years a major task of the brain is to build functioning brain communication networks. Thus, safe, interesting, and rich environments during these years have a major effect on how the child's communication networks are designed and function. Although the neonatal brain weighs about 1 pound, it doubles in weight by age one because of the growth of the neural networks, and by age 6 the brain networks are extremely dense. The pruning of less used networks begins in early childhood and is extensive by early elementary age [4].

Unfortunately, the amassed evidence of the importance of this age period for rich and diverse brain development and many ef-

fective subsequent human behaviors has not had much effect on public policy. Except for a brief time during the administration of Lyndon Johnson when Head Start was initiated [5,6], the promotion of optimum brain development during early childhood for all children has not been stressed or supported by federal funding. Thus, at the present time, many children, especially those from less economically advantaged economic backgrounds, do not get the excellent care and enriched experiences that can foster such development. It is now time for this knowledge of the importance of early brain development and the positive effects of rich and appropriately challenging experiences on such development to inform public policy. Recently some proposals for funding early childhood care and education have been suggested and so public policy initiatives that support young children's brain development may again have an opportunity to be supported.

At the present time there is a new initiative being proposed at the federal level [7] and in this plan are a number of initiatives that would be relevant for and supportive of positive brain development for young children. For example, if funded, it would provide all US three and four-year-olds with "high quality preschool education". It will also extend tax cuts that benefit lower and middle-income families and expand health insurance tax credits for families. There has not been a federal initiative related to early education since a comprehensive child development bill designed to give federal support for childcare centers throughout the nation was vetoed by President Nixon in 1971 [8].

Perhaps this new initiative will be supported by many more segments of society, especially since the coronavirus pandemic has wrought such havoc on typical early childhood care and education practices [9] and because knowledge related to the great importance of optimum brain development during the first 5 or 6 years of

life has become much more evident. We may be ready for another "great society" attempt related to young children!

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