Developmental Neuroscience

Key Neuroscience Findings

Implications for Early Childhood Intervention and Education

Developmental Neuoscience: Implications for Early Childhood Intervention and Education

- Summarizing the achievements of developmental neuroscience, identifying key endings and insights of potential interest to practitioners and policy-makers, and then to consider what, if any, implications there are for practice or policy in the field of early childhood intervention and education.

DEVELOPMENTAL NEUROSCIENCE: SCOPE AND ACHIEVEMENTS

- Developmental neuroscience encompasses a wide range of interdisciplinary research, including clinical and nonclinical human studies and animal studies, at the molecular, cellular, chemical, genetic, physiological, behavioral and cognitive levels.
- This has been helped by new investigative techniques (such as functional magnetic resonance imaging and positron emission tomography, which, by monitoring small changes in blood flow, make it possible to identify which regions of the brain are implicated different psychological processes).
- Findings from clinical studies of brain damage in humans, animal studies and quantitative electron microscopy. Findings in 5 particular areas have attracted interest.

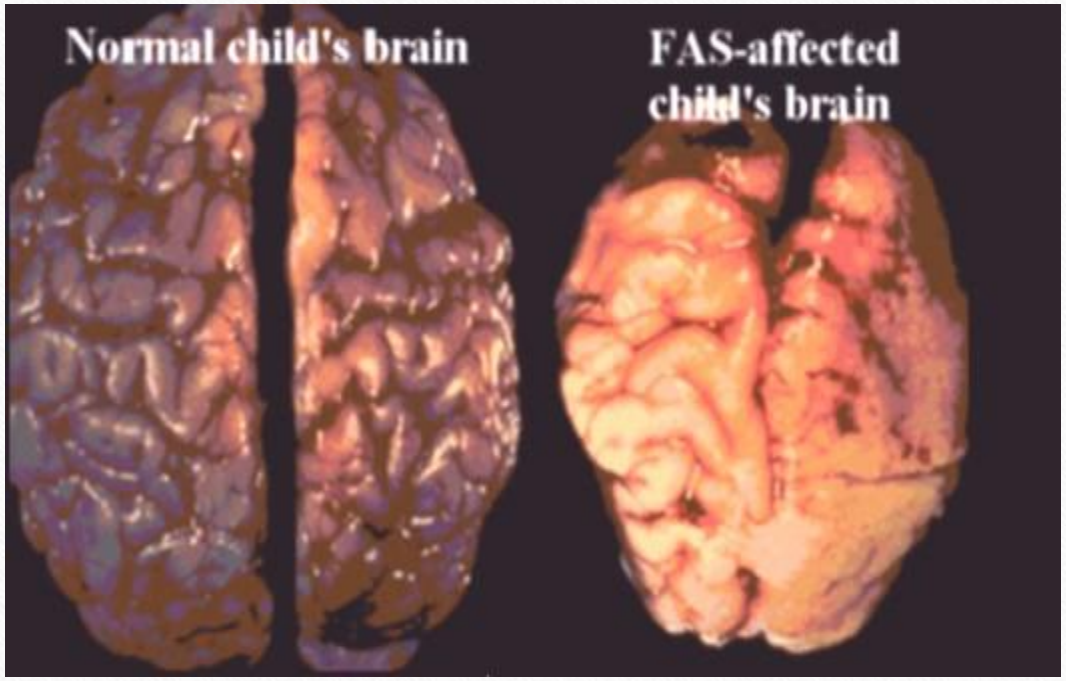
Findings in 5 particular areas

- Prenatal development
- Synaptogenesis and synaptic loss
- Sensitive periods
- Effects of environmental complexity
- Neural plasticity

Prenatal development

- Interest prenatal development of the brain has focused on factors, particularly in the first trimester, that threaten later development
- There are three categories of factors: infectious disease (rubella), neurotoxins (alcohol, tobacco), and nutrient deficiency
- Fetal alcohol syndrome, estimated to occur at a rate of 1-3 per 1000 live-births, can lead to a loss of neurons, severe neurobehavioral impairment and impaired cognitive functioning, among other problems.
- Malnutrition has long been known to limit brain size, but, in terms of specific nutrients, a deficiency of iron has been shown to have profound effects on general motor and cognitive functions.
- This may be due to its role in neurotransmitter synthesis, myelination, oxidative metabolism and memory processes in the hippocampus.

Fetal alcohol syndrome



Prenatal development

- The vulnerability of the developing brain to these early biological insults might be considered to be an issue beyond the concerns of early childhood intervention and education, but there is an increasing recognition that, to succeed educationally, programs need to integrate health and antenatal interventions with educational interventions

Synaptogenesis and synaptic loss

- Brain development is not so much about the growth of neurons (whose number does not appear to increase greatly after birth) as about the growth of connections between neurons, i.e. synapses.
- There is evidence that synaptogenesis in the young involves a considerable overproduction of synapses followed by the loss of many of these.
- Synaptogenesis, followed by synaptic loss, peaks at different ages in different areas of the brain, for example in the visual cortex at around 6 months and in the prefrontal cortex at around 1 year, the loss continuing until adolescence.

Synaptogenesis and synaptic loss

- The period of rapid synapse formation appears to end around 3 years of age
- The reasons for this overproduction and loss are not well understood, but it has been suggested that frequently used connections are strengthened whereas those rarely used are lost. 'Use it or Lose it.'
- The fact that the production and loss of synapses is taking place in very young children has led, some advocates of early childhood intervention and education to argue that children in the 'zero to three' period need maximum stimulation of all kinds so that as many synapses as possible can be retained.

Critical period vs. Sensitive periods

- In 1965, Weisel and Hubel reported a study8 in which they deprived newborn kittens of their vision in one eye
- After 3 months, the eye was uncovered. It was found that the cat was virtually blind in that eye and that the visual cortex had failed to develop
- No recovery of vision was found, and it therefore appeared that the animals had missed a critical period for development.

Sensitive periods

- Subsequent research has led to the term ‘critical period’ being replaced by ‘sensitive period’
- The former suggested something irrecoverable, whereas it now appears that, at least in the case of cats deprived of vision, some recovery is possible, depending on the period of deprivation and the extent to which the affected eye is required to be used afterwards
- The term ‘sensitive period’ suggests that there may be appropriate time windows for certain development to take place but that some later catching up.

Sensitive periods

- It would be very helpful to know whether there are sensitive periods for the development of cognitive abilities such as language, but what evidence there is on this issue comes from developmental psychology rather than developmental neuroscience.

Effects of environmental complexity

- In studies from the 1970s onwards, Greenhough and colleagues have demonstrated that environmental complexity has an influence on brain development in rats.
- Rats aged 21-25 days were reared in one of three environments: 'isolated' (one rat in a laboratory cage), 'social' (several rats in a cage) and 'complex' (a larger enclosure, including structures, apparatus and obstacles, and shared with other rats).

Effects of environmental complexity

- After 30 days, the rats' brains were examined.
- Those which had experienced the complex environment were estimated to have 20 -25% more synapses per neuron in the visual area than the others
- The brains of those reared in the 'social' environment were not much different from those reared in the 'isolated' environment.
- This research has attracted the attention of many advocates of early childhood intervention and education, leading some to imply that 'enriched' environments in the early years can boost brain power by 25%.

Neural plasticity

- Although developmental neuroscience focuses on the young, it should, of course, be informed by findings relating to mature organisms.
- Greenhough has shown the brains of adult rats also form new synapses in response to new experiences and apparatus.
- This kind of synaptogenesis, termed ‘experience dependent’, suggests that the rats’ learning need not be limited to a particular period.

Neural plasticity

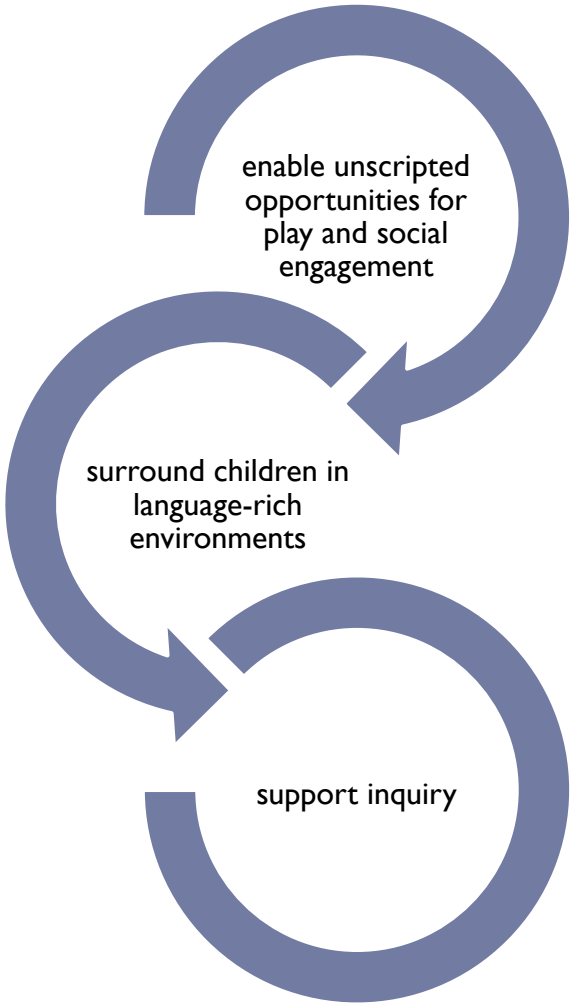
- Neural plasticity and sensitive periods represent opposing conceptions of development.
- Complete plasticity would imply that learning can take place at any age and that it is never too late for intervention. Sensitive periods in the early years, however, would imply a crucial role for early intervention and education.
- Developmental neuroscience provides support for both concepts, and a major task for the future will be to identify the definite learning domains and conditions in which each operates.

In a special edition of Educational Psychologist (1992) devoted to Brain and Education, research papers by a range of well respected cognitive neuroscientists and psychologists review neurophysiological research relevant to issues such as reading and writing acquisition, metacontrol, explicit memory and generative learning processes (Whitebread, 2002).

1. Learning changes the physical structure of the brain
2. Structural changes alter the functional organisation of the brain; in other words, learning organizes and re-organizes the brain
3. Different parts of the brain may be ready to learn at different times.(Bransford, Brown, & Cocking,1999)

- «Each individual brain is different: there are individual differences in brain morphology with origins in prenatal development. The human brain in the first few years is peculiarly open to environmental influence» (Whitebread, 2002).

Learning environments that facilitate early childhood development



Materials

are chosen for their capacity to stimulate the young child's brain activity and development of neural pathways;

are chosen for their familiarity to infants so as not to overstress them with novel and new sights, smells and sounds.

Time

is planned to keep stress to a minimum;

is geared towards maximizing brain stimulation during critical periods of brain growth.

People

build warm and positive relationships with children;

reduce stress in children's daily lives;

emphasize the development of secure and reliable relationships;

focus his or her interactions with children on critical periods for their learning.

Space

is planned to keep stress to minimum;

is organized to enable the child to receive stimulation of the brain during critical periods of its growth.

- An extensive range of implications for education in the early years has been identified in the literature. Some of those implications are that:

- Brain development and, thus, later cognitive development is helped by a curriculum which encourages young children to be active, to question and to construct their own understandings and meanings (Puckett *et al.* 1999).
- Young children's brains process information best when it is presented in 'wholes' and when children can make sense of it in their own time and in their own way (Puckett *et al.* 1999).
- Positive, nurturing environments are important to healthy brain growth (Catherwood 1999).
- Stressful environments cause us to produce a hormone (cortisol) that can reduce brain cells and neural connections (Dockett 2000).
- Stimulation in the early years is important.

Implications for Practice and Policy

- Since the mid-1990s, there has been an extraordinary upsurge in claims that findings in developmental neuroscience have major implications for early childhood intervention and education. We can review such findings under the five headings:

- Prenatal development
- Synaptogenesis and synaptic loss
- Sensitive periods
- Effects of environmental complexity
- Neural plasticity (Hannon, 2003)

Further Suggestions

- «Whether neuroscientific research will be able to help further with a range of unresolved but important questions in early education is, however, still a matter of conjecture and debate. Some questions which might be amenable to this kind of work include:

- can we be more specific about developmentally appropriate kinds of experiences at different stages/ages?
- what are the precise nature of individual differences at birth (eg between boys and girls), and what abilities are most susceptible to the influence of experience and learning?
- how and why do certain kinds of experience enhance learning (eg: play)?
- what are the key elements in a positive, nurturing social/emotional environment and how does this impact upon development and learning?» (Whitebread, 2002)

- Can giftedness be introduced?
- Can disabilities be prevented?
- Is talent a result of finding specific stimuli at certain critical or sensitive periods in neural development? (OECD, 2012)

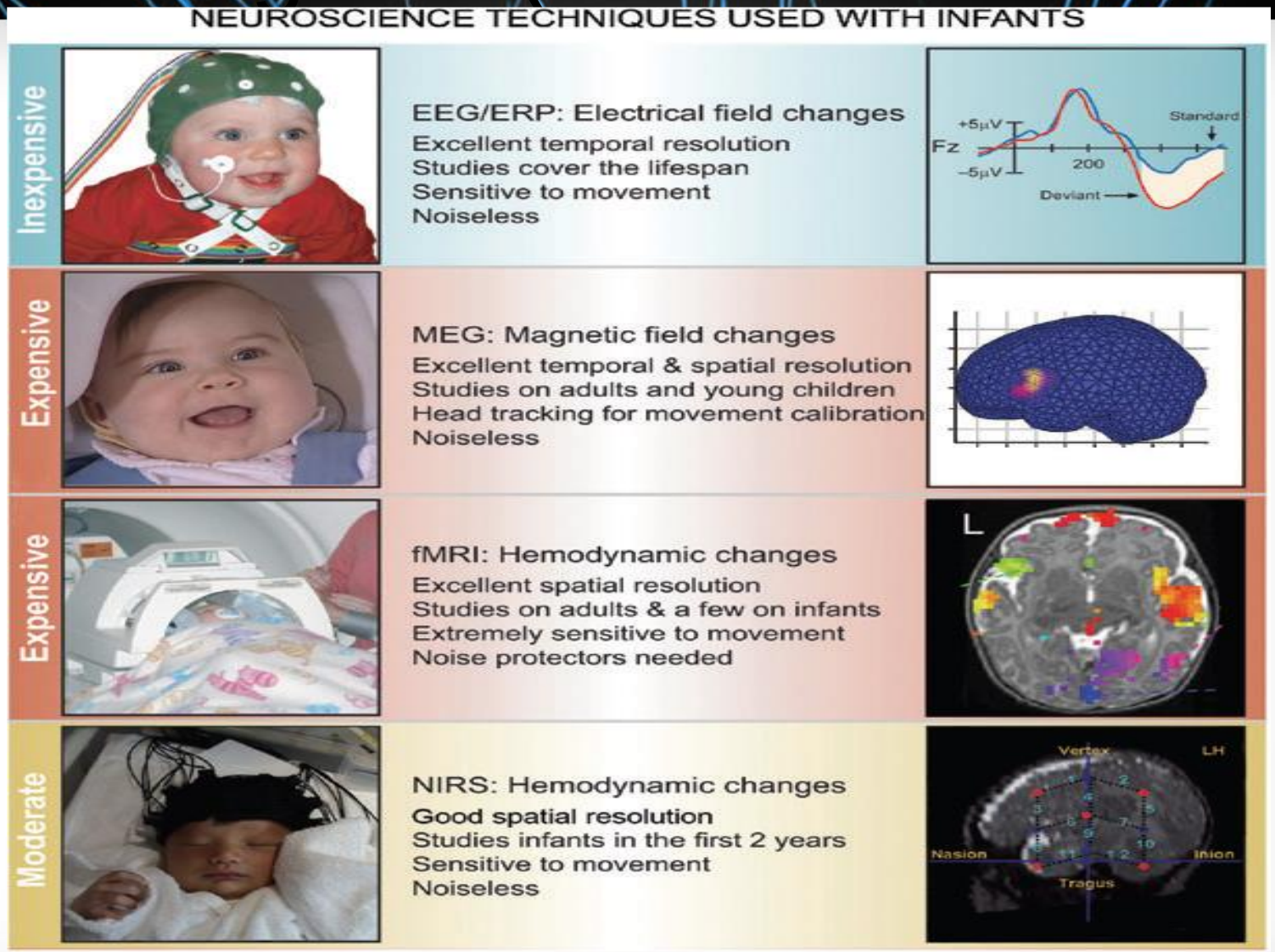
Neuroscience & Early Childhood

Berna SİCİM
Early Childhood Education & Neuroscience

Early Language Learning and Literacy: Neuroscience Implications for Education
Patricia K. Kuhl (2011)

- Rapid advances have been made in noninvasive techniques that examine language processing in young children.
  - Electroencephalography (EEG)/Event-related Potentials (ERPs)
  - Magnetoencephalography (MEG),
  - Functional Magnetic Resonance Imaging (fMRI),
  - Near- Infrared Spectroscopy (NIRS).

Fig. 1. Four techniques now used extensively with infants and young children to examine



Early Language Learning and Literacy: Neuroscience Implications for Education
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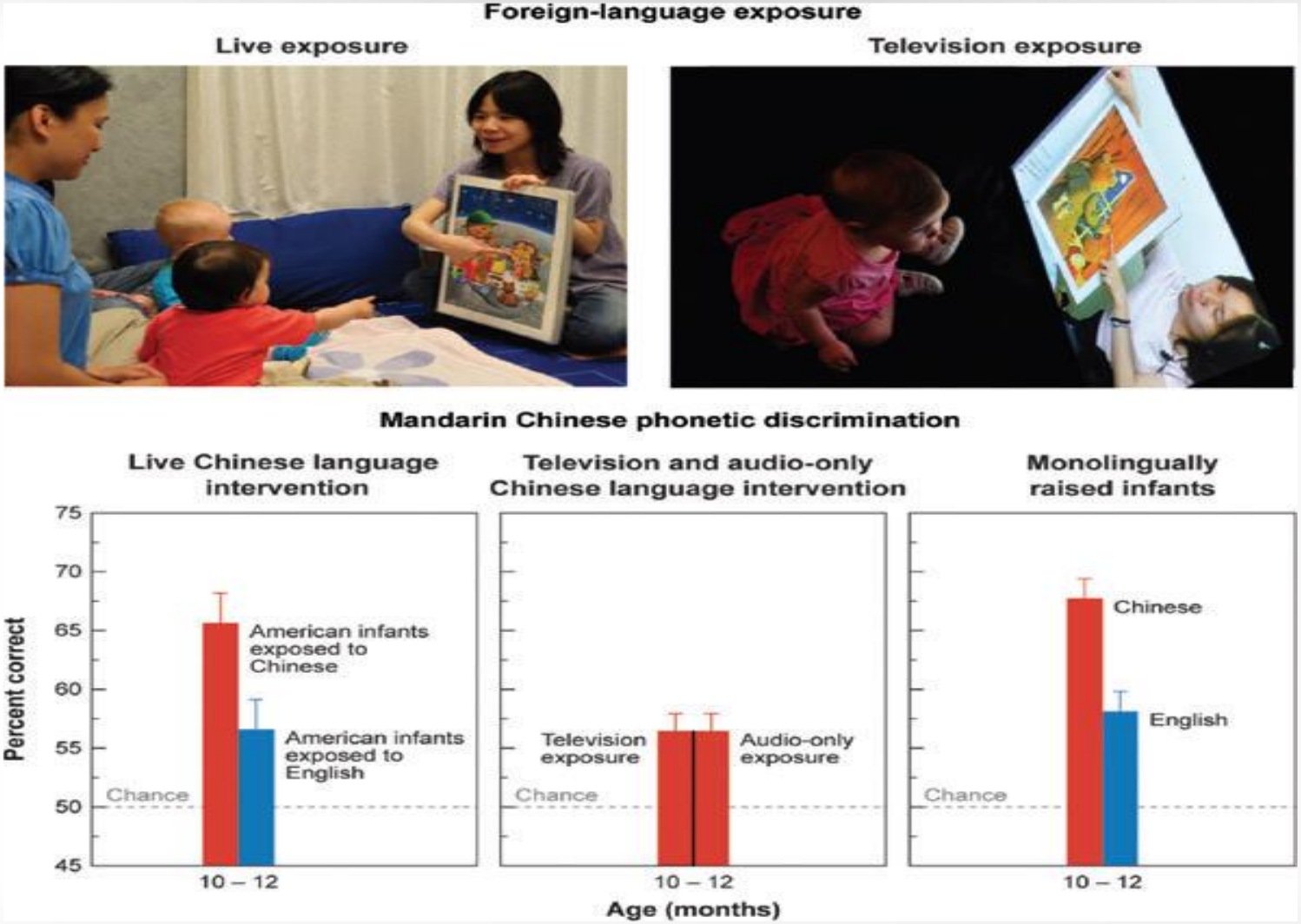


Early Language Learning and Literacy: Neuroscience Implications for Education
Patricia K. Kuhl (2011)

- The need for social interaction in language acquisition is shown by foreign-language learning experiments. Nine-month-old infants experienced 12 sessions of Mandarin Chinese through (a) natural interaction with a Chinese speaker (left) or the identical linguistic information delivered via television (right) or audiotape (not shown). (b) Natural interaction resulted in significant learning of Mandarin.

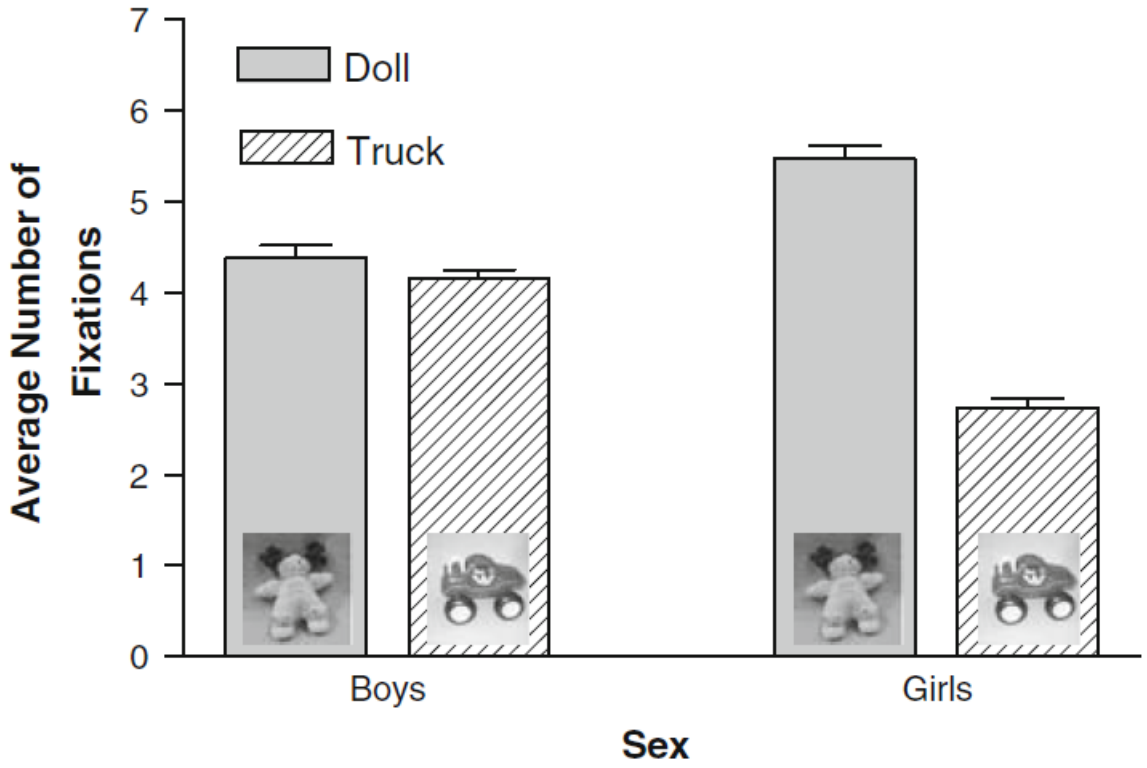
What Children Are Looking at During Shared Storybook Reading Evidence From Eye Movement Monitoring(Evans & Saint-Aubin,2005)

- Two studies were conducted to determine the extent to which young children fixate on the print of storybooks during shared book reading.
- In both studies, children spent very little time examining the print regardless of the nature of the print and illustrations

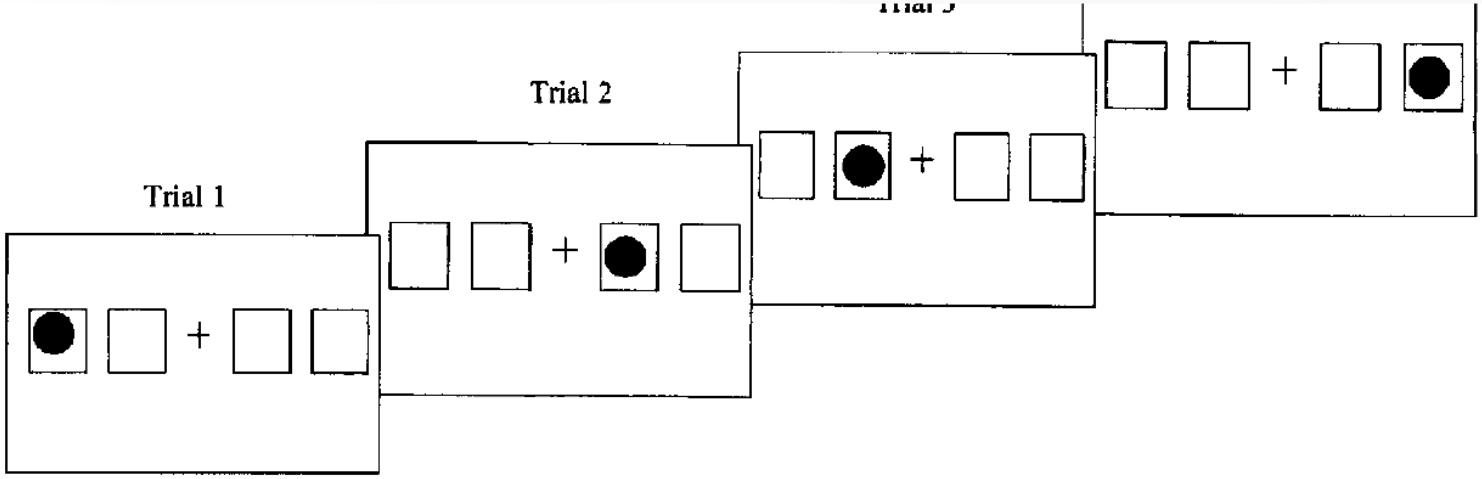
What Children Are Looking at During Shared Storybook Reading Evidence From Eye Movement Monitoring(Evans & Saint-Aubin,2005)

- Eye movements were measured with an SR Research EyeLink II system.
- A light headband and three camera systems were used to simultaneously track both eye and head position (to allow compensation for head movements).

Sex Differences in Infants' Visual Interest in Toys
Alexander, Wilcox & Woods (2009)



Spatial Working Memory in Children(Nelson et al. (2000)



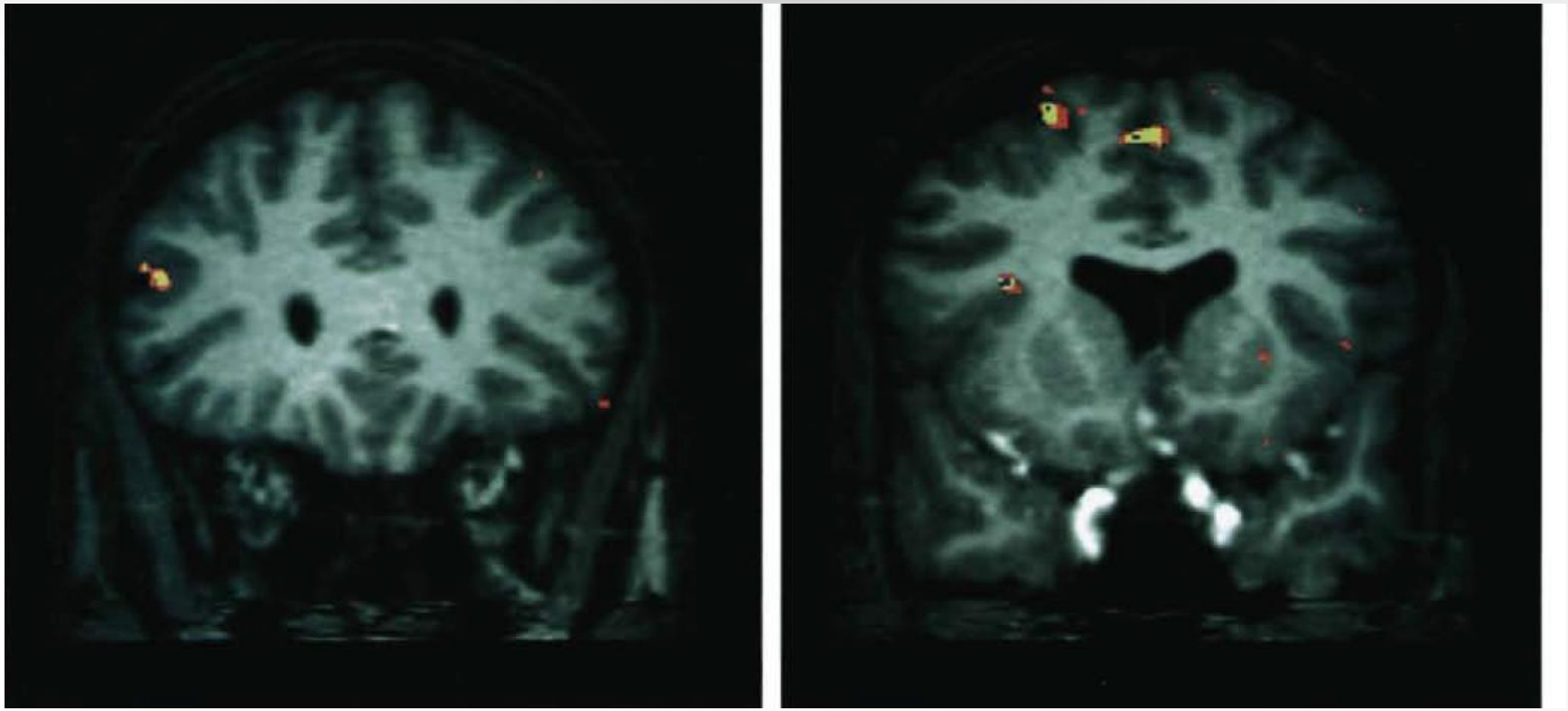
Trial	Visual Condition	Motor Condition	Memory (2 back) Condition
1	no response	button 1	no response
2	no response	button 3	no response
3	no response	button 2	button 1
4	no response	button 4	button 3

Figure 1. The behavioral paradigm. A colored dot was presented randomly in squares across trials. In the visual task, participants watched the dot. In the motor task, participants pressed the button that corresponded to the

Spatial Working Memory in Children(Nelson et al. (2000)

Functional magnetic resonance imaging (fMRI) was used to examine spatial working memory in 8- to11-year-old children tested under three conditions. In the visual condition, children were asked to examine the location of a dot on a screen. In the motor condition, children were instructed to push a button that corresponded to the location of a dot presented on a screen. In the memory condition, children were asked to remember the location of a dot presented

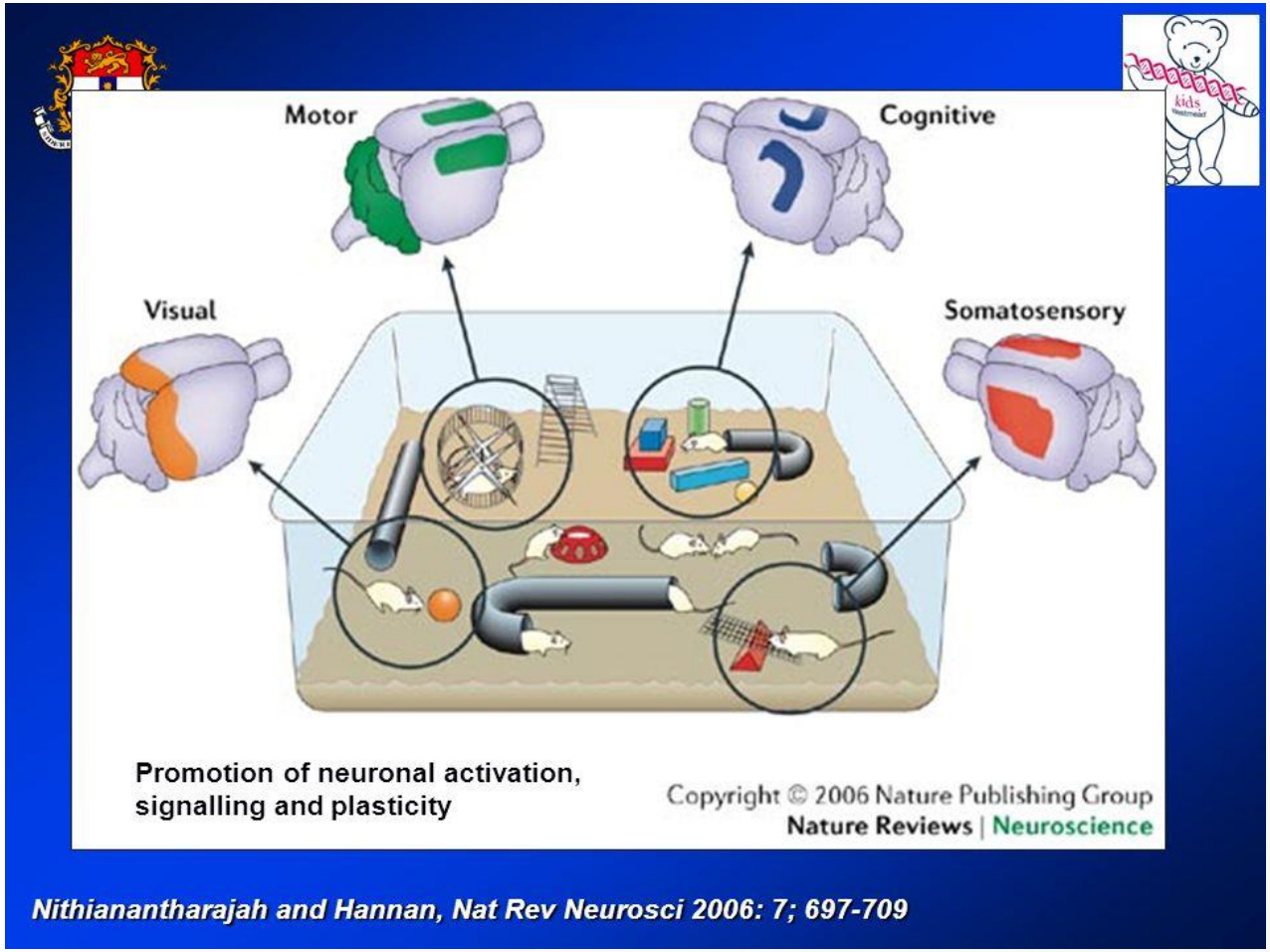
Spatial Working Memory in Children(Nelson et al. (2000)



A summary activation map across all participants in the memory versus motor comparison: (a) Activity in the middle frontal gyms, (b) Activity in the superior frontal gyms. The colors indicate areas in which participants showed activation: blue = 7 participants; yellow = 6 participants; red = 5 participants.

A study for environment factor...

(Nithianantharajah & Hannan, 2006).



Researchers have examined enriching rat environments with visual, motor, somatosensory, and cognitive stimuli to provide more novelty and complexity and assess the emergent neurological and behavioral changes (Nithianantharajah & Hannan, 2006).

- Neuroscience is beginning to link animal studie of specific genetic regions to environmental factors and to gradually explore parallel linkage in humans (see Hyman, 2009; McGowan et al., 2009)
- Children who were victims of parental abuse during the first decade of life, for example, have been shown to make incorrect judgments about facial expressions and overinterpret neutral signals as threatening (Pollak & Kistler, 2002).

Linking Brain Research and Federal Early Childhood Programs and Policies (Kam Sripada, 2012)

- Learning takes place throughout life, yet the brain is most sensitive to experiences early on, both positive and negative.
- Babies are born with more neurons than they will have as adults, and the neural pruning that takes place during the infant and toddler years is a critical mechanism for development.
- The early years represent the most unique and valuable opportunity to support children's environment and promote healthy development

NEUROSCIENCE AND POLICY

Although the restructuring of the state's early care system alone may not have immediately impacted children's outcomes, the process of engaging researchers with policymakers raised awareness of the neuroscience issues specific to early life and helped promote meaningful changes to the system

In a more recent example, a team of neuroscientists, psychiatrists, social workers, pediatricians, and others from multiple universities collaborated on the Bucharest Early Intervention Project (BEIP), which was launched in 2001 to examine the biological, cognitive, and emotional effects of early institutionalization in Romania (Nelson et al., 2007)

Selected Publications

Stamoulis C, Vanderwert R, Zeanah CH, Fox NA, & Nelson CA (2015). Early psychosocial neglect adversely impacts developmental trajectories of brain oscillations and their interactions. Journal of Cognitive Neuroscience, 27 (12): 2512-28. [abstract]

Zeanah, C.H., Nelson, C.A., Fox, N.A., Smyke, A.T., Marshall, P., Parker, S.W., & Koga, S. (2003). Designing research to study the effects of institutionalization on brain and behavioral development: The Bucharest Early Intervention Project. *Development and Psychopathology, 15(4),* 885-907. PMID: 14984131. [abstract]

Marshall, P.J., Fox, N.A., & the BEIP Core Group. (2004). A comparison of the electroencephalogram between institutionalized and community children in Romania. *Journal of Cognitive Neuroscience 16(8),* 1327-1338. PMID: 15532128. [abstract]

Zeanah, C.H., Smyke, A.T., Koga, S.F., Carlson, E., & the BEIP Core Group. (2005). Attachment in institutionalized and community children in Romania. *Child Development, 76(5),* 1015-1028. PMID: 16149999. [abstract]

Nelson, C.A., Zeanah, C.H., Fox, N.A., Marshall, P. J., Smyke, A.T., & Guthrie, D. (2007). Cognitive recovery in socially deprived young children: The Bucharest Early Intervention Project. *Science, 318(5858),* 1937-1940. PMID: 18096809. [abstract]

Bos, Karen J., Fox, N., Zeanah, C.H., & Nelson, C.A. (2009). Effects of early psychosocial deprivation on the development of memory and executive function. *Frontiers in Behavioral Neuroscience, 3,* 1-7. PMID: 19750200; PMCID: PMC2741295. [abstract] [PDF]

Nelson, C.A., Furtado, E.A., Fox, N.A., & Zeanah, C.H. (2009).The deprived human brain. *American Scientist, 97,* 222-229. [full text]

Smyke, A.T., Zeanah, C.H., Fox, N.A., & Nelson, C.A. (2009). A new model of foster care for young children: The Bucharest Early Intervention Project. *Child and Adolescent Psychiatric Clinics of North America, 18(3),* 721-734. PMID: 19486847. [abstract]

Zeanah, C.H., Egger, H.L., Smyke, A.T., Nelson, C.A., Fox, N.A., Marshall, P.J., & Guthrie, D. (2009). Institutional rearing and psychiatric disorders in Romanian preschool children. *American Journal of Psychiatry, 165,* 777-785. PMID: 19487394. [abstract] [PDF]

Bos, K., Zeanah, C.Z., Fox, N.A., & Nelson, C.A. (2010). Stereotypies in children with a history of early institutional care. *Archives of Pediatrics and Adolescent Medicine, 164(5),* 406-411. PMID: 20439790. [abstract] [full text]

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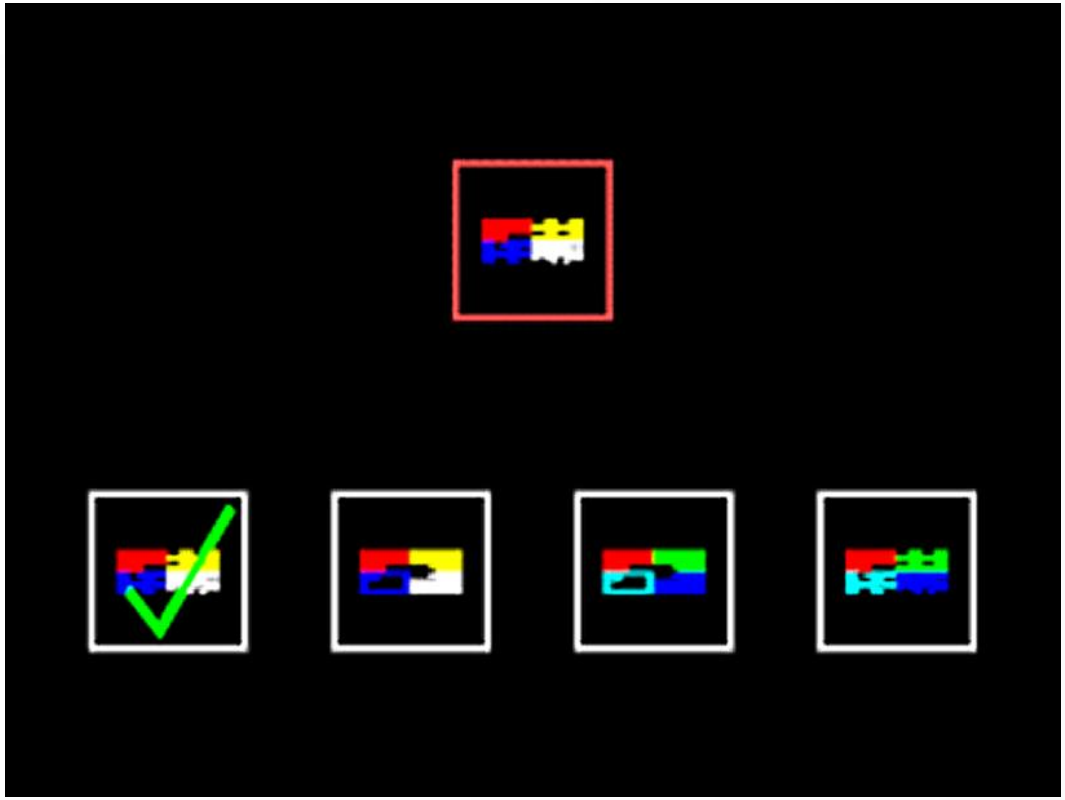
Bucharest Early Intervention Project (BEIP),

This study investigated the effects of early institutional care on memory and executive functioning. Subjects were participants in the Bucharest Early Intervention Project (BEIP) and included institutionalized children, children with a history of institutionalization who were assigned to a foster care intervention, and community children in Bucharest, Romania. (Bos, Karen J., Fox, N., Zeanah, C.H., & Nelson, C.A. (2009))

Figure 1. Screen shot of one of the matching trials of the Delayed Matching to Sample subtest.



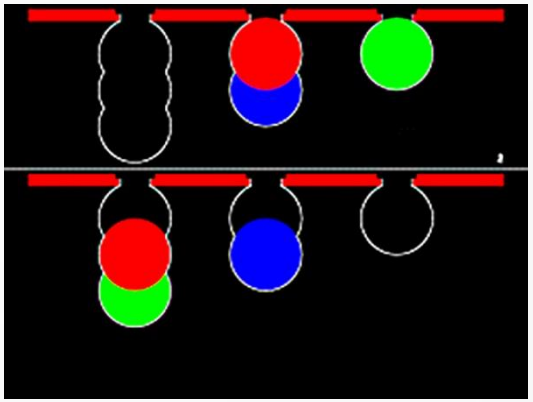


Figure 2. Screen shot of one of th trials of the Stockings of Cambric subtest.

GOVERNMENT-SUPPORTED EARLY CHILDHOOD STUDIES

- the U.S. Department of Education's Institute of Education Sciences(14.000 children)
- The Study of Early Child Care and Youth Development at the National Institute of Child Health and Human Development (NICHD) (1000 children)

They investigated connections between type of child care; number of hours spent in care; and other factors related to health, language, social, and cognitive outcomes at elementary school entry—aspects that touch on programs across federal agencies (NICHD, 2006).

Emerging neuroscience research on a number of topics in early childhood development, including brain changes accompanying interventions for dyslexic children (National Science and Technology Council, 2009). The National Science Foundation has provided funding for translational research connecting anatomical changes in the brain with educational interventions, including learning disabilities and dyslexia in children.

ECONOMIC IMPACT

- Research tying child development findings to economic outcomes has focused on the High= Scope Perry Preschool Project in Michigan, the Carolina Abecedarian Project, and Chicago's Child-Parent Centers.
- These intervention studies have shown that an investment during early childhood in high-quality early childhood programs can more than repay itself in later years (Knudsen et al., 2006).

PARTNERSHIPS WITH PROFESSIONAL ORGANIZATIONS

- The Society for Neuroscience (SfN) coordinates a number of advocacy initiatives that allow scientists to engage with congressional leaders and others with a stake in policy that influences early childhood settings. (Society for Neuroscience, 2009, p. 38).
- Brain Awareness Week, an educational outreach effort to demonstrate the importance of neuroscience research to a wide audience, including children and students.

COMMUNICATION AND COLLABORATION

- The Office of Program and Public Liaison (OPPL at the NICHD, for example, coordinates communication between the scientific network at the National Institutes of Health and those working on legislation and congressional reports on Capitol Hill.

- A major challenge for the communication of science findings as they apply to early childhood settings is the creation and notice of a consistent, evidence-based message. Policymakers are flooded with information and ideas from advocates on all sides. It is often easier for them to rely on popular media and non–research organizations to learn about science rather than the researchers who actually conduct the studies.

Neuroscience, Play and Early Childhood Education: Connections, Implications and Assessment (Rushton, Juola-Rushton & Larkin(2000)

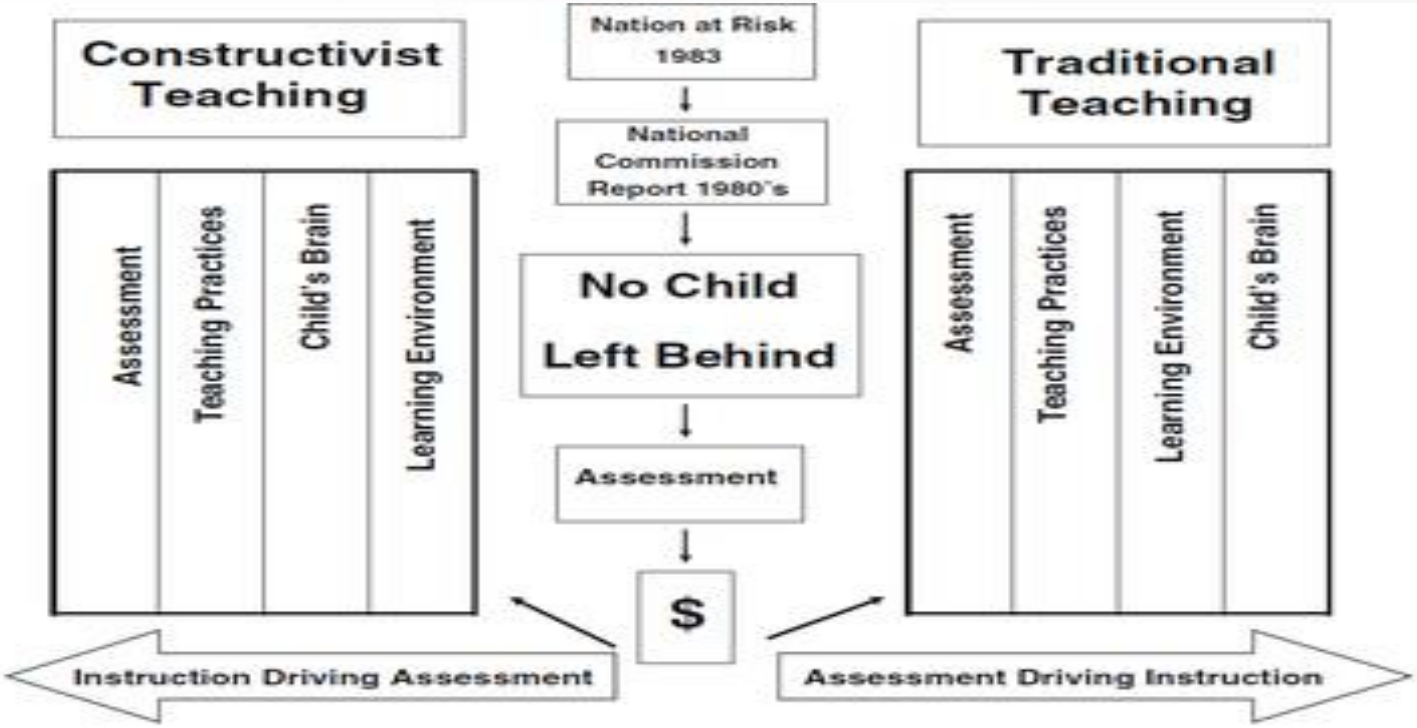


Fig. 1 Curriculum driven by assessment or instructi

In Turkey

Nevzat Tarhan

ANASAYFA ÖZGEÇMİŞ KİTAPLAR HABERLER KÖŞE YAZIL

Prof. Dr. Nevzat Tarhan: "İlaç yerine Nöroteknoloji" dönemi başlıyor...

Tweet Like 3 Share 3 G+1 0

14.10.2015

Üsküdar Üniversitesi'nin ilk dersi Uluslararası Beyin İnisiyatifi Projesi

Beyin üzerine yaptığı araştırmalar ve çalışmalarla tanınan Üsküdar Üniversitesi ve akademisyen Doç. Dr. Sinan Canan, Üsküdar Üniversitesi'nin akademik yıl açılışında buluştu. Rektör Prof. Dr. Nevzat Tarhan, G20 Zirvesi'nde de ele alınacak ve proje ortağı olduğu Brain İnitiative Projesi'ndeki son gelişmeleri aktardı. Üniversitenin ilk dersi ise Doç. Dr. Sinan Canan'ın beyin performansını artırmanın yollarını içeren "Değişen Be(y)nim" sunumu oldu.

Davranış Bilimleri ve Sağlık alanında Türkiye'nin ilk tematik üniversitesi olan Üsküdar Üniversitesi akademik yılını uluslararası bilim platformunda insanlık tarihi için çok önem taşıyan Brain İnitiative (Beyin İnisiyatifi) Projesi'ne "proje ortağı" olarak açtı.

Törende konuşan Rektör Prof.Dr. Nevzat Tarhan, 4 yıl önce kurulan bir üniversite olarak bu yıl 10 binin üzerinde öğrenciyle yeni akademik yılın açılışını yaptıklarını belirterek nitelikli ve kaliteli eğitimin sayıdan daha önemli olduğunu söyledi. Üniversite olarak yeniliklerin takipçisi olduklarını belirten Prof.Dr. Tarhan, bilgiyi ürüne dönüştürecek projelerin olduğunu kaydetti.

ABD Başkanı Barack Obama'nın 2013 yılında başlattığı Beynin bilinmeyen sırlarının aydınlatılması, Parkinson ve Alzheimer gibi önemli hastalıkların araştırılıp tedavilerinin geliştirilmesi amacıyla proje ile Rektör Prof. Dr. Nevzat Tarhan Üsküdar Üniversitesi'nin Türkiye ve Ortadoğu'yu temsil edecek tek Türk üniversitesi olarak bu proje kapsamında hangi çalışmaları yürüteceğini anlattı.

Prof.Dr. Tarhan, 13 Kasım'da Üsküdar Üniversitesi'nin ev sahipliğinde Brain Mapping Initiative Derneği (Beyin Haritalama Derneği) ve Türkiye Nöroşirurji Derneği ile ortaklaşa düzenlenecek ilk bilimsel sempozyumun sonuçlarının 15 Kasım'da Antalya'da düzenlenecek Uluslararası G20 Zirvesi'nde paylaşılacağını söyledi.

İlaç yerine nöroteknoloji dönemi

Bilişsel Bebek Araştırmaları Merkezi - BeBeM

Anasayfa | Bizi Ziyaretiniz | Araştırmalarımız | Sıkça Sorulan Sorular | Proje Ekibi | Basından

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BabyLab, Informatics Institute, Middle East Technical University, TURKEY

EMLAR IX, UiL-OTS, Utrecht University - Nederlands, January 30th - February 1st, 2013

Research Question

In a longitudinal study with 6- and 10-month-old monolingual Turkish infants, we wanted to find out at what age they are/become sensitive to (1) [back-front] vowel harmony and (2) [round-unround/back-front] vowel harmony.

Background

Van Kampen et al. (2008) found that 6-month-old Turkish but not German infants preferred listening to [back-front] vowel-harmonic pseudo-words such as "letinn" over vowel-disharmonic words such as "nelock".

Furthermore, Mintz and Walker (2006) showed that 7-month-old American infants familiarized with a continuous stream of artificial CV-syllables preferred listening to two-syllabic vowel-harmonic over disharmonic pseudo-words, presented in isolation.

Introduction

In two experiments, we presented infants (1) lists of low-frequency [back-front] vowel-harmonic and -disharmonic words such as *"kemir-mek" vs. "kemir-mak"* and (2) lists of various [back-front/round-unround] vowel-harmonic and disharmonic words such as *"yordam-sız" vs. "yordam-suz"*. Orientation times between 8 test-trials of vowel-harmonic and –disharmonic lists were compared.

Methodology

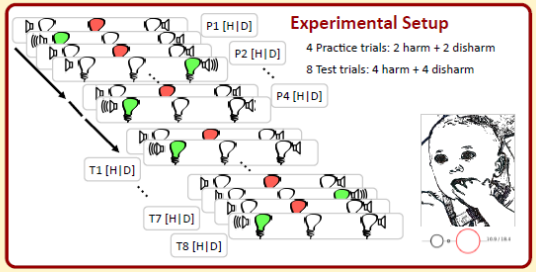
Tokens of morphologically complex stem-suffix sequences are used.

Stem list
kesit
ibre
forum
kemir
yaz
batak
öde
öve
bayır
⋮

Suffix list +/-back
-ler, -lar
-e, -a
-de, -da
-den, -dan
-me, -ma
-ce, -ca
-se, -sa
-elim, -alım
-ecek, -acak
-sel, -sal

Suffix-list +/-round, +/-back
-ı, -i, -u, -ü
-lı, -li, -lu, -lü
-lık, -lik, -luk, -lük
-ış, -iş, -uş, -üş
-dı, -di, -du, -dü
-mış, -miş, -muş, -müş
-sız, -siz, -suz, -süz
-cık, -cik, -cuk, -cük
-ımsı, -imsi, -umsu, -ümsü

List of sample stems and complete lists of [back/front] and [round/unround, back-front] suffixes



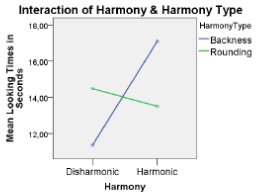
Experimental Setup

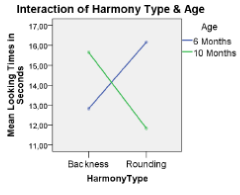
4 Practice trials: 2 harm + 2 disharm

8 Test trials: 4 harm + 4 disharm

Results

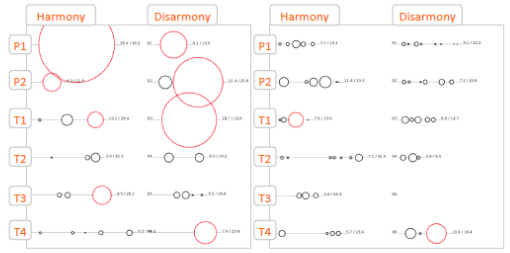
When analyzing all 8 test-trials, no significant differences were found between harmonic vs. disharmonic trials, at 6 or 10 months, in [back-front] and [back-front/round-unround] conditions, indicating that real Turkish stem-suffix sequences may be too rich in information so that infants experience difficulties extracting the relevant phonological dimensions from them.





However, when analyzing only the very first trial of the experiment during which orientation time is still high, we found evidence for discrimination even in the 6-month-olds, in particular for [back-front] harmony.

Looking Diagrams of Two Babies



*circles indicates uninterrupted lookings periods. In this diagram red color indicates >5 sec looking periods.

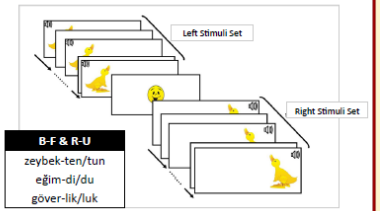
New Experiment

As a consequence of these findings, we are currently conducting experiments with more controlled stimuli, displayed on a computer screen and supported by attractive visual figures in order to facilitate infants' interest in the task. More clear-cut results are expected from this study.

B-F
zeybek-ten/-tan
yaylım-a/e
vantuz-a/e

R-U
eğim-di/dü
göver-lik/lük
uyluk-suz/sız

B-F & R-U
zeybek-ten/tun
eğim-di/du
göver-lik/luk



Acknowledgement

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AÇEV
ANNE ÇOCUK EĞİTİM VAKFI

Sitede Ara

Uluslararası Çalışmalarımız | Haberler | Kaynaklarımız

Biz Kimiz | Ne Yapıyoruz | Eğitim Duraklarımız | Bize Katılın | Online Bağış

- Eğitim Yaklaşımımız
- Nerelerdeyiz
- Anne-Babalar İçin
- ☒ Çocuklar İçin
- Eğitimciler İçin
- Okuryazarlık İçin
- Bilinçlendirme İçin
- Merkezlerimiz

› Çocuklar İçin


Anne Çocuk Eğitim Programı


Okul Öncesi Veli Çocuk Eğitim Programı


AÇEV Yaz Anaokulları


Eğlenerek Öğreniyorum


Benimle Oynar mısın?

SAYFA BAŞI

Türkiye'de Erken Çocukluk Gelişim Ekolojileri (TEÇGE) Çalışması

TEÇGE erken çocukluk dönemini incelemeyi hedefleyen ulusal ve boylamsal gelişim çalışmasıdır. TEÇGE, 3 yaştan 7 yaşa kadar oluşan erken çocukluk bağlamlarını sosyal-duygusal ve bilişsel gelişim yörüngelerine bağlayan neden-sonuç ilişkilerini derinlemesine çalışmayı hedeflemektedir.

Nazlı Baydar ve Nuran Aydemir > Sosyoloji - Psikoloji

TEÇGE, Türkiye'de erken çocukluk dönemindeki çocuklarla yapılan geniş kapsamlı boylamsal bir çalışmadır. Bu proje, Koç Üniversitesi Psikoloji ve Sosyoloji bölümlerinden Nazlı Baydar, Zeynep Cemalcılar, Fatoş Göksen, Aylin Küntay ve Bilge Yağmurlu tarafından yürütülmektedir.

Erken çocukluk, önemli bilişsel, sosyal ve duygusal gelişmelerin yaşandığı bir dönemdir. Erken çocukluk okul çağına kadar devam eden bir süreyi kapsadığından, bu dönemi içerisinde gelişmiş olan kapasiteler çocuğun okula uyumunu, okula bağlılığını ve okul başarısını oldukça güçlü şekilde etkilemektedir. Okulla ilintili tutum ve davranışlar sürekllilik arz ettiğinden, uzun vadede bireylerin sosyo-ekonomik durumlarını da etkileyebilir. Bu sebeple erken çocukluk çağı döneminin gelişim yörüngelerini anlamak ve bu yörüngeleri etkileyen faktörleri tespit etmek gelişim bilimin önemli amaçlarından birini oluşturmaktadır. Gelişim yörüngelerinin çalışılması ve anlaşılması doğru ve etkin sosyal ve eğitim politikalarının belirlenmesi için de önemlidir.

Erken çocukluk dönemi, büyük oranda eğitim politikalarının dışında yapılanan toplumsal kurumlarda geçmektedir. Bu kurumlar, çekirdek aile, geniş aile, mahalle, aileden olmayan kişilerin sağladığı bakım ortamları, kreşler, yuvalar ve ana okulları olabilir. Yaygın olarak kabul edilen gelişim teorilerine göre, erken çocukluğun geçtiği bu kurumlar ve çocuğun gelişim yörüngeleri karşılıklı olarak birbirini etkilemektedir [1]. Çocuğun gelişim yörüngeleri, bu diyalektik süreç içinde biçimlenmektedir. Başka bir deyişle, gelişimin gerçekleştiği sosyal bağlamların (gelişim ekolojilerinin) çocuğun bilişsel, sosyal ve duygusal gelişimiyle olan ilişkisinin ve bu ilişkiyi tanımlayan süreçlerin çalışılması ve iyice anlaşılması çok önemlidir. Türkiye gibi, okul öncesi eğitimin yaygın olmadığı, kurumsal bir eğitimin erken çocuklukta gerekli görülmediği ya da kültürel olarak arzu edilmediği toplumlarda, erken çocukluk döneminin informel gelişim bağlamlarını anlamak daha da önemli bir hale gelmektedir.

Türkiye'de Erken Çocukluk Gelişim Ekolojileri (TEÇGİE) çalışması boylamsal bir çalışma olarak tasarlanmış olup, erken çocukluk döneminde gelişim ekolojilerinin belirlenmesine, ölçülmelerine ve bunların erken çocukluk dönemi boyunca çocukların gelişimi üstündeki etkilerine odaklanmaktadır. Bu yazının bundan sonraki kısmında, TEÇGE'nin amaçları ve önemi, uygulama sırasında karşılaştığımız ve üstesinden gelmek zorunda olduğumuz zorluklar, ve son olarak da birkaç ay önce tamamlanmış olduğumuz pilot çalışmaya ait bazı sonuçlar sunulmaktadır.

TEÇGE'nin Amaçları ve Önemi

TEÇGE, Türkiye'de çocukların gelişim ekolojilerini çalışmayı hedeflemektedir. TEÇGE'de çalışılacak olan gelişim ekolojileri, çekirdek aile, geniş aile, okul ve çocuğun da içinde yer aldığı cemiyettir. Bunun ötesinde, TEÇGE, bu ekolojilerin her birinin birbirleriyle olan etkileşimlerinin de erken çocukluk dönemindeki gelişim ile ilintili olduğunu öne sürmektedir ve bu ilişkileri de ele alacaktır. Yani, erken çocukluk döneminde çocuğun bilişsel ve sosyal-duygusal gelişimine etki etme potansiyeli bulunan tüm sosyal ve çevresel faktörler TEÇGE araştırmasının kapsamına girmektedir. Gelişim ekolojilerinin birbirleriyle ve her bir ekolojinin gelişimde olan etkileşimine dair süreci ayrıntılı olarak, niteliksel ve niceliksel yöntemler kullanarak anlamaya çalışmak TEÇGE'nin amacıdır. Böylece TEÇGE, çocukların bilişsel, sosyal ve duygusal gelişiminin optimum seviyeye gelmesine destek olacak etkin eğitim politikalarının belirlenmesine, mevcut informel gelişim ekolojilerine uygun müdahale programlarının geliştirilmesine, veya gelişimi destekleyici yeni bağlamların oluşturulmasına katkıda bulunacaktır. Türkiye'de erken çocukluk dönemi gelişim programlarına örnek olarak Anne Çocuk Eğitim Vakfı (AÇEV) tarafından sürdürülen "7 Çok Geç" ve "Anne-Çocuk Eğitim Programı" gösterilebilir.

TEÇGE, erken çocukluk dönemi gelişimi bağlamlarına odaklanarak daha önce ABD ve Avrupa'da yapılmış olan bir dizi boylamsal

Tablo 1. TEÇGE pilot çalışmasında kullanılan ölçekler, soru formları ve gelişim testleri

Ölçeğin/Testin Adı	Kullanılan ölçeğin kaynağı hakkında bilgi	Ölçeğin TEÇGE için uyarlanıp uyarlanmadığı
1. Demografik Bilgi Formu	TEÇGE Ekibi tarafından geliştirilmiştir.	√
2. SF-36 Yaşam Kalitesi Envanteri	MOS-36 Health Survey[9]	√
3. Kısa Semptom Envanteri	Geliştiren: L. R. Derogatis (1992)[10] Türkçesi : Şahin, N. H., & Durak, A. (1995)[11]	X
4. Anne Destek İndeksi	Geliştiren: Henderson et al., 1978[12] Türkçesi: Kumru, Sayıl ve Yağmurlu tarafından TÜBİTAK araştırma projesi için hazırlandı[13].	√
5. Aileden Anneye Gelen Destek	Geliştiren: Zimet, Dahlem, Zimet & Farley, 1988[14]	√
6. Yaşanan Mahalle Ekolojisi Anketi	TEÇGE Ekibi tarafından geliştirilmiştir.	
7. Evlilikte Doyum Ölçeği	Geliştiren: Baydar, N. & Yumbul, C. 2005[15]	√
8. Yarı-yapılandırılmış Gözlem Protokolü	TEÇGE Ekibi tarafından geliştirilmiştir.	
9. Anne/Çocuk Sağlık Envanteri	SF-36 Yaşam Kalitesi envanterinin Genel Sağlık Algısı alt ölçeği eklenerek TEÇGE Ekibi tarafından geliştirilmiştir.	√
10. Ebeveyn Amaçları Anketi	Geliştiren: Schaefer and Edgerton, 1985[16] Türkçesi: Yağmurlu & Sanson, 2004	√
11. Çocuklar için Kısa Mizaç Envanteri	Geliştiren: Prior, MR., Sanson, AV & Oberklaid, F. 1989[17] Türkçesi: Kumru, Sayıl ve Yağmurlu tarafından TÜBİTAK araştırma projesi için hazırlandı[13].	√
12. Uyumlu Sosyal Davranış Envanteri	Geliştiren: Hogan, Scott, & Bauer, 1992[18] Türkçesi: TEÇGE Ekibi tarafından geliştirilmiştir.	√
13. Dışsallaştırma Envanteri	Geliştiren: Eyberg, S., & Pincus, D. (1999)[19]Türkçesi: Kumru, Sayıl ve Yağmurlu tarafından TÜBİTAK araştırma projesi için hazırlandı[13].	√
14. Çocuk Yetiştirme Anketi	Geliştiren: Sanson (1994)[20] Modifikasyon: Paterson & Sanson (1999)[21] Türkçesi: Boratav (2003)[22]	√
15. Çocuk bakımı	TEÇGE Ekibi tarafından geliştirilmiştir.	
16. Mullen Gelişim Testi	Geliştiren: Mullen, 1992[23] Türkçesi: Küntay, 2007 (Mullen Early Learning Scales)	X
17. Kırtıağa Hikayesi Prosedürü	Uyarlama: Berman & Slobin, 1994:34; Strömqvist&Verhoeven, 2004[24] Türkçesi: TEÇGE Ekibi tarafından geliştirilmiştir.	X
18. İşleyen Bellek Protokolü	Geliştiren: Gitgüz, 2004[25]	X
19. ACEP Sözcük Bilgisi Testi	Geliştiren: Gitgüz, 2004[26]	X
20. HOME	Geliştiren: Caldwell & Bradley, 1984[27] Türkçesi: TEÇGE Ekibi tarafından geliştirilmiştir.	√
21. Anketör izlenimleri ölçeği	TEÇGE Ekibi tarafından geliştirilmiştir.	

- Bazı çalışmalar göstermektedir ki, zenginleştirilmiş ortamlar bebeklerin ve küçük çocuklarin öğrenmelerini iyileştirebiliyor. Çocukların tabletlerle eğitsel oyun oynamalarına izin verme de zenginleştirilmiş bir ortamda öğrenmeye örnek olabilir mi? Hangi yaşlarda aileler çocuklarının tablet kullanmalarına izin vermeli? Tabletlerdeki mobil uygulamaların küçük yaştaki çocukların öğrenmelerine yardımcı olması için ne gibi özelliklere sahip olması gerekir? (Ecenaz)