

Effects of Early Attachment Pattern on the Processes of Interpersonal Problem Solving and Explicit Memory in Preschool Children



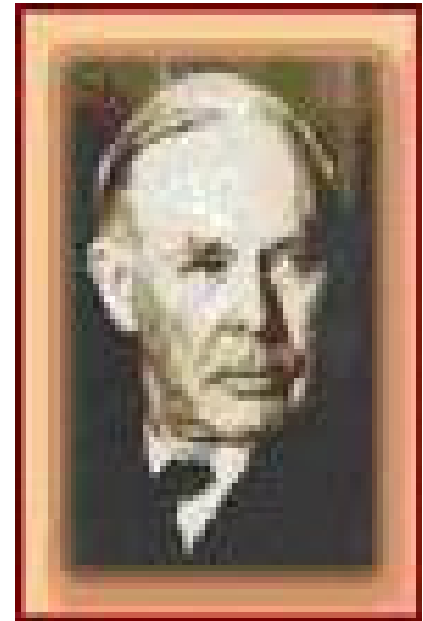
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Early Developmental Periods

ATTACHMENT THEORY (1969)

John Bowlby

Attachment is an innate, evolutionary propensity to make strong emotional bonds to particular individuals.



Characteristics of Attachment

- **Proximity Maintenance** - The desire to be near to the attachment figure.
Safe Haven - Returning to the attachment figure for comfort and safety in the face of a fear or threat.
Secure Base - The attachment figure acts as a base of security from which the child can explore the surrounding environment.
Separation Distress - Anxiety that occurs in the absence of the attachment figure.

Function of Attachment System

- Attachment system helps the baby to maintain *closeness* to a special person in order to feel himself as *physically and emotionally secure*.
- Consistency in this secure position gives way to form *positive mental representations* of self and the caregiver. Positive mental representations are potential *self regulating components* in the future.



Attachment Patterns

- **Ainsworth, Blehar and Waters' (1978) classification:**
 - **Secure attachment**
 - **Ambivalent insecure attachment**
 - **Avoidant insecure attachment**
 - **Disorganized insecure attachment (Main and Solomon, 1986)**

Strange Situation Experiment (Ainsworth et al. 1978)

- In the absence of the mother, **secure children** were slightly distressed but no panic.
- They look for a physical attachment with their mothers
- When mothers were back, secure children were able to use them as a secure base which allow them to explore the environment
- Mothers of secure children were sensitive, available and responsive.



Strange Situation Experiment (Ainsworth et al. 1978)

- **Ambivalent insecure children** were extremely anxious and angry in the absence of the mother
- Rejected communication with the stranger in the room.
- It was hard to settle them even upon the return of the mothers.
- Instead of exploring the environment, they cling and stick to the mother.
- Mothers of ambivalent children were usually inconsistent in their responses; sometimes unavailable or unresponsive and sometimes extremely intrusive...



Strange Situation Experiment (Ainsworth et al. 1978)

- **Avoidant children** looked as if they were not affected by absence of the mother.
- When reunited they behaved in a detached manner towards the mother and avoided physical contact.
- Mothers of avoidant children were usually distant and rejecting physical contact with their children.



Internal Working Models (IWM)

- **Representations of appraisals of the caregiver's responsiveness to the child's expression of attachment goals and of the child's own worthiness to deserve care.**
- **IWMs function as mental maps in the brain.**
- **Some interpersonal information is processed by means of these maps.**
- **They are unconscious and saved in the implicit memory (Bowlby, 1973; 1980; Hazan ve Shaver, 1994; Knox, 1999; Main ve ark., 1985; Page, 2001; Schore, 2000).**

Differences Between Secure and Insecure Attachment Groups

- **Secure:** Flexible and positive self concept, high tolerance of stress, strong affect regulation, Flexible information processing.
- **Insecure:** Rigid (negative/positive) self concept, low tolerance of stress, difficulties in affect regulation and social relationships, attentional deficiencies.

Synchronicity in Attachment Relationship and Affect Regulation

- Attachment is dyadic regulation of emotion (Schoore, 2000,2001).
- In a secure attachment relationship, a primary caregiver consistently attunes changing emotional states of a baby.
- A goodenough attunement, helps baby to tolerate distance from the caregiver.
- Mothers sensitivity towards the need of the baby's reapproachment, brings out the synchronicity of interaction.



Synchronicity in Attachment Relationship and Affect Regulation

- Harmonious interaction between the infant and mother has been described as a resonance between two systems attuned to each other by corresponding properties (Sander, 1991).
- As the baby experiences the regulatory function of her mother, she evaluates environmental stressors, develops adaptive coping behavior and self regulating functions.



Misattunements and Repairments: Resilience / Coping

- Emotional dysregulation results in impaired autonomic homeostasis and requires repairment.
- Reciprocity of repaired emotional regulation decreases negative stress.
- Transitions from negative to positive states help the child develop resilience in the face of stress.

(Reite and Capitano,
1985; Tronick and Cohn,
1989; Kohut, 1977;
Beebe and Lachman,
1994)

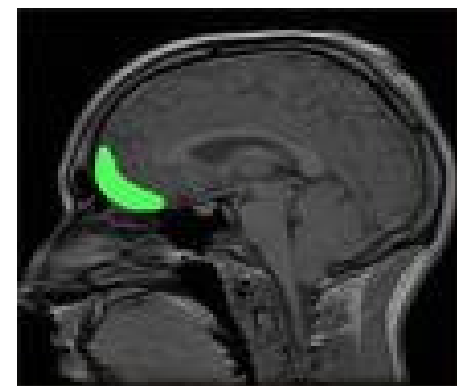
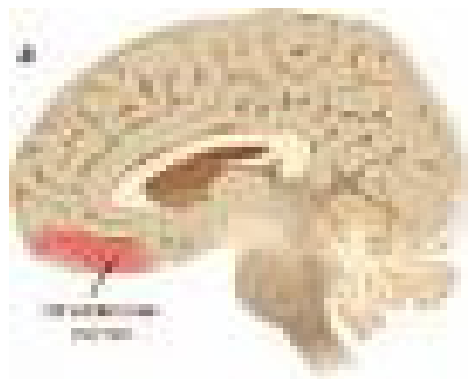


Neurobiology of Attachment, Stress Behavior and Right Hemisphere

- Brain systems dominating stress coping behavior grow in the early phases of development and affected from the quality of the primary relationship.
- As well as ANS, limbic structures of CNS are also important in affect regulation and stress reactions.
- Early developing right hemisphere has a deeper tie with limbic and autonomic systems.
- Postnatal early phases have critical importance on growth of limbic-autonomic structures.
- The nature of attachment relationship leads to changes in neuroplastic and dynamic structure of the brain. (Schoore, 2001, 2002; Siegel, 2001).

Attachment Experiences and Brain Development

- **Orbitofrontal cortex is a corticolimbic brain area between cortex and subcortex which is strongly effected from the quality of attachment relationship**



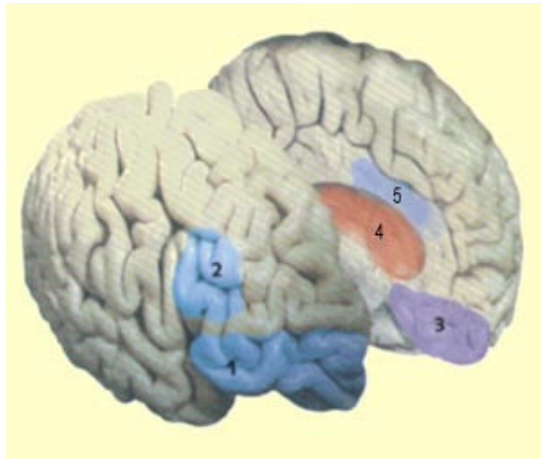
Orbitofrontal Cortex

Orbitofrontal cortex is mostly developed in the first year and it is dominant in terms of

- **Appraisal of facial expressions (positive / negative)**
- **Monitors adjusts and corrects emotional responses**
- **Rapid evaluation of environmental stimuli**
- **Scanning coping resources**
- **Updating the appropriate response outputs in order to develop adaptive adjustments to the environment**

The integrity of orbitofrontal cortex is necessary for regulating interpersonal behavior.

Orbitofrontal Cortex and Right Hemisphere



- Homeostatic regulation of attachment
- Corticolymbic directory function
- Procedural learning
- Coping / adaptive function

- Implicit learning
- Unconscious processes
- Implicit memory
- Emotional autobiographic memories

*Bağlanma ilişkisi deneyimleri ve yaşama dair ilk sosyal duygusal öğrenmeler
örtük-istemsiz bellekte lokalize olur ve örtük bir şekilde, simgeli yaşantıları
etkilerler (Siegel, 2001).*

Erken bağlanma anıları bastırılmış anılar değil, bilinçdışı anılardır.

Stressful Experiences

- **Traumatic attachment experiences in the first years may leave permanent reactivity in limbic areas inhibiting the capacity to cope with future stressors.**
- **Chronic stress causes extreme increase in cortisol levels.**
- **Cortisol can also be produced in response to a danger that has not been consciously registered, galvanizing implicit memory in the right hemisphere.**

Stress and Memory

- **Chronically high cortisol levels result in hippocampal damages (Balbernie, 2001).**
- **At the same time extreme amygdala activity in the face of stressful situations also deteriorates hippocampal processes.**
- **This is harmful for learning and explicit memory.**
- **These effects may impair cortical consolidation processes in the long run (Siegel, 1999).**

Attachment and Cognitive Processes

- **Babies prefer novel stimuli. However novelty at the same time is stressor for babies.**
- **Coping with stress and affect regulation is necessary for preferring novelty.**
- **Attachment experiences should evoke curiosity instead of anxiety or avoidance.**
- **A mind of a baby who has a “secure base” is ready to explore environment.**



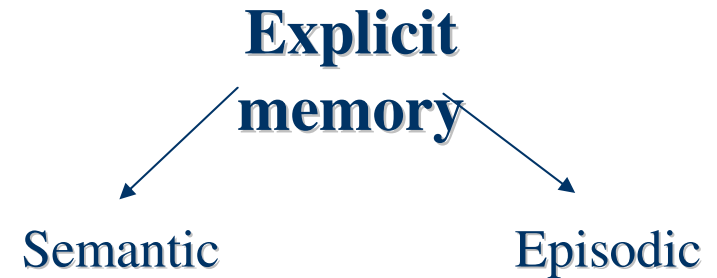
Attachment and Cognitive Processes

- **Inconsistency increases loads of attentional system**
- **Overloaded attentional system has a difficulty in preference for novelty.**
- **Unstable representations in insecure ambivalent babies overloads attentional system which may impair novelty processing.**
- **Negative rigidity and difficulty in emotional regulation may result in withdrawal of attention from the external world for avoidant babies.**

Memory Systems

Implicit Memory

- Intact at birth
- Unconscious
- Encoding is not attentional
- No awareness of remembering
- Evoked formless memories solely influences here and now feeling, perception and behaviour

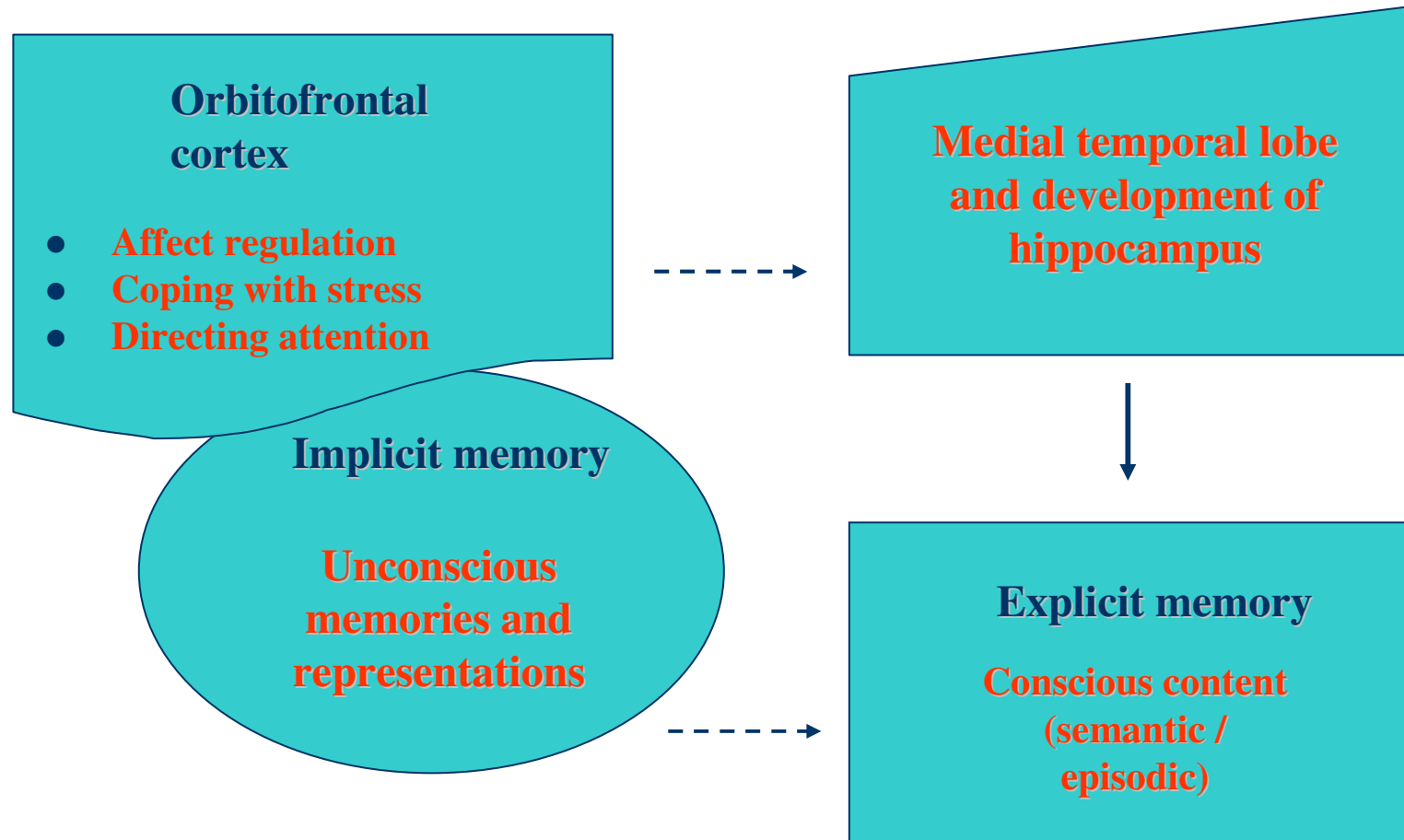


- Develops after the maturation of medial temporal lobe
- Conscious
- Encoding requires attention
- Subjective sense of recollection

Attachment Patterns and Forms of Memory

- **Since early trauma experiences (collected in the implicit memory) cause damages in hippocampal structures, explicit encoding and retrieval processes are expected to be deteriorated.**
- **So eventhough attachment relationship is represented in the implicit memory, it is thought to be indirectly effective on the later developing explicit memory systems.**

Memory Organizations



Implications

- **Attachment pattern has an influence on information processing systems by means of implicit procedural memory.**
- **Secure children can pay attention to novelty, cope with stress, explore the environment and may develop better memory.**
- **Insecure children may have attentional difficulties, low tolerance of stress and may have difficulty in explicit memory functioning.**

Present Study

- **Aim of the study:**
To investigate whether early attachment patterns are implicitly influential on types of coping strategies in stressful interpersonal situations and memory performances in different explicit memory tasks.
- **The question is:**
Is there any differences between **secure** and **insecure** children in terms of **stress coping strategies** and **memory performances**

Method

- 77 preschool children (5-6 yrs) from four different kindergartens representing three different levels of SES

Measures on three different dimensions:

- ***Attachment Pattern*** (projective test _doll family)
- ***Problem Solving Behavior in Interpersonal Stressful Situations*** (doll family + teacher questionnaire)
- ***Memory Performance*** (memory test battery + cued recall task about doll family)

Assessment

- **Attachment Story Completion Test (Cassidy, 1988; Uluç, 2005)**
- **Problem Solving Story Completion Test (Türköz, 2007)**
- **Children's Interpersonal Problem Solving Style Teacher Rating Scale (Türköz, 2007)**
- **Childrens' Memory Scale (Cohen, 1997; Tekok and Dikeç, 2001)**
- **Cued Recall Test (Türköz, 2007)**
- **Family Questionnaire (Türköz, 2007)**
- **Ankara Developmental Scanning Inventory (Savaşır, Sezgin and Erol, 1994)**

Dimensions of The Scales

- **Attachment Story Completion Test**
Secure / Insecure
- **Problem Solving Story Completion Test**
Assertive-Positive / Aggressive / Submissive / Passive aggressive
- **Children's Interpersonal Problem Solving Style Teacher Rating Scale**
Aggressive Attitude/ Passive Aggressive Attitude/ Assertive – Positive Attitude / Submissive Attitude
- **Childrens' Memory Scale:Dot location (visual) Stories, Word Lists**
verbal / visual

Recognition/ recall
immediate / delayed recall
General memory
learning

Results

- %80 secure %20 insecure
- Statistics depend on the comparisons between the two groups.

Gender effect:

- Attachment Security Score (continuous variable)
t-test: F>M (t=2.43; p<.05)
- Gender as a covariate: Regression equation is provided in most of the dependent variables
- ANCOVA

Results

- Significant differences were found between the secure and insecure groups both in interpersonal problem solving behavior and in memory performances.
- Interpersonal Stress: *secure* children turned to *assertive-positive* coping ways while *insecure children* selected *submissive* or *aggressive* coping behaviour.
- Memory: *secure* children showed higher performance in most of the *verbal memory* tasks..

Significant Differences Between Groups

Interpersonal Stress Coping Behavior	Secure (N=62)%80	Insecure (N=15) %20	F
PSCT (doll family-story completion)			
Assertive-Positive	6.34	2.04	21.46***
Submissive	2.54	4.99	8.64**
CIPSTRS (teacher rating questionnaire)			
Aggressive	1.10	1.54	3.89*
Assertive-Positive	2.74	2.23	4.98*

CMS (memory tests)	Secure (N=62)%80	Insecure (N=15) %20	F
Total Score	225	186	8.43**
Stories long delay recall	24.92	16.11	6.83**
Stories thematic recall	6.88	4.62	5.11*
Stories long delay recognition	21.92	19.46	4.04*
Word list learning	24.05	18.90	8.91**
Word list immediate recall	5.41	3.63	7.99**
Word list immediate total	33.24	25.37	11.18***
Word list long delay recall	5.03	3.57	5.03*
Cued Recall	6.55	4.84	9.15**
Story completion period	19.53	23.87	21.46***

Discussion

- **Number of insecure children should be increased**
- **New stories may be added to the Attachment Story Completion Test**
- **Gender effect should be considered in future research and sample size needs to be increased.**

Conclusion

- **Attachment patterns influences stress coping mechanisms and explicit memory systems through their closely related neurobiopsychological developmental trajectories.**
- **Early relational trauma or chronic traumatization are risk factors for children in terms of disrupting their optimal development of the stress coping systems and explicit memory functions.**
- **Treatments of traumatized individuals should consider the likelihood of impaired stress coping and memory systems.**



***THANK
YOU...***