

IMPORTANCE OF EARLY CHILDHOOD DEVELOPMENT

Framework for the Social Determinants of Early Child Development

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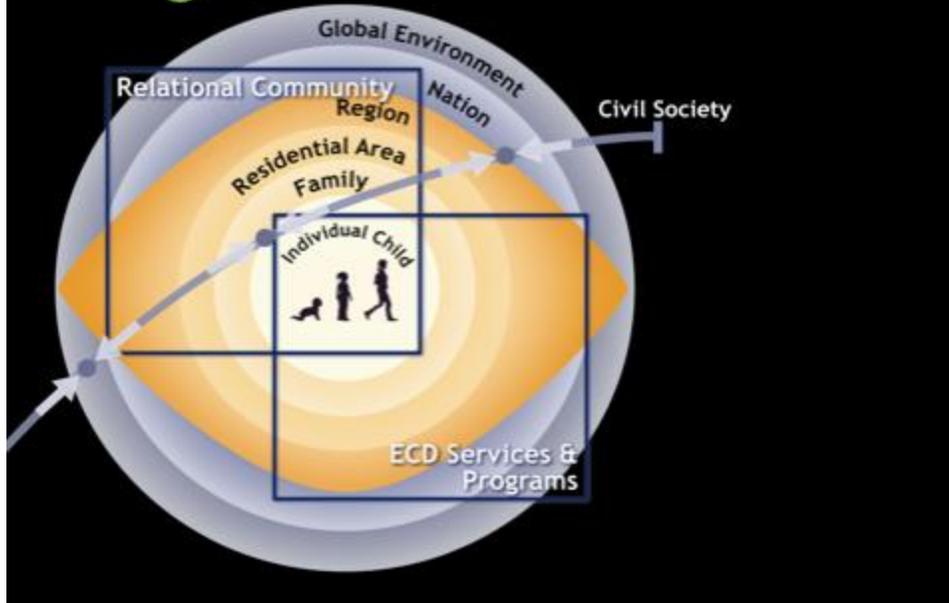
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The Total Environment Assessment Model for Early Child Development (see Figure 1 – TEAM-ECD) was developed for the World Health Organization’s Commission on the Social Determinants of Health to highlight the environments and experiences that influence ECD.¹ TEAM-ECD builds on the bio-ecological model,² developmental psychology,³ the concept of “biological embedding,”⁴ the social determinants of health,^{5,6} research regarding social relations in human society,⁷ and political economy.⁸ It features interacting and interdependent spheres of influence that are instrumental for ECD: the individual, family and dwelling, residential and relational communities, programs and services, regional, national and global environments, and civil society.

Figure 1. Total Environnement Assessment Model for Early Child Development (TEAM-ECD)

Figure 1: TEAM-ECD



The Individual Child

Early in life, sensitive periods occur in the brain when the child is disproportionately sensitive to the influences of the external environment.^{2,9,10} The interplay of the developing brain with the environment is the driving force of development. The process of early experience shaping brain and biological development in ways that influence development over the life course is known as biological embedding.⁴ Young children's optimal growth and development requires adequate nutrition, beginning in utero, with adequately nourished mothers. During the first months of life, breastfeeding plays a critical role in providing children with necessary nutrients but, the quality of relationships also matters right from the start. Children are social actors shaped by their environment^{11,12,13,14} who, in turn, play a role in shaping it. Young children develop best in warm, responsive environments that protect them from inappropriate disapproval and punishment; environments in which there are opportunities to explore their world, to play, and to learn how to speak and listen to others.¹⁵ Stimulation has an independent effect on perceptual motor development outcomes among stunted children, over and above nutritional supplementation.¹⁶

The Family

The family (defined here as any group of people who dwell, eat and participate in other daily, home-based activities together) is the primary environmental influence on children's development.^{17,18} Any chronic domestic problem, especially of the mother or primary caregiver, such as intimate-partner violence^{19,20} or chronic illness, can have a deleterious effect on child development. Family members provide most stimuli for children, and families largely control children's contact with the wider environment.²¹ The most salient features of the family are its social and economic resources. Social resources include parenting skills and education, cultural practices and approaches, intra-familial relations, and the health status of family members. Economic resources include wealth, occupational status and dwelling conditions. The influence of family resources (herein, socio-economic status, or SES) is mediated by access to societal resources that enable families to make choices and decisions in the best interests of their children, including services such as parenting and caregiver support,²¹ quality childcare,^{22,23,24,25} and primary health care and education.

As one goes from the bottom to the top of family SES in virtually all societies, child developmental outcomes, on average, improve. This is the "gradient effect," which is a principal source of modifiable inequality in ECD.²⁶ Family SES has an impact on outcomes as diverse as low birth weight, risk of dental caries, cognitive test scores, difficulties with behaviour and socialization, and risk of disengagement from school.³ Children born into low SES families are more likely to be exposed to – and affected by – conditions that are adverse for development, such as homelessness, crowding, slum living conditions or unsafe neighborhoods.^{27,28} Low levels of parental education and literacy affect the knowledge and skill-base of children's caregivers. Feeding and breastfeeding practices vary according to SES, as does parental stress. Low SES parents are at increased risk for a variety of forms of psychological distress, including negative self-worth and depression. The severity and chronicity of maternal depression are predictive of disturbances in child development.^{24,29} SES gradients in language and cognitive development are strongly influenced by the richness of the domestic language environment.³⁰ Family SES is also associated with ability to access other resources, such as health care and high-quality childcare.³¹

Residential and Relational Communities

Socioeconomic, social capital, physical and service characteristics of residential communities influence ECD.³² Socioeconomic inequalities among residential communities are associated with inequalities in children's development, but there are important caveats. Children from low SES families living in economically-mixed neighbourhoods often do better in their development than

low SES children living in poor neighbourhoods.³³ There is an inverse association between the socioeconomic status of a community and the chances that its residents will be exposed to toxic or otherwise hazardous exposures such as wastes, air pollutants, poor water quality, excessive noise, residential crowding or poor housing quality.³⁴ Physical spaces accessible to children create both opportunities and constraints for play-based learning and exploration, both critical for motor, social/emotional and cognitive development.^{12,35} Access to high quality services often varies according to community SES: learning and recreation, child care, medical, transportation, food markets and opportunities for employment.³⁶ Child development is also influenced by the quality of community social capital – an umbrella term that encompasses constructs such as informal social control (e.g., I can leave my door unlocked because the neighbourhood teenagers respect the citizens here), norms of reciprocity (e.g., I believe that something promised will be kept because the standards in my community are like that), social engagement, participation, cohesion and trust.^{37,38,39}

The relational community is the group that gives children and families their identity and, often, how outsiders identify them. It is a primary source of social inclusion or exclusion, sense of self-worth, self-esteem and gender socialization. Relational communities transmit information regarding child-rearing practices and norms of child development. The extent to which adults and children in communities are linked to one another, whether there is reciprocated exchange (of information, in-kind services and other forms of support), and whether there is informal social control and mutual support is, in part, a function of the relational community. These are aspects of social capital, highlighting the overlap in the influences of relational and residential communities.^{7,40,41,42}

ECD Programs and Services

Investment in early childhood is a powerful economic strategy, with returns over the life course many times the size of the original expenditure. ECD programs promote the quality of human capital; that is, individuals' competencies and skills for participating in society and the workforce.⁴³ The competencies and skills fostered through ECD programs are not limited to cognitive gains, but also include physical, social and emotional gains – all of which are determinants of health over the life course.⁴⁴ Accordingly, ECD programs, which incorporate and link health-promoting measures (e.g., good nutrition, immunization) with nurturance, participation, care, stimulation and protection, offer the prospect of sustained improvements in physical, social, emotional, language and cognitive development.

Regional Environment

Interrelated aspects of regions that are significant for ECD include physical (e.g., degree of urbanization, the physical lay-out of cities), social, political and economic factors. In low- and middle-income countries, inequalities in child health outcomes – for example under-five mortality rates – vary according to geography, such as between rural and urban areas; often due to unequal allocation of resources.⁴⁵ But regional inequalities in ECD are also seen in resource-rich countries.⁴⁶ At the sub-national level, regional and relational communities may intersect in ways that create nurturant conditions systematically different from the rest of a country. For example, norms in some regions of southern India, in contrast to northern India, provide women more exposure to the outside world, more voice in family life and more freedom of movement than do the social systems of the north.⁴⁷ Women’s autonomy itself is determined largely by women’s education, which is much more accessible in southern regions of India, such as the state of Tamil Nadu.^{47,48} Women’s autonomy, in turn, demonstrably influences opportunities for successful ECD.⁴⁹

National Environment

National policy and economic factors are significant for ECD. Although child development tends to be more successful in wealthy than poor countries, the priority given to children in social policy can overcome national poverty in child developmental outcomes. Kamerman’s review⁵⁰ of child welfare policies across countries identified five domains that make a difference: income transfers (cash and tax benefits); employment policies; parental leave and other policies to support maternal employment; early childhood education and care services; and prevention and other interventions related to teen pregnancy. The transformation of the “Tiger Economies” of Southeast Asia from resource-poor, low life expectancy societies to resource-rich, high life expectancy societies was accomplished primarily through investment in children, from conception to school completion.⁵¹

The Global Environment

The global environment influences ECD through its effects on economic and social conditions within nations. Heymann’s⁵² research on children and families in resource-poor countries demonstrates the importance of access to quality child care for families worldwide. Due to increased female participation in the global workforce millions of children worldwide are home alone, in informal child care (often by other children), or are brought to work where they are

exposed to unsafe working conditions. The global environment is also characterized by international treaties that affirm the rights of children⁵³ and of women,⁵⁴ which are meant to enhance the well-being of children. In particular, General Comment No.7: Implementing Rights in Early Childhood⁵⁵ creates an opportunity to hold signatory countries responsible for the physical, social/emotional and language/cognitive development of young children.

Civil Society

Non-governmental international bodies and civil society have a role in holding countries accountable for adopting policies that positively benefit children's well-being. Within many countries civil society groups take direct action or stimulate government and community action on the social determinants of ECD. They have been instrumental in organizing strategies at the local level to provide families and children with effective delivery of ECD services; to improve the safety, cohesion and efficacy of residential environments; and to increase the capacity of local and relational communities to better the lives of children.

References

1. Siddiqi A, Irwin L, Hertzman C. *Total environment assessment model for early child development: Evidence report for the World Health Organization's Commission on the Social Determinants of Health*. Vancouver, BC: Human Early Learning Partnership (HELP); 2007.
2. Bronfenbrenner U. *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press; 1979.
3. Brooks-Gunn J, Duncan GJ, Maritato N. Poor families, poor outcomes: The well-being of children and youth. In: Duncan GJ, Brooks-Gunn J, eds. *Consequences of growing up poor*. New York, NY: Russell Sage Foundation; 1997.
4. Hertzman C. The biological embedding of early experience and its effects on health in adulthood. *Annals of the New York Academy of Sciences* 2000;896:85-95.
5. Dahlgren GW, Whitehead M. *Policies and strategies to promote social equity in health*. Stockholm, Sweden: Institute of Futures Studies; 1991.
6. Heymann J, Hertzman C, Barer ML, Evans RJ, eds. *Healthier societies from analysis to action*. New York, NY: Oxford University Press; 2006.
7. Putnam R. *Bowling alone: The collapse and revival of American community*. New York, NY: Simon & Schuster; 2000.
8. Siddiqi A, Hertzman C. Towards an epidemiological understanding of the effects of long-term institutional changes on population health: a case study of Canada versus the United States. *Social Sciences & Medicine* 2007;64(3):589-603.
9. Barker DIP. *Mothers, babies and disease later in life*. London, UK: BMJ Publishing Group; 1994.
10. Wadsworth MEJ. Health inequalities in the life course perspective. *Social Science & Medicine* 1997;44(6):859-869.
11. Boyden J, Levison D. *Children as economic and social actors in the development process*. Stockholm, Sweden: Expert Group on Development Issues; 2000. Working paper 1.

12. Irwin LG. The potential contribution of emancipatory research methodologies to the field of child health. *Nursing Inquiry* 2006;13(2):94-102.
13. Irwin LG, Johnson JL. Interviewing young children: explicating our practices and dilemmas. *Qualitative Health Research* 2005;15(6):821-831.
14. Mayall B. *Children's childhoods: Observed and experienced*. London, UK: Farmer Press; 1994.
15. Ramey CT, Ramey SL. Prevention of intellectual disabilities: early interventions to improve cognitive development. *Preventive Medicine* 1998;27(2):224-232.
16. Grantham-McGregor SM, Walker SP, Chang SM, Powell CA. Effects of early childhood supplementation with and without stimulation on later development in stunted Jamaican children. *American Journal of Clinical Nutrition* 1997;66(2):247-253.
17. United Nations Children's Fund (UNICEF). *State of the world's children 2007: Women and children: The double dividend of gender equality*. New York, NY; United Nations Children's Fund (UNICEF); 2006.
18. Shonkoff J, Phillips D, eds. *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press; 2000.
19. Anda RF, Felitti VJ, Bremner JD, Walker JD, Whitfield CH, Perry BD, Dube SR, Giles WH. The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience* 2006;256(3):174-86.
20. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine* 1998;14(4):245-58.
21. Richter L. *The importance of caregiver child interactions for the survival and healthy development of young children: A review*. Geneva, Switzerland: Department of Child and Adolescent Health and Development. World Health Organization; 2004.
22. Goelman H. Early childhood education. In: Reynolds WM, Miller GE, eds. *Educational psychology*. Hoboken, NJ: Wiley; 2003:285-332. *Handbook of psychology*; vol 7.
23. Lamb ME, Anherl L. Non-parental child care: context, quality, correlates and consequences. In: Sigel IE, Renninger KA, eds. *Child psychology in practice*. 5th Ed. New York, NY: Wiley; 1998: 73-133. Dam W, ed. *Handbook of child psychology*; vol 4.
24. NICHD Early Child Care Network. Early child care and children's development prior to school entry: results from the NICHD study of early child care. *American Educational Research Journal* 2002;39:133-164.
25. Vandell D, White B. *Child care quality: does it matter?* Madison, WI: University of Wisconsin Institute for Research of Poverty; 2000.
26. Houweling TA, Caspar AE, Looman WN, Mackenbach JP. Determinants of under-5 mortality among the poor and the rich: a cross-national analysis of 43 developing countries. *International Journal of Epidemiology* 2005;34(6):1257-1265.
27. Dunn JR, Hayes MV. Social inequality, population health, and housing: a study of two Vancouver neighbourhoods. *Social Science & Medicine* 2000;51:563-587.
28. DiPietro JA. Baby and the brain: advances in child development. *Annual Review of Public Health* 2000;21:455-471.
29. Patel V, DeSouza N, Rodrigues M. Post-natal depression and infant growth and development in low income countries: a cohort study from Goa, India. *Archives of Disease in Childhood* 2003;88:34-37.
30. Hart B, Risley TR. *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Brookes; 1995.
31. Hertzman C, Wiens M. Child development and long-term outcomes: a population health perspective and summary of successful interventions. *Social Science & Medicine* 1996;43(7):1083-1095.

32. Kawachi I, Berkman LF, eds. *Neighborhoods and health*. New York, NY: Oxford University Press; 2003.
33. Kohen DE, Brooks-Gunn J, Leventhal T, Hertzman C. Neighbourhood income and physical and social disorder in Canada: associations with young children's competencies. *Child Development* 2002;73:1844-1860.
34. Evans GW, Katrowitz E. Socioeconomic status and health: the potential role of environmental risk exposure. *Annual Review of Public Health* 2002;23:303-331.
35. James A. *Childhood identities: self and social relationships in the experience of the child*. Edinburgh, UK: Edinburgh University Press; 1993.
36. Leventhal T, Brooks-Gunn J. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin* 2000;126(2):309-337.
37. Carpiano RM. Toward a neighborhood resource-based theory of social capital for health: Can Bourdieu and sociology help? *Social Science & Medicine* 2006;62:165-175.
38. Drukker M, Kaplan C, Schneiders J, Feron FJM, van Os J. The wider social environment and changes in self-reported quality of life in the transition from late childhood to early adolescence: A cohort study. *BMC Public Health* 2006;6(133):1-11.
39. Putnam RD. Foreword. In: Saegert S, Thompson JP, Warren MR, eds. *Social capital and poor communities*. New York, NY: Russell Sage Foundation; 2001: xv-xvi.
40. Samspon RJ, Morenoff JD, Earls F. Beyond social capital: spatial dynamics of collective efficacy for children. *American Sociological Review* 1999;64(5):633-660.
41. Carter MR, Maluccio JA. Social capital and coping with economic shocks: an analysis of stunting of South African children. *World Development* 2003;31(7):1147-1163.
42. Jencks C, Mayer SE. The social consequences of growing up in a poor neighborhood. In: Lynn LE Jr, McGeary MGH. eds. *Inner-city poverty in the United States*. Washington, CD: National Academy Press; 1990.
43. Knudsen EI, Heckman JJ, Cameron J, Shonkoff JP. Economic, neurobiological, and behavioral perspectives on building America's future workforce. *Proceedings of the National Academy of Sciences* 2006;103(27):10155-10162.
44. Carneiro PM, Heckman JJ. *Human capital policy*. Bonn, Germany: Institute for the Study of Labor; 2003. IZA discussion paper No. 821.
45. Houweling TAJ, Kunst AE, Borsboom G, Mackenbach JP. Mortality inequalities in times of economic growth: time trends in socioeconomic and regional inequalities in under 5 mortality in Indonesia, 1982-1997. *Journal of Epidemiology and Community Health* 2006;60:62-68.
46. Kershaw P, Irwin L, Trafford K, Hertzman C. *The British Columbia atlas of child development*. Vancouver, BC: Human Early Learning Partnership. Western Geographical Press; 2006. Canadian western geographical series 1203-1178; vol 40.
47. Jejeebhoy SJ, Sathar ZA. Women's autonomy in India and Pakistan: the influence of religion and region. *Population and Development Review* 2001;27(4):687-712.
48. Jejeebhoy SJ. *Women's education, autonomy, and reproductive behaviour: Experience from developing countries*. Oxford, UK: Clarendon Press; 1995.
49. United Nations Educational, Scientific and Cultural Organization (UNESCO). *EFA Global Monitoring Report: Strong foundations: Early childhood care and education*. Paris, France: UNESCO; 2006.
50. Kamerman SB, Neuman M, Waldfogel J, Brooks-Gunn J. *Social policies, family types, and child outcomes in selected OECD countries*. Paris, France: OECD; 2003. OECD Social, Employment, and Migration Working Papers 6.
51. Siddiqi A, Hertzman C. Economic growth, income equality and population health among the Asian Tigers. *International Journal of Health Services* 2001;31:323-34.

52. Heymann J. *Forgotten families: ending the growing confrontation children and working parents in the global economy*. New York, NY: Oxford University Press; 2006.
53. United Nations. Office of the United Nations High Commission for Human Rights (CRC). *Convention on the Rights of the Child*. Geneva, Switzerland: United Nations. Available at: <http://www2.ohchr.org/english/law/crc.htm>. Accessed October 6, 2010.
54. United Nations. Office of the United Nations High Commission for Human Rights (CRC). *Convention on the elimination of all forms of discrimination against women (CEDAW)*. Geneva, Switzerland: United Nations. Available at: <http://www2.ohchr.org/english/law/cedaw.htm>. Accessed October 6, 2010.
55. United Nations. Office of the United Nations High Commission for Human Rights Committee on the Rights of the Child (CRC). *General Comment No. 7: Implementing Child Rights in early childhood*. Geneva, Switzerland: United Nations; 2005.