Child Sexual Abuse Allegations: What Every Attorney Should Know

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I. Introduction

The goal of today’s seminar is to better equip attorneys with a better understanding of child sexual abuse allegations.

Welcome to Psychobabble Airlines.

Talking to both sides of the aisle.

- Better awareness of the standards of care that need to be observed.
- Acts of commission and omission.

II. Disclosing Child Sexual Abuse

Research on Disclosure of Child Sexual Abuse


Although the psychological literature clearly documents that child sexual abuse is a critical problem, disagreement exists about its prevalence. The true scope of child sexual abuse is difficult to measure because of inaccuracies inherent in the methodology of empirical research. For example, incidence figures from child protection agencies include only cases where reports have been substantiated. If a report of child sexual abuse is true but unsubstantiated, it is not included in prevalence estimates. In addition, some cases of child sexual abuse are not reported to authorities and cannot be included in prevalence estimates.

Whether disclosure of child sexual abuse is a singular act or an ongoing process has been widely debated in the professional literature and different theories have been posited. For example, disclosure has been theorized to be a continuous process that can be either immediate or delayed, accidental or intentional, and certain or marked by recantation, denial and re-disclosure.

One empirical method for studying disclosure of child sexual abuse involves surveying adults who experienced sexual abuse as children, and determining their pattern and rate of disclosure. Some retrospective studies of adults who said they were sexually abused as children found that approximately two-thirds did not disclose the abuse during childhood. This finding supports the position that most cases of child sexual abuse (e.g., about 66%) are not immediately reported and are often delayed by months and years.

Other findings from these cumulative studies reveal that disclosure is influenced by the child’s age at the time sexual abuse occurs, and by the availability of a same-aged peer with whom the abuse could be discussed. Adults who indicated they were sexually abused as adolescents reported higher disclosure rates than adults who said they were abused as children. And, these adolescents reportedly disclosed the sexual abuse to a friend sooner to its occurrence, while adults who said they were sexually abused as young children, usually disclosed to a parent. These studies also found that children were more likely to disclose sexual abuse if the perpetrator was not a family member, and disclosure occurred sooner when sexual abuse was perpetrated by a stranger or non-family member.

Another method of studying disclosure rates involves investigating children who are known to have been sexually abused. For research purposes, sexual abuse is typically established by one of three methods: confession by the perpetrator or a guilty plea, criminal conviction for an illegal sexual act, or medical evidence that strongly indicates sexual contact occurred (e.g., sexually transmitted disease).

Studies of children who have reported sexual abuse reveal disclosure occurs at varying rates, as opposed to a singular pattern. One study found less than half of children disclose sexual abuse within 48 hours, while others take up to one year, or more. Another study found three-quarters of children
delayed disclosure until one-year after the abuse occurred, and almost 20% did not disclose until more than five years later.

Various reasons have been cited in the literature to account for disclosure and failure to disclose. Some tentative evidence indicates that “grooming” a child and establishing a close relationship is associated with delayed disclosure, and that children are quicker to disclose sexual abuse by non-family members. In addition, there is some evidence that children who experience a short duration of sexual abuse delay disclosure or do not report it at all. Finally, an age effect appears related to disclosure with children younger than five being the least likely to disclose abuse during formal interview, even if they had previously disclosed it to someone else.

Studies that examine age differences have found that school-aged children disclose sexual abuse more readily during formal evaluation when compared to pre-school aged children, and disclosures by older children are usually considered more credible than reports made by pre-schoolers. One study found school-age children are more likely to disclose sexual abuse than pre-schoolers. Consistent with this data a national study of Israeli children found that 47.5% of 3- to 6-year-olds reported abuse during formal interview, while 66.7% of 7- to 10-year-olds and 74.1% of 11- to 14-year-olds disclosed their abuse.

Research also indicates that older children are more likely to intentionally disclose sexual abuse, particularly when asked, while younger children’s disclosures are more likely to be unintentional, involving a spontaneous comment while discussing an unrelated topic or engaged in an innocuous activity. For older children, disclosure to an adult (e.g., parent or teacher) is associated with disclosure during formal interview, and studies have shown that once children disclose abuse they tend to maintain their report during formal examinations.

The national study of Israeli children dealing with both physical and sexual abuse found 65% disclosed abuse during formal interview. Of these children, more than 70% reported sexual abuse, while slightly more than 60% said they were physically abused, indicating that children are more likely to report sexual than physical abuse.

Recantations are another source of controversy discussed in the child sexual abuse literature. Some children renounce true allegations, while others retract false claims. At least two hypotheses account for children making an allegation and then denying its veracity. According to one source, studies have found recantation rates ranging from 4% to 27%. The studies with the most reliable finding of sexual abuse have the lowest recantation rates, while studies with the highest rates of recantation involve questionable diagnoses. Underscoring this pattern is the finding that the two studies with the highest rates of recantation include the most unreliable diagnoses of sexual abuse.

One main point of these findings is that a majority of children who undergo a formal interview disclose sexual abuse and do not later recant. Therefore, recantation is not a common characteristic of disclosure.

The data outlined above indicates the need for mental health and law enforcement professionals to make careful and detailed evaluations of children in situations where sexual abuse is suspected or alleged.

Sources:
Many ways of telling: Expanding conceptualizations of child sexual abuse disclosure.

Abstract: Objective: The aim of this study was to explore influences that inhibit or promote child sexual abuse (CSA) disclosure. Method: Face-to-face in-depth interviews of 24 female and male survivors of CSA were conducted, using the Long-Interview method to trace disclosure processes. Verbatim transcriptions of the interviews were analyzed by hand and by using a computerized data analysis system (N*Vivo). The results of this investigation identified several patterns of disclosure. Prolonged engagement, persistent observation, negative case analysis, and peer debriefing were among the techniques used to ensure the trustworthiness of data. Results: Through analysis of the interview data, previously undefined dimensions of disclosure emerged. First, three frequently used categories of 'accidental, purposeful, and prompted/elicited' disclosure types accounted for 42% of disclosure patterns in the study sample. However, over half the disclosure patterns described by research participants did not fit these previously established definitions. Results of the study facilitated expanding conceptualization of additional disclosure patterns to include behavioral and indirect verbal attempts, disclosures intentionally withheld, and disclosures triggered by recovered memories. Conclusions: The author concludes that these supplementary definitions integrate complex facets of disclosure derived within the context of human development, memory and environmental influences. This expanded conceptualization provides professionals with a broader framework to understand and respond to child victims and adult survivor's disclosures more effectively.

Child sexual abuse: Its scope and our failure

Abstract: Defines the scope of child sexual abuse (CSA) and addresses society's inability to respond to the problem. It is the author's thesis that society's response to CSA is failing because the policies, programs, and statutes designed to assess and identify abuse are grounded in historical and myth-bound theoretical CSA literature rather than in the empirical knowledge base. The text is divided into 3 main areas of discussion: sociohistorical context, scope of the problem, and aftermath. Topics covered include: (1) historical conceptualization of CSA, beginning with Freud, (2) review of the empirical literature on the incidence and prevalence of CSA, (3) the most-sophisticated model of risk of CSA done to date, (4) 2 new models of understanding reactions by nonoffending guardians, and (5) pervasiveness of the threat of extrafamilial abuse.

How do children tell? The disclosure process in child sexual abuse.

Abstract: Examined children's disclosures of sexual abuse in 234 sexual abuse cases validated by Protective Services in Texas. Denial of abuse occurred in 6% of cases, and recantation in 4% of cases in which a child had already disclosed abuse. Four of the 8 victims who recanted appeared to do so in response to pressure from a caretaker. 72% had disclosed abuse to someone else prior to contact with Protective Services or the police. 96% made a partial or full disclosure of abuse during at least 1 interview with Protective Services or police. The child sexual abuse accommodation syndrome described by R. C. Summit (1983) seems to be infrequent among the types of cases seen by child protection agencies. Findings do not support the view that disclosure is a quasi-developmental process that follows sequential stages.

Disclosure, delay, and denial: In search of truth.

Abstract: The book provides a comprehensive review of the literature in the area of abuse disclosure and includes an abundance of new research findings. The reviewers thought the editors compiled a well-organized book--one in which the overall structure of the book was easy to follow. They also thought
the chapter authors did an excellent job emphasizing the complicated nature of this issue, and provided analyses of multiple research methodologies and conclusions. Several chapters report new research data related to various aspects of disclosure. The book concludes with chapters discussing policy implications of research on disclosure (delay and denial). For the reviewers, this section was especially helpful in synthesizing all of the information with recommendations for application in various settings. In their review, Bradley and Rusinko comment on the authors’ discussions of: (1) clinical and forensic ramifications; (2) false memories and intentional deception; (3) reasons for non-disclosure; (4) interviewing techniques and protocols (including the National Institute of Child Health and Human Development investigative interview protocol); (5) developmental issues; (6) behavioral correlates of abuse denial; and (7) evidence-based strategies. In summary, the reviewers believe this book offers one of the most comprehensive reviews of literature in this area and presents important new research findings. In their opinion, the book is a must read for anyone directly involved with victims of child sexual abuse.


**Abstract:** Examined developmental differences in the detection and disclosure of child sexual abuse. A random medical record review was conducted of 72 children and adolescents (aged 23 mo to 17 yrs) seen over a 3-yr period for suspected sexual abuse in the emergency room of a pediatric hospital. Data on demographics, presenting symptomatology, type of disclosure, and precipitants to disclosure were gathered. Preschool-age Ss were significantly more likely than school-age Ss and adolescents to exhibit behavioral or physical symptoms that prompted caregivers' suspicion of sexual abuse. School-age Ss made disclosures accidentally and typically with an immediate precipitating event unrelated to the abuse itself. In contrast, sexual abuse disclosures from school-age Ss were purposeful and not associated with a precipitating event.


**Abstract:** This article discusses the implications of two recent High Court cases on the admissibility of hearsay evidence of a child's delayed disclosure of child sexual abuse. It compares and contrasts the traditional legal significance of delayed disclosure (as being evidence of fabrication) with prevalence studies from the psychological literature which show that a majority of children delay disclosure and that, rather than being an aberrant feature of child sexual abuse, delay is a typical response of sexually abused children as a result of confusion, denial, self-blame and overt and covert threats by offenders. In addition, several self-report studies of offenders confirm that grooming processes create a relationship of power between the child and offender such that delayed disclosure appears to reflect the position of powerlessness of the sexually abused child within that relationship. In light of what the psychological literature tells us, this article challenges the narrow legal approach to the admissibility of hearsay evidence of delayed disclosure and suggests that a special exception should be made for hearsay statements of a child's delayed disclosure in child sexual assault trials.


**Abstract:** Seventy-six 5-10 yr olds (47 females), who were referred because of concerns about sexual abuse, were interviewed as part of a larger study testing the efficacy of a computer-assisted interview in sexual abuse evaluations. Data from initial interviews were coded according to the presence of disclosure and the details revealed about sexual abuse. The presence and amount of corroboration were coded through case review. Although 56 children were coded as having disclosed prior to evaluation, only 44 subjects disclosed during the initial interview. Only 1 child disclosed spontaneously. An additional 8 children (11%) disclosed possible sexual abuse in a second or later interview. Although girls disclosed at a higher rate than boys, children did not differ in the amount or types of information they provided about alleged sexual abuse. Findings are discussed in terms of the conceptualization of disclosure as a process. Implications for interviewing strategies are addressed.
Forensic sexual abuse evaluations of older children: Disclosures and symptomatology.
Abstract: Examined the results of forensic evaluations of 320 children (aged 8-15 yrs) who were seen at an urban evaluation center regarding allegations of sexual abuse. Ss were given a medical examination and were asked to complete the Trauma Symptom Checklist for Children to assess psychological distress. Ss and primary nonoffending caretakers were interviewed to determine demographic, family environment, and abuse variables. Ss were grouped according to the outcome of the evaluation: nonabused, abused-disclosing, and abused-nondisclosing. Variables that predicted group membership included race, sex, cognitive delays, mother's belief or disbelief in the allegation, and psychological distress. Sexually abused Ss who disclosed abuse reported particularly high levels of distress, while abused but nondisclosing Ss reported the lowest levels. Nonabused Ss reported intermediate symptom levels.

Factors associated with disclosure during child sexual abuse assessment.
Abstract: Studied the relationship among the eliciting stimulus for sexual abuse disclosure, the child's age and gender, and the sexual abuse type reported by the child. 96 3-17 yr old children in foster care placement were referred due to suspicion of sexual abuse or a previous disclosure by the S or another person. Interviews indicated close to 67% of the Ss disclosed at least 1 type of sexual abuse, with almost 40% of those who had not disclosed before disclosing for the 1st time. Fondling, physical abuse, genital penetration, and touching the offender were the most frequently disclosed sexual abuse types. "Personal history" and "interview/worst experience" were the most effective stimuli in eliciting disclosure. A number of significant differential effects due to age, gender, and diagnosed disorder of the S were found on the eliciting stimuli and/or types of sexual abuse disclosed. Implications for child sexual abuse assessment practice are discussed.

Delayed Disclosure of Alleged Child Abuse Victims in Israel.
Abstract: This study identifies characteristics of alleged child abuse victims that are associated with delayed disclosure of abuse. The database includes all alleged victims investigated in Israel between 1998 and 2004. Analyses suggest that most children delay disclosure and that delay is associated with type of abuse, child's age and gender, relationship to suspect and characteristics of abusive event.

Children's disclosure of sexual abuse during formal investigation.
Abstract: 251 children who had full assessments over a 12-mo period were divided at time of referral into 2 groups, those who had previously told someone about abusive experiences prior to investigations and those who had not. There was a strong positive correlation between having previously told someone about sexual abuse and disclosure of such abuse during formal investigation. There was also a strong positive correlation between not having previously told someone and not disclosing during formal investigation. Age was an important variable, with children under 5 yrs being least likely to disclose abuse during formal investigation, irrespective of whether they had previously told someone about abuse. Disclosure of sexual abuse during investigation was strongly correlated with abuse being regarded as confirmed.

Disclosure of Child Sexual Abuse: What Does the Research Tell Us About the Ways That Children Tell?
Abstract: The empirical basis for the child sexual abuse accommodation syndrome (CSAAS), a theoretical model that posits that sexually abused children frequently display secrecy, tentative disclosures, and retractions of abuse statements was reviewed. Two data sources were evaluated: retrospective studies of adults' reports of having been abused as children and concurrent or chart-review studies of children undergoing evaluation or treatment for sexual abuse. The evidence indicates that the majority of abused children do not reveal abuse during childhood. However, the evidence fails to support the notion that denials, tentative disclosures, and recantations characterize the disclosure...
patterns of children with validated histories of sexual abuse. These results are discussed in terms of their implications governing the admissibility of expert testimony on CSAAS.

**Children's self-disclosure of sexual abuse: Effects of victim, perpetrator, and abuse characteristics.**

**Abstract:** A child's disclosure of sexual abuse is critical to end the abuse, initiate legal and therapeutic intervention, and protect other children. Research findings indicate delayed disclosure is the norm and many victims never disclose. An extensive review of the literature revealed few empirical studies specific to disclosure. Most studies have examined disclosure in the context of a formal abuse investigation, medical examination, or psychotherapy. Using an archival design, data was gathered on 103 victims (75 girls, 32 boys) accessed through the files of convicted adult males who received treatment in an inpatient sex-offender program. The study was a comprehensive, integrated examination of self-disclosure of sexual abuse by child victims prior to investigation. The effects of victim, perpetrator, victim-perpetrator relationship, and abuse characteristics on disclosure and delay to disclosure were examined. Gender differences in abuse characteristics and aspects of disclosure were also examined. Delay to disclosure proved to be a more sensitive measure with the capacity to detect degrees of reluctance. Abuse by a parent/parent-figure, penetration, home violence, abuse duration, and younger age at onset were associated with significantly longer delayed disclosure delays. Prior research reveals mixed findings regarding gender differences in disclosure. It is generally believed boys are more hesitant than girls to disclose. Findings of the present study revealed no gender differences in rates of disclosure prior to investigation. The mean disclosure delay was twice as long for girls than boys, however. The gender difference observed appeared secondary to the relationship between the victim and the perpetrator. Compared to boys, proportionately more girls were victimized by a parent/parent-figure and fewer were victimized by a non-family member. The confidant delayed or failed to report the abuse to the appropriate authorities in 24% of the cases in which the victim disclosed. Social and research implications are discussed. Suggestions are offered for data collection during investigative interviews in order to facilitate research on disclosure and reporting failures.

**Factors influencing children to self-disclose sexual abuse.**

**Abstract:** Self-disclosure by victims of child sexual abuse (CSA) is critical to initiate legal and therapeutic intervention. Unfortunately, research indicates that lengthy delays in disclosure and even nondisclosure are common. A comprehensive review of the clinical and research literature on CSA and an overview of related bodies of literature was conducted. Areas addressed include the context of sexual abuse as it relates to disclosure, the context and elements of children's disclosures, motivational factors inhibiting disclosure, and models of the disclosure process. Ancillary and analogue research on secrecy and disclosure are also reviewed. Implications for future research and practice are discussed.


**Abstract:** Evaluation of child sexual abuse often necessitates interviewing children about genital touch, yet little scientific research exists on how best to obtain children's reports of genital contact. To examine this issue, 72 5- and 7-yr-old girls experienced a standardized medical checkup. For half of the children, the checkup included a vaginal and anal examination (genital condition); for the other half, the checkup included a scoliosis examination instead (nongenital condition). S's memories were later solicited through free recall, anatomically detailed doll demonstration, and direct and misleading questions. Majority of Ss in the genital condition revealed vaginal and anal contact only when asked directly about it. Ss in the nongenital condition never falsely reported genital touch in free recall or doll demonstration; when asked directly, the false report rate was low. Significant age differences in free recall and doll demonstration, found only in the nongenital condition, implicated socioemotional factors as suppressing the reports of older Ss who experienced genital contact.

Abstract: Gathered representative data regarding the length of time women who were raped before age 18 delayed prior to disclosing such rapes, whom they disclosed to, and variables that predicted disclosure within 1 mo. Data were gathered from 3,220 Wave II respondents from the National Women's Study (H. S. Resnick et al, see record 1994-25706-001), a nationally representative telephone survey of women's experiences with trauma and mental health. Of these, 288 retrospectively reported at least 1 rape prior to their 18th birthday. Details of rape experiences were analyzed to identify predictors of disclosure within 1 mo. Fully 28% of child rape victims reported that they had never told anyone about their child rape prior to the research interview; 47% did not disclose for over 5 yrs post-rape. Younger age at the time of rape, family relationship with the perpetrator, and experiencing a series of rapes were associated with disclosure latencies longer than 1 mo; shorter delays were associated with stranger rapes. Logistic regression revealed that age at rape and knowing the perpetrator were independently predictive of delayed disclosure.


Abstract: In a study of 41 adult survivors (aged 16-56 yrs) of childhood sexual abuse, the level of childhood traumatization was found to have contributed to delayed disclosure of the abuse. Other delaying variables included: belief in the importance of obedience to grownups, mistrust of people, fear of social rejection, and fear of the criminal justice system. Variables such as media attention to similar cases and experiences of personal achievement were inversely related to the age at disclosure. Recommendations for policy are discussed.


Abstract: Examined the disclosure process in 116 sexually abused children (aged 3-17 yrs) to show that the process typically proceeds from denial to tentative and active disclosure and that Ss often recant but later reaffirm. Most protocols for investigating child sexual abuse are geared for Ss in active disclosure, but a retrospective analysis of the Ss' records showed only 11% to be in active disclosure at the time of the initial interview. This suggests that a child's initial denial, failure to provide immediate detail, or recantation may result in the dismissal of a valid complaint. 79% of the Ss initially denied the abuse or were tentative in disclosing it. 74% of Ss disclosed accidentally, which may be age- and developmentally related in the case of Ss' sexualized behavior and inappropriate statements. Peers and educational programs often motivated disclosure.


Abstract: Examined Canadian data on 191 child sexual abuse cases and compared 5 variables that differentiated male and female victims. These variables were victim, victim's family, perpetrator, occurrence, and outcome of the investigation. Data showed that 84% of all reported victims of child sexual abuse were female; 50% of the male Ss were abused by nonrelated perpetrators; intrafamilial abuse among females occurred in 84% of the cases; and a previous history of child abuse was recorded for 23% of the male victims and 26% of the female victims. Moreover, 97% of the male Ss were victimized by a single perpetrator; 94% of the female Ss had a single perpetrator; and 98% of the perpetrators were male.


Abstract: This research examined victim relationship to the perpetrator, disclosure characteristics, social reactions, and PTSD in adult survivors' of child sexual abuse (CSA) identified in a convenience sample of 733 college students. Results indicated that relationship to the perpetrator was related to CSA characteristics and outcomes. More negative reactions such as disbelief were observed for those victimized by relatives compared with acquaintance and stranger victims, especially for those disclosing.
in childhood. Victims of relatives had more PTSD symptoms if they delayed disclosure, received more negative reactions in childhood, and engaged in self-blame at the time of the abuse. Results are discussed in the context of Fred's (1996) betrayal trauma theory, in order to better understand the traumatic impact of CSA.

**Intrafamilial versus Extrafamilial Abuse**

**Prevalence of childhood sexual abuse experiences in a community sample of women.**


**Abstract:** Ascertained the prevalence and nature of sexual abuse in childhood for a community sample of 497 adult women. A 2-stage design using questionnaires and face-to-face interviews provided information on prevalence rates, types of abuse, ages of victims, relationship to the abuser, and cohort effects. Nearly 1 S in 3 reported having 1 or more unwanted sexual experiences before age 16 yrs. 70% of these experiences involved genital contact or more severe abuse, and 12% of those abused were subjected to sexual intercourse. The abusers were usually known to the victim, being family members in 38.3% of cases and acquaintances in another 46.3%. Stranger abuse accounted for 15% of all abuse experiences. Most abusers were young men, disclosure of the abuse was infrequent, and only 7% of all abuse was ever officially reported. Prevalence rates showed no urban/rural differences, no cohort effect with S age, and no age differences in disclosure rates.

**The process of victimization: The victims' perspective.**


**Abstract:** Interviewed 23 child victims (aged 10-18 yrs) of childhood sexual abuse (SA) about the victimization process (VP), the person who abused them, and how abuse might have been prevented. Almost half of the Ss had been victimized by more than 1 person. There was no single pattern or kind of SA victimization. The VP involved 3 overlapping processes: sexualization of the relationship, justification of the sexual contact, and maintenance of the S's cooperation. Sexualization of the relationship generally took place gradually and began with normal affectional contact. Most offenders made statements to rationalize or justify the behavior, particularly by saying the behavior was not really sexual or that it was sexual but acceptable. Cooperation was gained through threats or intimidation or exploiting the S's vulnerabilities.

**Disclosure, delay, and denial: In search of truth.**


**Abstract:** Reviews the book, Child sexual abuse: Disclosure, delay, and denial by Margaret-Ellen Pipe, Michael E. Lamb, Yael Orbach, and Ann-Christin Cederborg (Eds.) (see record 2007-06518-000). The book provides a comprehensive review of the literature in the area of abuse disclosure and includes an abundance of new research findings. The reviewers thought the editors compiled a well-organized book-one in which the overall structure of the book was easy to follow. They also thought the chapter authors did an excellent job emphasizing the complicated nature of this issue, and provided analyses of multiple research methodologies and conclusions. Several chapters report new research data related to various aspects of disclosure. The book concludes with chapters discussing policy implications of research on disclosure (delay and denial). For the reviewers, this section was especially helpful in synthesizing all of the information with recommendations for application in various settings. In their review, Bradley and Rusinko comment on the authors' discussions of: (1) clinical and forensic ramifications; (2) false memories and intentional deception; (3) reasons for non-disclosure; (4) interviewing techniques and protocols (including the National Institute of Child Health and Human Development investigative interview protocol); (5) developmental issues; (6) behavioral correlates of abuse denial; and (7) evidence-based strategies. In summary, the reviewers believe this book offers one of the most comprehensive reviews of literature in this area and presents important new research findings. In their opinion, the book is a must read for anyone directly involved with victims of child sexual abuse.

Abstract: 20 adult sexual offenders (aged 20-68 yrs) were interviewed about the process whereby they selected, recruited, and maintained children in a sexual abuse situation. Offenders were selected if they were making successful progress in treatment and were interviewed by their therapist in a community treatment program using a semistructured interview guide. Ss claimed a special ability to identify vulnerable children; to use that vulnerability to sexually use a child; that sexual abuse is inherently coercive, even though many offender statements minimize the level of coercion and violence; and that offenders systematically desensitize children to touch.


Abstract: Interviewed 91 child sex offenders (all men, aged 19-74 yrs) to gather information about how they target, select, and maintain their victims and to obtain suggestions for preventing child sexual abuse. 93% of Ss acted alone; none had more than 1 coperpetrator. Two-thirds assaulted in their home. Ss gained access to children through caretaking; targeted children through bribes, gifts, and games; used force, anger, threats, and bribes to ensure continuing compliance; and desensitized children through touch, talk about sex, and persuasion. Safety programs should continue teaching children that anyone could harm them. Shouting "No" can be used by the child when others are present or when 1st approached. If asked to keep a secret, children should reply that they do not keep secrets. Including information about how child molesters operate in child prevention programs may be desirable.


Abstract: The empirical basis for the child sexual abuse accommodation syndrome (CSAAS), a theoretical model that posits that sexually abused children frequently display secrecy, tentative disclosures, and retractions of abuse statements was reviewed. Two data sources were evaluated: retrospective studies of adults' reports of having been abused as children and concurrent or chart-review studies of children undergoing evaluation or treatment for sexual abuse. The evidence indicates that the majority of abused children do not reveal abuse during childhood. However, the evidence fails to support the notion that denials, tentative disclosures, and recantations characterize the disclosure patterns of children with validated histories of sexual abuse. These results are discussed in terms of their implications governing the admissibility of expert testimony on CSAAS.


Abstract: Reviewed the charts of 125 children, 6 yrs and under, who presented to an acute care hospital because of sexual abuse, and who represented one-third of the cases of alleged sexual abuse between infancy and 18 yrs of age referred to the hospital's multidisciplinary sexual abuse team. The data reveal that the ratio of females to males was 3.3:1, that 60% of the children were victims of intrafamilial abuse, and that 72.5% of the preschoolers were victims of intrafamilial abuse. At school age there was a reversal with 73% of 6 yr olds being abused by extrafamilial offenders. It was found that two-thirds of the children had physical and/or behavioral symptoms, and that parents of Ss who had been the victims of intrafamilial abuse were more likely to be separated or divorced. The difficulties in assessing young victims of alleged sexual abuse are discussed.

Abstract: Originally published in Contemporary Psychology: APA Review of Books, 2003, Vol 48(2), 206-208. Provides a review of the book "Child Sexual Abuse: Its Scope and Our Failure" by Rebecca M. Bolen. Bolen's stated goals in Child Sexual Abuse: Its Scope and Our Failure are twofold: to review the empirical literature of child sexual abuse for the past 10 years and to note the inconsistencies between what the research suggests and our response to child sexual abuse (CSA) in this country. These goals are accomplished. The context for examining issues is the societal values that have shaped our understanding of and response to CSA. Using this context, the book becomes an advocate for devising a system that is more responsive to extrafamilial abuse, which constitutes 70 percent of cases based on prevalence studies, rather than emphasizing intrafamilial abuse (30 percent of cases); developing societal rather than person-based models of CSA; reducing societal factors that disinhibit offenders; and implementing these attitude changes from kindergarten through 12th-grade school curricula versus only elementary school programs for stranger avoidance.

Quote from Rossman (above):
“The driving force for the book appears to be the inconsistencies noted when comparing data from incidence studies, which summarize numbers of cases reported during a time period such as the past year, with data from prevalence studies, which summarize the number of occurrences of sexual abuse reported by adults or adolescents that took place during childhood. These inconsistencies are quite revealing and compelling. Among other things, these inconsistencies suggest that our notions that much CSA occurs at home are false. Incidence studies, often using primarily CPS case reports, have noted that about 0.2 percent to 0.4 percent of children have been sexually abused and that 50 percent to 95 percent of offenders are parenting figures. This is not surprising because the traditional CPS mandate has been to identify caregiver abuse. The prevalence studies, on the other hand, have indicated that as many as 30 percent to 40 percent of girls and 13 percent or more of boys were sexually abused during childhood and that 70 percent was extrafamilial (Bolen & Scannapieco, 1999). Thus, both incidence of abuse and extrafamilial abuse appear to be underestimated in incidence studies. As an example, Bolen uses an average 25 percent prevalence rate combined with an average reported 1.8 occurrences per person and the 6.8 per 1,000 females incidence rate reported in 1993 (Sedlack & Broadhurst, 1996) to show that only an estimated 27.2 percent of abuse of females is being reported.”


Abstract: Gathered representative data regarding the length of time women who were raped before age 18 delayed prior to disclosing such rapes, whom they disclosed to, and variables that predicted disclosure within 1 mo. Data were gathered from 3,220 Wave II respondents from the National Women's Study (H. S. Resnick et al, see record 1994-25706-001), a nationally representative telephone survey of women's experiences with trauma and mental health. Of these, 288 retrospectively reported at least 1 rape prior to their 18th birthday. Details of rape experiences were analyzed to identify predictors of disclosure within 1 mo. Fully 28% of child rape victims reported that they had never told anyone about their child rape prior to the research interview; 47% did not disclose for over 5 yrs post-rape. Close friends were the most common confidants. Younger age at the time of rape, family relationship with the perpetrator, and experiencing a series of rapes were associated with disclosure latencies longer than 1 mo; shorter delays were associated with stranger rapes. Logistic regression revealed that age at rape and knowing the perpetrator were independently predictive of delayed disclosure.
TOPIC: Behavioral Indicators and Child Abuse " Syndromes"

(uncited source)

Mental health professionals may testify about behavioral characteristics of a particular child that are "typical" of sexually abused children. Such behavioral indicators include a wide variety of symptoms such as regression, withdrawal, aggression, nightmares, bed wetting, fears, masturbation, and tantrums but are completely nonspecific (Wakefield and Underwager, 1991b). They appear in many different situations, including conflict between parents, divorce, economic stress, wartime separations, father absence, natural disaster, and physical, emotional, but nonsexual abuse (Emery, 1982; Hughes and Barad, 1983; Jaffe et al., 1986; Porter and O'Leary, 1980; Wallerstein and Kelly, 1980; Wolman, 1983). There are no behaviors that occur only in victims of sexual abuse. With the exception of sexualized behavior, the majority of symptoms shown in sexually abused children characterize child clinical samples in general (Beitchman et al., 1991).

Even sexualized behavior cannot be used as proof of abuse. What children normally do sexually is more involved than most people believe (Best, 1983; Gundersen et al., 1981; Langfeldt, 1981; Leung and Robson, 1993; Martinson, 1981; Okami, 1992). Friedrich et al. (1991) asked mothers of 880 nonabused two- to twelve-year-old children to complete questionnaires concerning sexual behavior. Although behaviors imitative of adult sexual behaviors were rare, the children exhibited a wide variety of sexual behaviors at relatively high frequencies. Mannarino et al. (1991) report no differences in sexual behavior between abused girls and a clinical control group, although both scored higher than did the normal controls. Gordon et al. (1990) found no differences in sexual knowledge between their samples of sexually abused and nonabused children. Haugaard and Tilly (1988) found that approximately 28% of male and female undergraduates reported having engaged in sexual play with another child when they were children. Lamb and Coakley (1993) report that 85% of their sample of female undergraduates described a childhood sexual game experience. A third of these experiences, which the respondents rated as "normal," involved genital fondling with or without clothing and some reported oral-genital contact and attempts at sexual intercourse.

In addition, since many sexually abused children do not suffer significant trauma (Browne and Finkelhor, 1986; Finkelhor, 1990; Gomes-Schwartz et al., 1990; Kendall-Tackett et al., 1993; Wakefield and Underwager, 1988a), an abused child may fail to exhibit any behavioral signs. It is a mistake to use the absence of behavioral signs as support for an allegation being false.

Using behavioral indicators to assess sexual abuse may result in a mistake in either direction. Besharov (1990) observes that behavioral indicators, by themselves, are not a sufficient basis for a report. Levine and Battistoni (1991) state that none of these indicators, in any combination, are valid without a direct statement by the child about sexual involvement or sexual knowledge. A statement representing the consensus of a group of international, interdisciplinary experts in child sexual abuse (Lamb, 1994b) concluded:

"No specific behavioral syndromes characterize victims of sexual abuse. Sexual abuse involves a wide range of possible behaviors which appear to have widely varying effects on its victims. The absence of any sexualized behavior does not confirm that sexual abuse did not take place any more than the presence of sexualized behavior conclusively demonstrates that sexual abuse occurred; rather, both pieces of information affect the level of suspicion concerning the child's possible experiences and should serve to promote careful and nonsuggestive investigation." (p. 154)

There are few scientific data supporting the claim of a sexual abuse syndrome or a child sexual abuse accommodation syndrome (CSAAS) (Summit, 1983). These syndromes are speculative and meet neither Frye nor Daubert. The revisers of DSM-III refused to include them in DSM-III-R because there is no evidence to support them (Corwin, 1988).

Myers (1993) notes that both diseases and syndromes share the medically and forensically important feature of diagnostic value. Both point with varying degrees of certainty to particular causes. However, whereas with many diseases the relationship between symptoms and etiology is clear, with syndromes, this relationship is often unclear or unknown. The certainty with which a syndrome points to a particular cause varies with the syndrome. Two syndromes often offered in expert testimony in cases of alleged child abuse are the battered child syndrome and CSAAS. The battered child syndrome has high certainty since a child
with the symptoms is very likely to have suffered nonaccidental injury. Therefore, this syndrome has high probative value and, in fact, has been approved by every appellate court to consider it. This can be contrasted with the child sexual abuse accommodation syndrome (CSAAS) which does not point with any certainty to sexual abuse. The fact that a child shows behaviors of the CSAAS does not help determine whether the child was sexually abused.

The CSAAS is a nondiagnostic syndrome. It does not meet the test of falsifiability when used to support abuse since there is nothing that can count against it. Therefore Daubert would lead to the judicial decision that use of the CSAAS is inadmissible. By contrast, in the battered child syndrome there is research evidence accumulating to demonstrate that nonaccidental injuries can be successfully discriminated from accidental injuries by the nature of the injuries.
INDICATOR LISTS

In the 1980s and early 1990s there have been lists of behaviors circulating in legal circles, mental health meetings, medical conferences, etc. None of the behaviors on any of these lists were empirically/scientifically validated at that time and can be found in the general population. In the middle and latter 1990s the researchers found that these behaviors are widespread with the abused and non-abused and overlap to such an extent that they cannot be used diagnostically (Kendall-Tackett and Friederich).

The correct answer to each question should be “Yes” unless otherwise indicated.

1. Is it your belief/opinion that the behavioral indicators you relied on in arriving at your opinion in this matter are, in fact, reliable (accurate) and diagnostic indicators of sexually abused children?

2. If these indicators are reliable (accurate) indicators of sexually abused children, then can we expect that two or more mental health professionals – independently evaluating the same child – would reach the same conclusions using these indicators?

3. If two or more mental health professionals independently evaluate the same child and reach the same conclusion, does that demonstrate inter-rater reliability?

4. In your opinion this list of behavioral indicators is reliable (accurate), is it true that you cannot cite any empirical/scientific evidence published in a legitimate, peer reviewed journal demonstrating their inter-rater reliability?

5. In other words, this court can only rely on your unsubstantiated opinions regarding the reliability of these indicators. Correct?

6. Would you please tell the court what the difference is between diagnostic sensitivity and diagnostic specificity? [Sensitivity (also called the true positive rate) measures the proportion of actual positives which are correctly identified as such (e.g. the percentage of sick people who are correctly identified as having the condition). Specificity measures the proportion of negatives which are correctly identified as such (e.g. the percentage of healthy people who are correctly identified as not having the condition, sometimes called the true negative rate). These two measures are closely related to the concepts of type I and type II errors. A perfect predictor would be described as 100% sensitive (i.e. predicting all people from the sick group as sick) and 100% specific (i.e. not predicting anyone from the healthy group as sick).

7. Would you agree that applied to this case, a) diagnostic sensitivity refers to how accurately an indicator identifies children who have been sexually abused? B) Diagnostic specificity refers to how accurately an indicator identifies children who have not been sexually abused?

8. In arriving at your opinions in this matter, I assume you were very concerned with considerations of diagnostic sensitivity. Isn’t it true that these indicators do not clearly indicate and differentiate between the abused and not abused?

9. In arriving at your opinions in this matter, did you even think about considerations of diagnostic specificity, that is, do these indicators accurately identify children who have not been sexually abused?

10. Is it true that indicator lists have been designed for the express purpose of ruling in allegations of sexual abuse?

11. Is it true that indicator lists do not allow a mental health expert to rule out such allegations?

12. Is it true that there is no empirical/scientific evidence published in a legitimate, peer reviewed journal reporting the diagnostic sensitivity and diagnostic sensitivity of these indicators? (Note no evidence exists as of this time)

13. Would you agree that it is absolutely ill advised for any mental health professional to rely on indicator lists when testifying under oath in a legal proceeding?
14. Once again, then, this court can only rely on your unsubstantiated opinions regarding the diagnostic sensitivity and diagnostic specificity of the indicators. Correct?
15. Are you stating that you are using an indicator list(s) that is not accepted by the relevant professional community?
16. If your thinking in this case responded more to considerations of diagnostic sensitivity rather than diagnostic specificity, could that be because of a systematic/pervasive/persistent bias on your part? (Note: forces admission of bias)

Note: Indicator lists have been used previous to research. In 1985, the American Medical Association published a list claiming to identify children who have been sexually abused. The various behavioral indicators have not been scientifically supported. The list includes:
   - Become withdrawn and daydream excessively
   - Evidence poor peer relationships
   - Express general feelings of shame or guilt
   - Display a positive relationship toward the offender
   - Display regressive behavior
   - Display enuresis and/or encopresis
   - Engage in excessive masturbation, etc.

Other lists contain items such as: overly compliant behavior, acting-out aggressive behavior, pseudo-mature behavior, arriving early at school or leaving late with few, if any, absences, inability to concentrate at school, sudden drop in school performance, etc (Sgroi, S.M., 1982, Handbook of Clinical Intervention in Child Sexual Abuse, Lexington, MA: Lexington Books)

2nd Note: Diagnostic sensitivity refers to how accurately an indicator identifies a population exhibits some characteristic of such as sexual abuse. Diagnostic specificity refers to how accurately an indicator identifies the population that does not exhibit that characteristic. In other words:
   - Diagnostic sensitivity: “Can this indicator rule in sexual abuse?”
   - Diagnostic specificity: “Can this indicator rule out sexual abuse?”

Berliner & Conte (1983) from Kuehnle (p-159) “...fundamentally, there is little, if any, empirically based evidence that the criteria discriminate sexually abused from non-sexually abused children”. 
Tests/Scales/Projective Tests/Drawings


There are no psychological tests or psychological profiles that can determine who has been abused or who is the abuser. The term “valid” means the test tests what it is purported to test (ex: intelligence tests are used to test intelligence and not personality). The term “reliability” means the accuracy of a test. “Inter-rater reliability” means that two or more evaluators may agree or disagree on the interpretation of the instrument/results.

1. Is it true that assessment tools/instruments that have reliability in differentiating the sexually abused from the non-sexually abused do not exist? (p 223).
2. Would it be fair to say that the evaluator should derive information from multiple sources of data? (p 223)
3. Are objective tests, behavior rating scales or projective tests sometimes used in evaluations? (p 223)
4. Is it true that all of the tests/instruments should be reliable? That is, to yield accurate and consistent results? Between different evaluators? (p 223)
5. Is it also true that all of the tests/instruments should be valid? That it measures what it is supposed to measure? Like reading achievement? Like intelligence? Like spelling? Like personality status? (p 223-224)
6. Is it true that the reliability and validity of a test/instrument are critical factors when using this kind of information to develop a more comprehensive understanding of a child? (p 224)
7. Would it be fair to say that if an assessment instrument does not have adequate psychometric properties (reliability and validity), the information from this instrument would be suspect? Simply should not be used? Should not ever be presented in a court of law? (p 224)
8. Would it be fair to say that professionals who base their conclusions on data from assessment tools that are not reliable and valid are at a higher risk to make false positive and false negative errors? Are at a higher risk to simply be in error? (p 224)
9. Is it true that behavior rating scales (Burks’ Behavior Rating Scales, Child Behavior Checklist, Louisville Behavior Checklist, Personality Inventory for Children, etc.) may be useful in identifying the presence of emotional and behavioral problems, but lack specificity and sensitivity regarding markers/symptoms of sexual abuse? (pp 226-227)
10. Would you agree that no test should be relied on in isolation as a primary indicator of sexual abuse? In the light of reliability/validity factors? Also in the light of sensitivity? Specificity? (p 232)
11. Is it true that these instruments (behavior rating scales) do not have predictive diagnostic ability? (p 235)
12. Should all assessment instruments be cautiously interpreted with the larger context of a full forensic evaluation? (p 235)
13. Is it true that picture tests, drawings and artwork do not have empirically/research/evidenced based quantitative scoring symptoms? Making them not reliable and not valid? (p 237)
14. Is it true that techniques such as pictures, drawings and artwork cannot be used for diagnostic purposes to determine if an individual has been abused or not abused? (p 237)
15. Is it a fact that the use of these instruments is strongly discouraged given the absence of reliability and validity data? (p 237)
16. Is it true that different evaluators may interpret picture tests/drawings/artwork differently? That one evaluator may see “personality problems” and then another evaluator may not? (p 244)
17. Is it true that when interpreting drawings/art work that the evaluator must rely on intuition? Analytic skill? Not science? (p 244)
18. Would it be fair to say that the “results” of these non-standardized instruments typically be confounded with the skill level/training of the evaluator using these instruments, according to Anastasia, 1998? (p 244)
19. Is it true that research does not support the assumption that qualitative differences between the sexually abused and the non-sexually abused exist? (p 245)
20. Is it also a fact that scientific research does not have strong data to support that genitalia drawn on human figures is a marker of sexual abuse? (245)
21. Is it a fact that scientific research does not support the use of children’s drawings as a tool to diagnose child sexual abuse? (p 245)
22. Is it a fact that research does not support that the drawings of sexually abused children will differ from non-sexually abused children on the presence of specific qualitative features? (p 253)
23. Simply, would it be fair to say that over-interpretation of children’s behaviors/test results/artwork/drawings can lead to faulty conclusions? (p 297)

Additional source: Smoke and Mirrors by Terrence Campbell
Behaviors cannot be used as diagnostic indicators of abuse. Behaviors are specific, observable and countable (tabulated) such as punching, tardiness, crying, etc. Terms such as “anxiety” are non-specific, too suggestive, judgment calls, vague and not directly observable.

1. Is it true that there are no behaviors exhibited by children that are “consistent” with sexual abuse? “Diagnostic” of sexual abuse?
2. Is it also true that many of the supposed behaviors associated with sexual abuse (fighting, sleeplessness, separation anxiety, aversion to certain foods, bad temper, bed wetting, etc.) are commonplace in childhood? With the abused and non-abused?
3. Is it also true that signs of “hypersexual behavior” are no proof of actual sexual abuse?
4. Is it true that “hypersexual behavior” signs are often exhibited after the investigators had arrived? After parents and investigators had subjected the child to days of talk about bad touching? About genitals? About pee-pees? And people pulling their pants down? Watching television? Watching movies with violence? Watching movies with explicit sexual subjects? Playing video games?
5. Would it surprise you that children immersed in any of these activities might show signs of increased sexual awareness? (Let them answer either yes or no)
6. Would you agree that children are also immersed in the sexual world because of television? Magazines? Movies? National events?
7. Would you also agree that counseling or forensic interviewing for sexual abuse may increase a child’s sexual awareness? May contaminate the child’s memory? May be a form of abuse in itself?
8. Would you agree that it would be unethical to counsel a child for sexual abuse when sexual abuse has not been established? At least questionable ethics?
9. Would you agree that group counseling with children who are known to have been sexually abused might taint/contaminate their memories?
10. Would you agree it would be unethical to subject a child to group counseling with known sexually abused children when sexual abuse of that child has not been established?
11. Would you agree that some children who have not been sexually abused act out sexually?
12. Would you agree that only a minority of sexually abused children exhibit sexual behavior problems?
13. Would it be fair to say that while the presence of sexual behavior may be significant, it is not determinative of abuse?
14. Would you agree that you cannot automatically assume the child was sexually abused because of his/her sexualized behavior(s)?
15. Would you agree that on the issue of sexualized behaviors that there still needs to be additional research?
16. Would it be fair to say that just because there are certain behaviors that are exhibited by a child does not mean automatically that that child was sexually abused?
17. Would you agree with the consensus of research that states that sexualized behaviors can’t be used alone to satisfactorily distinguish between sexually abused and non-sexually abused children?
Research on “Indicators” of Child Sexual Abuse and Child Sexual Abuse Accommodation Syndrome (CSAAS)


Abstract: Examined children's disclosures of sexual abuse in 234 sexual abuse cases validated by Protective Services in Texas. Denial of abuse occurred in 6% of cases, and recantation in 4% of cases in which a child had already disclosed abuse. Four of the 8 victims who recanted appeared to do so in response to pressure from a caretaker. 72% had disclosed abuse to someone else prior to contact with Protective Services or the police. 96% made a partial or full disclosure of abuse during at least 1 interview with Protective Services or police. The child sexual abuse accommodation syndrome described by R. C. Summit (1983) seems to be infrequent among the types of cases seen by child protection agencies. Findings do not support the view that disclosure is a quasi-developmental process that follows sequential stages.


(from the chapter) Contributes to the ongoing efforts of mental health and legal practitioners to meet forensic and ethical demands for valid sexual abuse assessment by providing an overview and critique of instruments and techniques currently applied to the validation of child sexual abuse. Topics discussed include defining child sexual abuse; theoretical models applied to the validation of child sexual abuse; the Child Sexual Abuse Syndrome and the Child Sexual Abuse Accommodation Syndrome; traumatic sexualization; and interviewing children about sexual abuse.


[Comment/Reply] Abstract: Comments on R. C. Summit's (see record 1994-02082-001) article on the Child Sexual Abuse Accommodation Syndrome (CSAAS). The original lesson to be learned from the CSAAS is that society, and many professionals who come into contact with sexually abused children, frequently have preconceived ideas about how a traumatized person will react. Such misconceptions can cause people not to listen, not to understand, and not to learn.


Abstract: The empirical basis for the child sexual abuse accommodation syndrome (CSAAS), a theoretical model that posits that sexually abused children frequently display secrecy, tentative disclosures, and retractions of abuse statements was reviewed. Two data sources were evaluated: retrospective studies of adults' reports of having been abused as children and concurrent or chart-review studies of children undergoing evaluation or treatment for sexual abuse. The evidence indicates that the majority of abused children do not reveal abuse during childhood. However, the evidence fails to support the notion that denials, tentative disclosures, and recantations characterize the disclosure patterns of children with validated histories of sexual abuse. These results are discussed in terms of their implications governing the admissibility of expert testimony on CSAAS.

From London, 2005:

"Summit's (1983) original model was based on disclosure patterns of children who were victims of familial abuse. Thus, one would expect that such children would be less likely to disclose than children who were abused by nonfamilial perpetrators. The results of two studies (Hanson, Resnick, Saunders, Kilpatrick, & Best, 1999; Smith et al., 2000) are consistent with these claims; CSA disclosure was more likely when the perpetrator was a stranger rather than a family member. Consistent with these findings, Ussher and Dewberry (1995) reported longer delays to disclosure among intra- versus nonfamilial abuse. In contrast to these three supporting studies, five studies failed to find an association between relationship to perpetrator and CSA disclosure (Arata, 1998; Kellogg & Hoffman, 1995; Kellogg &
From London, 2005:

“The results of the retrospective studies make two important contributions to our knowledge about the patterns of children’s disclosure of abuse. First, these data, when taken at face value, reveal that approximately 60%–70% of adults do not recall ever disclosing their abuse as children, and only a small minority of participants (10%–18%) recalled that their cases were reported to the authorities (see Table 1, Column 7). Furthermore, to underscore the results of nondisclosure, many of the adults of CSA go unreported and that the stage of nondisclosure, often elevated as gospel and denounced as dangerous pseudoscience. It is hoped that such a contextual review can serve as a guide toward a more accurate understanding among clinicians, judges, and advocate attorneys.”


[Comment/Reply] Abstract: Comments on R. C. Summit's (see record 1994-02082-001) article on the abuse of the Child Sexual Abuse Accommodation Syndrome (CSAAS). It is argued that the fact that the CSAAS has been blamed in absentia for the reversal of cases in which it was never mentioned, speaks not only to the determination of those who have invoked it to suit their own purposes, but to the universality of its message.


Abstract: Attempts to reconcile the position of Kentucky law in regard to the Child Sexual Abuse Accommodation Syndrome (CSAAS) with that of R. C. Summit's (1992) views. Summit described this syndrome in an attempt to explain the seemingly paradoxical behavior of child victims in disclosing sexual abuse. The following conditions should be met for the CSAAS to be admissible in the prosecution of child sexual abuse: (1) The symptoms of CSAAS should be present through interviewing the child, (2) testimonial use of the CSAAS must be in general terms to avoid the hearsay objection, and (3) prosecutors should avoid specific questions about the victim. An outline of Kentucky's legal history concerning this issue is provided.


[Comment/Reply] Abstract: Comments on W. F. Stewart and R. Young's (see record 1994-02079-001) article on the rehabilitation of the Child Sexual Abuse Accommodation Syndrome (CSAAS) in trial courts in Kentucky. Rehabilitation of the CSAAS is not enough, especially if the CSAAS continues to be held as the repository for all the symptoms of child sexual abuse. The courts must initiate policies that will admit legitimate, percipient clinical information. If judges are allowed to share in court the pitfalls of abuse and the hearsay travails of those who work with abuse, they can direct their unquestioned authority in the field of law to compel the rehabilitation of the justice system for the protection of children.


Abstract: Discusses the origins of the concept of the Child Sexual Abuse Accommodation Syndrome ([CSAAS] R. C. Summit; see record 1984-15274-001) and the subsequent distortions that court misuse has imposed. The CSAAS is a clinical observation that has become both elevated as gospel and denounced as dangerous pseudoscience. It is hoped that such a contextual review can serve as a guide toward a more accurate understanding among clinicians, judges, and advocate attorneys.

Abstract: Classifies the most typical reactions of children to sexual abuse into a child abuse accommodation syndrome. The syndrome is composed of 2 categories that define basic childhood vulnerability and 3 categories that are sequentially contingent on sexual assault: (1) secrecy; (2) helplessness; (3) entrapment and accommodation; (4) delayed, unconvincing disclosure; and (5) retraction. The accommodation syndrome is proposed as a simple and logical model for use by clinicians to improve understanding and acceptance of the child's position in the complex and controversial dynamics of sexual victimization. Application of the syndrome tends to challenge entrenched myths and prejudice, providing credibility and advocacy for the child within the home and the courts and throughout the treatment process. The child's coping strategies as analogs for subsequent behavioral and psychological problems, including implications for specific modalities of treatment, are discussed.
TOPIC: Parental Alienation

The following text borrows extensively from Wikipedia, which offers a helpful synopsis of Parental Alienation.

First described in 1976 as "pathological alignment", the dynamic refers to a situation in which a child unreasonably rejects a non-custodial parent.[8] Richard A. Gardner proposed parental alienation syndrome in the 1980s based on his clinical experience with the children of divorcing parents. Since that time, other researchers have suggested focusing less on diagnosing a syndrome and more on what has been described as the "alienated child", and the dynamics of the situation that have contributed to the alienation.[5][9] In this view, alienation is seen as a breakdown of attachment between parent and child and may be caused by multiple factors. The behaviors of all family members, including those of the alienated parent, may lead to family dysfunction and the rejection of a parent.[10][11] The evaluation of all contributing factors and all possible remedies are recommended in evaluating cases where children have become estranged from a parent.[5][12]

Parental alienation lacks a single definition and its existence, etiology, characteristics, and in particular the concept of parental alienation syndrome have been the subject of debate. Some formulations of the concept have emphasized the role of an alienating parent, termed variously the "programming" parent or "embittered-chaotic parent".[8] More recent descriptions, influenced by the research of Kelly and Johnston, have proposed a more complex analysis, in which all family members may play a role. This "systems-based" view acknowledges that a child may be alienated from one parent without "alienating" behaviour by the other parent.[5][8] The results of an empirical study also suggest that alienating behaviors by both parents are the norm in high-conflict divorces. Rejected parents, generally fathers, tend to lack warmth and empathy with the child; instead, they engage in rigid parenting and critical attitudes. The rejected parent is often passive, depressed, anxious, and withdrawn - characteristics which may encourage further rejection. The parent that the child aligns with (the aligned parent) may engage in alienating behaviors, including undermining the other parent. These behaviors may be conscious and deliberate or, alternatively, may reflect a lack of awareness on the effect of the actions on the children. Direct alienating behaviors occur when one parent actively undermines the other parent, such as making derogatory remarks about the other parent, telling the child that the other parent is responsible for the separation, or telling the child that the other parent is the cause of financial difficulties. Indirect alienation behaviors occur when one parent fails to support access or contact with the other parent or tacitly accepts the child's negative behaviour and comments towards the other parent.[5][8]

Most of the peer-reviewed publications on the subject have been in the form of descriptions and definitions. Some empirical research has been done, though the quality of the studies vary widely and research in the area is still underdeveloped.[13] Sample selection bias is an obvious problem in many of the studies. For example, when alienated children have been interviewed, it is likely that the children selected for study have been among the most severely alienated and suffering children. The beliefs of judges, lawyers, and mental health professionals have been cited extensively in peer reviewed literature.[8]

Professional acceptance

A survey of mental health and legal professionals indicated that there is moderate support for the existence of parental alienation. However, there remains general reluctance to accept the concept of parental alienation syndrome (PAS).[8] William Bernet argued for the inclusion of parental alienation disorder, a diagnosis related to parental alienation, in the fifth version of the Diagnostic and Statistical Manual of Mental Disorders, which was released in 2013. His conception makes reference to PAS and a variety of other descriptions of behaviors he believes represent the underlying concept of parental alienation disorder.[7] Despite lobbying by proponents,[14] in December 2012, the proposal was rejected.[15] Similarly, the American Psychological Association has rejected Parental Alienation Syndrome as unscientific and sexist. The APA whitepaper notes: "Although there are no data to support
the phenomenon called parental alienation syndrome, in which mothers are blamed for interfering with their children’s attachment to their fathers, the term is still used by some evaluators and courts to discount children’s fears in hostile and psychologically abusive situations. [American Psychological Association, Violence and the Family, American Psychological Association, Washington, D.C., 1996, p. 40] Some have suggested that the general idea of PAS is covered in the DSM-V under a closely related diagnosis: "Parent-Child Relational Problem." For example, the child’s perception of an alienated parent "may include negative attributions of the other’s intentions, hostility toward or scapegoating of the other (parent), and unwarranted feelings of estrangement." [16][17]

In a survey at the Association of Family and Conciliation Courts in 2010, 98% of the 300 respondents agreed with the question, "Do you think that some children are manipulated by one parent to irrationally and unjustifiably reject the other parent?". [18] However, Parental Alienation Syndrome refers not to this manipulation, but to a serious illness in the child in which he or she despises and rejects one of the parents. Since both the American Psychiatric Association and American Psychological Association have explicitly rejected Parental Alienation Syndrome, it does not meet the Frye test for admissibility in court in most states. Attorneys and expert witnesses may still argue that a parent undermines the child's relationship with the other parent through inappropriate actions or statements.

Relevant Research Articles related to Parental Alienation


Abstract: There has been considerable interest among forensic practitioners in the proposals that parental alienation be included in the next editions of the Diagnostic and Statistical Manual of Mental Diseases (DSM) and The International Classification of Diseases (ICD). However, there has also been a great deal of misunderstanding about the proposals, and misinformation has been expressed in professional meetings, on websites, and in journal articles. In this article we address four common misunderstandings regarding parental alienation: that there is a lack of research to support it as a diagnosis; that adopting parental alienation as a diagnosis will lead to serious adverse consequences; that the advocates of parental alienation are driven by self-serving or malevolent motives; and that Richard Gardner should be criticized for self-publishing his description of parental alienation syndrome.


Abstract: Reviews the book, Children Who Resist Postseparation Parental Contact: A Differential Approach for Legal and Mental Health Professionals by Barbara Jo Fidler, Nicholas Bala, and Michael A. Saini (see record 2012-23823-000). Although a great deal of discussion has taken place regarding parental alienation syndrome over the years, important questions remain: What is the professional, accepted definition of parental alienation? How is alienation assessed? Are there effective interventions? What are the legal responses to this problem? The authors take a multidisciplinary approach to answering these questions in this book. The book is organized into 10 sections in which the authors address problems in defining and assessing parental alienation as well as risk factors, prognosis, and strategies for prevention and intervention. They also address legal and policy responses to the problem of parental alienation. Professionals, students, policy makers, and those involved in alienation cases will find the information in this book helpful for considering the complexity of these issues.


Abstract: Many members of the judiciary do not yet accept the concept of parental alienation (PA) or parental alienation syndrome (PAS). It has not as yet been included in the Diagnostic and Statistical Manual of Mental Disorders–5 or International Classification of Diseases–11. This article discusses the concept of PA as meaningful and resulting from serious conflict before, during, and after separation of parents. It results in a child failing to have good contact with the now absent parent, despite the fact that the child previously had a good relationship with that parent. The concept of PA is defined and is differentiated into types. The behavior of the alienator and the alienated parent is described. The incidence, symptoms, and diagnosis of PA is also delineated, as are the long-term effects and treatment of PA.


Abstract: Claims of parental alienation syndrome (PAS) and parental alienation (PA) have come to dominate custody litigation, especially where abuse is alleged. Although much psychological and legal literature has critiqued PAS, and leading researchers as well as most
professional institutions have renounced the syndrome concept, alienation as a parental behavior or child’s condition continues to be extensively investigated and credited in research and forensic contexts. This article reviews the history of PAS, both as posited by its inventor, Richard Gardner, and as used and applied in courts, suggesting that it not only lacks empirical basis or objective merit, but that it derives from its author’s troubling beliefs about adult and child sexual interaction. It then examines the more recent explorations of non-syndrome "alienation" as proffered by Janet Johnston and others, noting both its more balanced and grounded nature and its more modest remedial implications. However, the article concludes that PA is too closely tied to PAS to be an adequate improvement. It, too, is used crudely in courts to defeat abuse allegations, it continues to rely on speculations about mothers’ purported unconscious desires and their effects on children, and, more subtly than PAS, it minimizes abuse and its effects on mothers and children. At root, although even PA researchers have found it to be a real issue in only a small minority of contested custody cases, courts’ and evaluators’ extensive focus on it in response to mothers’ abuse allegations continues to privilege false or exaggerated alienation concerns over valid concerns about abuse.


**Abstract:** This article examines the assertions, made by two main groups of critics, about Parental Alienation Syndrome (PAS) and parental alienation (PA). Among the topics discussed are: role of the alienating parent; structural interventions such as custodial transfer; relationship between PAS and allegations of sex abuse; and controversy over use of the term syndrome.


**Abstract:** Over the past three decades, parental alienation syndrome (PAS) has been proposed to explain behaviors by a child who refuses to spend time with a parent and actually denigrates that parent within the context of a child custody dispute. Although some mental health professionals and child custody evaluators, attorneys, and judges have been quick to accept and admit PAS as evidence in these disputes, there has been no consistent empirical or clinical evidence that PAS exists or that the alienator’s behavior is the actual cause of the alienated child’s behavior towards the target parent. This article attempts to help those working with custody issues understand how the PAS construct fails to meet scientific standards and should not be admissible in courts.
TOPIC: Interviewing Children about Allegations of Sexual Abuse
By Daniel H. Swerdlow-Freed, Ph.D., P.C. at www.expertpages.com

The prevalence of child sexual abuse is a disputed topic marked by disagreement of whether national statistics accurately reflect its incidence rates. Some experts argue that studies underestimate the true extent because all cases are not reported to authorities, while others argue that studies overestimate the incidence rates because they include unproven claims. There are at least four difficulties preventing resolution of the prevalence controversy: First, child sexual abuse does not always produce incontrovertible physical evidence. Second, behavioral symptoms associated with sexual abuse also occur for other unrelated reasons. Third, interviews of children do not always yield indisputable results. Fourth, disclosure may be followed by recantation making it difficult to ascertain which assertion is credible.

Identifying sexual abuse is further complicated by many factors. These include the child’s age, maturity and understanding of the events in question, the child’s understanding of anatomy and familiarity with sexual behavior, whether the abuse occurred once or multiple times, and whether the abuse was experienced as stressful.

Research has shown that children are capable of providing accurate accounts of their experiences provided that questions are simply stated and worded using language they understand. The interviewer must be aware that children make idiosyncratic interpretations of terms that are well known to adults. For example, one study found that children do not necessarily classify clothes the same way as adults. Thus, a child wearing pajamas at the time he was sexually abused might answer "No" when asked if he was wearing clothes. However, the same child may answer "Yes," when asked if his pajamas were taken off.

Research shows that the accuracy of children’s reports can be adversely affected by questions that are poorly phrased or suggestive. This literature indicates that children can be confused by questions that contain single or double negatives, complicated vocabulary, or that utilize multiple parts or embedded propositions. Because children do not necessarily realize when they misunderstand a question, they may not ask for clarification and the misunderstanding can go undetected.

Forensic interviews of children, whether they occur in criminal or civil litigation, should include two essential features. First, a forensic interview should be geared toward the developmental age of the child and its content should be developed from information furnished by the child. Interviewers must avoid suggesting events that have not been mentioned by the child or suggesting that a specific person was responsible for any alleged behavior.

Second, the interview should test alternative hypotheses that explain the allegation and differentiate plausible from implausible explanations. A well conducted interview should clarify whether sexual abuse actually occurred or whether the alleged behavior can be accounted for by another explanation. Ideally, if it is determined that abuse took place the interview will reveal the perpetrator’s identity. Violating either of these guidelines may contaminate the child’s account, making it difficult to determine what exactly occurred.

A forensic interview should begin by explaining its purpose to the child and ensuring that the child is ready to proceed. It is good practice to establish ground rules such as that the child knows the difference between the truth and a lie and intends to tell the truth, and that the child will alert the interviewer if the interviewer says something the child does not understand.
The substantive portion of the interview should be conducted without suggestive comments or questions. Statements such as, "Tell me about when your father touched your privates," or "Let’s talk about when your mom touched your butt" are highly suggestive and are likely to contaminate the child’s response. It is preferable, for example, to ask if the child knows the reason for the interview or to discuss the problems that have been going on in the family.

It is important to initially permit the child to give a narrative of the event in question and to withhold questions or comments. Free narratives can be initiated by statements such as "Tell me everything that happened, from the beginning to the end," or "Tell me everything that happened when you and Bob were home." Follow-up questions should be open-ended (i.e., "Tell me what happened next.") because children respond to these with longer and more detailed answers, and some children will answer focused questions (i.e., "Did Bob touch your butt?") even if they do not remember what actually transpired.

A proper inquiry builds on the free narrative by soliciting elaboration of what the child has already volunteered. Open-ended questions seek elaboration of a specific aspect of an account (e.g., "You said Bob got into the bed with you. Tell me everything that happened when Bob got into bed with you."), or clarify information that is contradictory (e.g., "First you said you were in the kitchen with Bob, but then you said you and Bob were downstairs. I’m confused about where you and Bob were. Can you tell me about that again?")

Specific but non-leading questions seek clarification of information the child has already volunteered. For example, an interviewer might ask, "Do you remember what you were doing just before Bob got into bed with you?"

Closed questions include those that can be answered ‘Yes’ or ‘No,’ or provide for only a few answers. Multiple choice questions should be avoided whenever possible because some children choose only one of the options, and responses to these inquiries are less accurate than to open-ended questions. If multiple choice questions are used it is preferable not to include the correct answer to avoid being suggestive. Thus, if an event happened in the basement, the interviewer could ask, "Did that happen in the kitchen, your bedroom or somewhere else?"

Interviewing children about allegations of sexual abuse takes specialized skill and knowledge. Questions must be carefully worded to ensure responses provide accurate, reliable information.

Children use language differently from adults and interpret concepts in extremely concrete terms. Thus, if you ask a child what a sentence "says," the child may answer, "Nothing, paper can’t talk." Young children, especially preschoolers, tend to answer questions even if they have no knowledge of the subject. Furthermore, children tend to answer "Yes" when uncertain because this answer implies cooperation and may be perceived as the desired answer, especially if it is part of a tag question (e.g., "He touched you, didn’t he?").

A "tag question" is a declarative statement followed by a short question that seeks confirmation of the statement’s truth. This form of question can be very suggestive, especially for young children, because children are taught not to disagree or argue with adults and the "tag" seeks confirmation of the statement’s accuracy.

When questioning children, certain practices will enhance the accuracy of their responses and reduce the likelihood that the child is misunderstood or considered unreliable. It is important to use simple, ordinary, common words, phrased in short sentences containing a subject, verb and object.
Young children have limited or no experience with the legal system and, consequently, they do not understand the technical terms used in legal settings, such as testify, oath, deny, pursuant, notwithstanding, et cetera. When complex, unfamiliar words are used along with complicated phrases (e.g., "Isn’t it true that you did not report that he touched you until three weeks after the last time you saw him?" or "Do you swear to tell the truth, the whole truth and nothing but the truth?") young children may become confused. Confusion in this circumstance is likely to create the appearance that a child’s report of an experienced event is invalid or unreliable when, in fact, the problem may stem from how the question was phrased.

Young children do not possess good understanding of language and, in particular, they do not consistently understand pronouns, even though they may use them correctly in their own speech. Children understand questions better when proper names are used instead of pronouns. Thus, it is better to ask, "What did Bob do?" rather than "What did he do?", or "Who was at Sue’s house?" instead of "Who was there?"

Children are very literal in their use and interpretation of words, especially in comparison to adults, and often do not understand the relationship between a general concept (furniture) and one that is more specific (bed). Thus, a child may deny being on the furniture when an event happened, only later to report that he was sitting on the bed when he was touched. Or, a child may say 'No' when asked if he was "touched" at a particular time, but may subsequently report being "tickled," "poked" or "pinched".

Children use and understand the word "touch" much differently than adults. "Touch" is a "higher order" word that adults realize includes other forms of contact such as kissing, hugging, slapping, kicking, et cetera, but children do not share this understanding. Thus, a child may report that an adult did not "touch" him but later report that the same adult "poked" him in the butt or "hit" him on the arm.

Children also use adult-like words but may not understand their meaning. This is particularly true for concepts dealing with age, time, space, and kinship. For example, young children tend to equate age with size, so a person that is "tall" is also "old." To a four-year-old, all adults and most children are "old," and not taking the child’s perspective into account when evaluating this kind of information can cast doubt on his/her credibility.

Children learn some things by rote well before they understand the underlying concept. Thus, knowing how to count to 20 does not mean a child understands that ten is larger than six, or that a child can accurately estimate how many times an event occurred. A child may respond to an inquiry ("How many times did Joe touch you?") with an answer ("One hundred times."), intending to satisfy the adult questioner without regard for accuracy. Young children tend to indiscriminately use large numbers to indicate that an event occurred many times because they do not understand the relationship between the number given and the actual frequency of the event.

Similarly, the ability to recite a list (days of the week, months of the year) does not mean a child understands that Sunday is the first day of each week, that June comes after May or that Thanksgiving follows Christmas. The concept of days, weeks, months, and years develops after the ability to recite these lists, and it can be misleading to assume that a child understands a particular concept simply because he possesses its vocabulary. Stated in different terms, there is no reason to assume that a preschooler is competent at spelling simply because she can recite the alphabet.

Children at different ages may or may not understand the concept underlying specific words. For example, children under six have difficulty with spacial concepts like "ahead of" and "behind"
 Werner L. Simpson

("Was he ahead of you or behind you?")", while children younger than five do not grasp the absolutes of "never," "always," "any," or "ever." Questions such as, "Have you ever told a lie?" "Did anyone say anything to you?" or "Did he always do it that way?" require a child to make a thorough search of all relevant experiences, and are so vague they promote inconsistent answers. It is generally preferable to phrase the question more specifically, such as "Did someone tell you to keep a secret," or "Did something happen at Tommy’s house?"

Obtaining accurate reports from children about their experiences require understanding of how they use language and conceptualize ideas, since cognitive and verbal skills develop as they grow. The use of unfamiliar words or complicated questions can easily create the impression that a child’s report is unreliable or lacks credibility, and these consequences may result from an interviewer’s use of developmentally inappropriate words or phrase. There is considerable research that demonstrates young children are able to provide valid, consistent and accurate reports of events they experienced, provided that questions are asked in a developmentally appropriate and non-leading fashion.
A study tests interview protocols in the hope of getting better case outcomes.
Child protection authorities substantiated 68,000 cases of child sexual abuse in 2008, according to the Department of Health and Human Services. In many child sexual abuse cases, there is no witness other than the child and no corroborating evidence — the entire case can hang on a child's recollection of the alleged abuse. One way to help avoid false accusations and ensure justice in these cases is to strengthen law enforcement's ability to elicit accurate information from children. As the authors of the study discussed in this article note, "The quality of forensic interviewing practices is of utmost importance if child victims are to be protected, at the same time as the rights of the innocent suspects are to be upheld."[2]

We have gained considerable knowledge in the last two decades about child development, memory and cognition, and researchers have developed several techniques for improving the way child victims of sexual abuse are interviewed. One technique that showed promise in a laboratory has now been tested in the field in Utah's criminal justice system. The interview protocol was developed by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). The NICHD began developing its interview protocol in the 1990s. According to Margaret-Ellen Pipe, a member of the team that has developed and tested the protocol, "In the '80s people started recognizing children could provide reliable evidence. There had been real skepticism prior to that whether you would believe children."

In an NIJ-funded study, a team of researchers led by Pipe investigated how the NICHD protocol might affect prosecution outcomes. Their findings make it clear that the training and NICHD protocol elicit more information from possible victims. The findings cannot, of course, determine whether the information is more accurate — that is, the findings cannot definitively confirm details of what happened. But it is clear that after the protocol was introduced, prosecutors accepted more cases; and more cases that went to trial resulted in conviction than before the protocol was introduced.

The NICHD Protocol
The techniques employed by the NICHD protocol were designed to integrate advances in scientific understanding about memory and children's linguistic and cognitive development.

Over the years, various aspects of the NICHD protocol have been evaluated in the field. In fact, the authors note, the techniques developed under the auspices of the NICHD constitute the only protocol for forensic interviews with children to have been evaluated systematically. "The NICHD protocol has been researched in the field; that's what sets it apart," Pipe said.

Training in forensic interviewing techniques often increases interviewer knowledge without resulting in any meaningful change in how interviewers conduct the interviews.[3] NICHD training is effective in getting interviewers to use the new information learned. Studies testing the protocol have examined how best to train people in its use and, in particular, how to ensure that interviewers reliably acquire and actively use the new skills. Training can raise awareness, Pipe et al. note in their report, but it is important to guarantee that new techniques are adopted as a matter of practice. The NICHD training model promotes this by providing guidance and feedback for interviewers even after training has concluded.
The NICHD interview protocol includes three phases:
- Introductory
- Rapport-building
- Substantive or free recall

At the beginning of the conversation, the child and the interviewer discuss expectations and set ground rules: this is the introductory phase. Interviewers then ask children to talk about events unrelated to the suspected abuse; the idea is to encourage the child to be comfortable leading the conversation by developing this rapport. In this phase, the "child learns the conversational rules, because they are different from many conversations in which children take part," Pipe explained. Later, interviewers encourage children to recall the target incident and talk about it in a narrative stream, as opposed to answering directed questions about it, one after another. Evidence indicates open-ended prompts draw out more accurate information than ones that simply elicit a child's recognition. The techniques discourage suggestive leads or questions with yes/no or either/or answers: "Where were his clothes?" for example, is preferred over, "Were his clothes on the floor?"

Nearly a decade of research confirms that when interviewers follow the guidelines outlined in the NICHD protocol, children give both more and higher-quality information. Their narrative accounts reveal greater detail when the NICHD protocol is implemented.

How the Study Was Conducted
The study examined the outcomes of cases before and after police detectives were trained on the NICHD Investigative Interview Protocol. The 11 detectives in the study performed forensic interviews at the Salt Lake County Children's Justice Center (CJC), an arm of the Utah Attorney General's Office. They were all experienced in conducting child abuse investigations and child forensic interviews but had never been trained in the NICHD protocol. The detectives' NICHD training took place over several days, included both simulated and actual forensic interviews, and included ongoing contact and feedback from the trainers.

Researchers from the City University of New York, Cambridge University in England, the NICHD and the CJC examined 1,280 sexual abuse cases between 1994 and 2000 that were referred to authorities in Salt Lake County, Utah, and investigated by the 11 detectives. Of the total sample, these detectives conducted 551 interviews before receiving training on the NICHD protocol and 729 after they had implemented the protocol. The same detectives, prosecutors and judges who handled the cases were used throughout the study period. [4]

Among the cases of alleged abuse that the researchers reviewed, nearly 60 percent involved improper touching and 5 percent were characterized by exposure; penetration was alleged in 35 percent of the cases reviewed. Detectives interviewed children between the ages of 2 and 14 and then presented their evidence to the district attorney, who decided whether or not to prosecute. [5]

Impact of Using the Interview Protocol
Researchers compared the outcomes of the cases that used the interview protocol with cases that did not. They found that after local detectives adopted the NICHD interview protocol, the percentage of investigated cases in which the district attorney filed charges rose from 45 percent to over 54 percent. Furthermore, these cases held up as they progressed through the system.

Although the number of cases that went to trial was small — 30 of a total of 513 cases in which charges were filed — 94 percent of those prosecuted after implementation of the NICHD protocol resulted in conviction (16 of 17 cases), compared with 54 percent before its introduction (7 of 13 cases). In the majority of cases, both before and after the NICHD protocol was implemented, a
plea agreement was reached. Of those, 81 percent led to a guilty plea on one or more charges. See Table 1 for more details on case outcome.

Table 1. Case Outcome by Interview Type

<table>
<thead>
<tr>
<th></th>
<th>Pre-Protocol</th>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>551</td>
<td>729</td>
</tr>
<tr>
<td><strong>Cases accepted for prosecution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>198 (35.9%)</td>
<td>315 (43.2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Cases with plea agreements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 (80.8%)</td>
<td>255 (81%)</td>
<td></td>
</tr>
<tr>
<td><strong>Pled guilty</strong></td>
<td>105 (53%)</td>
<td>177 (56.2%)</td>
</tr>
<tr>
<td><strong>Reduced</strong></td>
<td>52 (26.3%)</td>
<td>76 (24.1%)</td>
</tr>
<tr>
<td><strong>Cases with charges dismissed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 (7.5%)</td>
<td>36 (11.4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Cases that went to trial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 (6.6%)</td>
<td>17 (5.4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Not guilty verdict</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 (3%)</td>
<td>1 (0.3%)</td>
<td></td>
</tr>
<tr>
<td><strong>Guilty verdict</strong></td>
<td>7 (3.5%)</td>
<td>16 (5.1%)</td>
</tr>
</tbody>
</table>

(Cases that were diverted or were active/had no outcome information available were omitted from this table.)

While the percentage of cases in which charges were filed increased for three of the four age groups after the protocol was implemented, the impact of the protocol was strongest in cases in which the children were between 7 and 9 years old. This age group accounted for approximately 26 percent of the pre-protocol and post-protocol samples (135 and 167 cases respectively). For children in this age group, the rate at which prosecutors filed charges rose from 42 percent before to 64 percent after detectives were trained.

Given the nature of testing an interview protocol in the field, results like those in this study cannot definitively determine whether or not a protocol elicits more complete or accurate information from children; there is usually no way for researchers to know with absolute certainty if the alleged sexual abuse occurred.

Previous studies have established that use of the NICHD protocol increases the amount of information children reported with little or no interviewer input, a core feature of the NICHD protocol. There is a significant body of research demonstrating that interview techniques emphasizing the use of open-ended prompts and other methods that encourage a child's free recall elicit more accurate details than more focused prompts — ultimately, the kind of details on which investigators build their case. These techniques have proven effective at getting better information from preschoolers, elementary school children and teenagers alike. The evidence-based nature of the NICHD protocol lends credence to the researchers’ assertion that, when employed by well-trained interviewers, the protocol likely improves the detail and accuracy of information elicited from children in most age groups during forensic interviews and positively affects case outcome.

Notes


[4] The judges and prosecutors were likely aware that the detectives received new training on a forensic interview protocol.

[5] The study divided the children into four age groups: 2- to 4-year-olds; 5- to 6-year-olds; 7- to 9-year-olds; and 10- to 13-year-olds. The youngest child in the study was 2.80 years old; the oldest was 13.97 years old.
Research on NICHD

Asvesting the value of structured protocols for forensic interviews of alleged child abuse victims.

Abstract: Examined the effectiveness of the National Institute of Child Health and Human Development (NICHD) investigative protocol, a flexibly structured protocol incorporating a wide range of strategies believed to enhance retrieval with child witnesses. Six forensic investigators were trained to use the NICHD protocol while conducting feedback-monitored simulation interviews. The protocol's was evaluated by comparing 50 protocol interviews (PRIs) with 50 prior interviews by the same investigators, matched with respect to characteristics likely to affect the richness of the children's accounts. The comparison was based on analysis of investigators' utterance types, distribution, and timing, and quantitative and qualitative characteristics of information produced. PRIs contained more open-ended prompts than non-PRIs did. More details were obtained using open-ended invitations and fewer were obtained using focused questions in PRIs than in non-PRIs, although total number of details elicited did not differ significantly. In both conditions, older children provided more details than younger children did.

A structured forensic interview protocol improves the quality and informativeness of investigative interviews with children: A review of research using the NICHD Investigative Interview Protocol.

Abstract: Objective: To show how the results of research on children's memory, communicative skills, social knowledge, and social tendencies can be translated into guidelines that improve the quality of forensic interviews of children. Method: We review studies designed to evaluate children's capacities as witnesses, explain the development of the structured NICHD Investigative Interview Protocol, and discuss studies designed to assess whether use of the Protocol enhances the quality of investigative interviews. Results: Controlled studies have repeatedly shown that the quality of interviewing reliably and dramatically improves when interviewers employ the NICHD Protocol. No other technique has been proven to be similarly effective. Conclusions: Use of the structured NICHD Protocol improves the quality of information obtained from alleged victims by investigators, thereby increasing the likelihood that interventions will be appropriate.


Abstract: Reviews the article, A structured forensic interview protocol improves the quality and informativeness of investigative interviews with children: A review of research using the NICHD Investigative Interview Protocol by M. E. Lamb, Y. Orbach, I. Hershkowitz, P. W. Esplin, and D. Horowitz (see record 2007-18380-006). This review paper aims to, "show how the results of research on children's memory, communicative skills, social knowledge, and social tendencies can be translated into guidelines that improve the quality of forensic interviews of children." The other primary purpose of the article was to describe and report on the utility of a new interview tool and training materials that were designed specifically with this research in mind. In reviewing the current knowledge base, the authors state that the most important issue is the, "interviewer's ability to elicit information and the child's willingness and ability to express it, rather than the child's ability to remember it." The paper also presents a summary of a series of studies conducted nationally and internationally in which the NICHD protocol was used.


Abstract: Comments on an article by M.E. Lamb et al. (see record 2007-18380-006). The article contains several statements about the NICHD as well as the Finding Words forensic interviewing models that warrant clarification or elaboration. The authors properly note that the most effective forms of
forensic interview training programs are those that "provide continued support, guidance, and feedback on interviewer behavior in interviews conducted after starting to use the Protocol." However, the authors incorrectly assert that "only the NICHD training model includes feedback beyond the training period (i.e. in post-training investigative interviews as well)." The authors contend it is "well-established" that the NICHD protocol elicits "accounts that are more likely to be accurate and less likely to be challenged in court." The authors, however, do not provide any evidence that the NICHD protocol has met the rigorous legal standards for its admissibility in a court of law or that investigators using the model have been qualified as experts in a court of law on forensic interviewing issues. The authors' claim that drawings and dolls are "potentially risky tools," ignores the fact that the vast majority of research supports the usage of these tools provided they are properly used. Moreover, these tools are widely accepted in court. The authors recognize that NICHD is not a "panacea" and that more research needs to be done to assess whether the protocol assists in finding corroborating evidence and how it can be modified to address "special circumstances."


**Abstract:** Reply by the current authors to the comments made by Victor Vieth (see record 2008-17415-002) on the original article (see record 2007-18380-006). Vieth agreed with Lamb and colleagues that there is a "substantial degree of consensus regarding the ways in which investigative interviews should be conducted". It is indeed well accepted that interviewers should “introduce as little information as possible while encouraging children to provide as much information as possible in the form of narratives elicited using open-ended prompts (‘Tell me what happened.’)”. Research has shown that among children disclosing abuse, “responses to individual free-recall prompts are three to five times more informative than responses to more focused prompts’. Vieth did not question this research. Also, Vieth did not question the well-replicated finding that interviewers trained to use the NICHD Protocol use more open-ended prompts and reduce their use of more risky question-types, risky because they elicit less accurate information. He also agreed that improving the quality of forensic interviewing requires “continued support, guidance, and feedback on interviewer behavior”, pointing to ways in which the Finding Words program encourages peer review of interviews.
III. Child Eyewitness Testimony

The following text borrows extensively from Wikipedia, which offers a helpful synopsis of child eyewitness testimony.

An eyewitness testimony is a statement given under oath by a person present at an event who can describe what happened. During circumstances in which a child is a witness to the event, the child can be used to deliver a testimony on the stand. The credibility of a child, however, is often questioned due to their underdeveloped memory capacity and overall brain physiology. Researchers found that eyewitness memory requires high-order memory capacity even for well-developed adult brain. Because a child's brain is not yet fully developed, each child witness must be assessed by the proper authorities to determine their reliability as a witness and whether or not they are mature enough to accurately recall the event, provide important details and withstand leading questions.

Brain Development Associated with Eyewitness Testimony

Brain development is an after-forward process; from the occipital lobe (visual), to the temporal lobe (sensory, auditory and memory), to the parietal lobe (motor, pain, temperature, and stress), and finally to the frontal lobe (language, reasoning, planning, and emotion). All of these brain regions work together to build up our eyewitness memory.

Generally, infants are born with formed brain systems and their brains develop very rapidly during the first three years. The size of a newborn brain is approximately 400g and continues to grow to 1100g at the age of three, which is close to the size of an adult brain (1300-1400g). Although infants are born with a properly formed brain, they are still far away from full development. The glial cells, which play a vital role in proper brain function (e.g. insulating nerve cells with myelin), keep growing to divide and multiply after birth. However, to have a fully developed eyewitness memory, the development of gray matter, white matter, the dentate gyrus and density of synapses are highly necessary.

The volume of white matter starts its linear increase from age four to 20, but cortical gray matter is decreases in the parietal, occipital and temporal regions starting from age four, continually changing until after age 12. The development of the dentate gyrus starts forming at 12 to 15 months in the hippocampus, which is essential for the formation of declarative memory in eyewitness testimony. After the formation of the dentate gyrus of the hippocampus, the density of synapses in the prefrontal cortex, which is involved in eyewitness memory, is peaks in its development during 15 to 24 months, changing until the age of adolescence.

Major Brain Regions Necessary for Eyewitness Performance

Hippocampus

The hippocampus is one of the brain structures located within the medial temporal lobe and is considered one of the main structures of the brain associated with eyewitness testimony because it is the area that is important for the formation of long term memories. Declarative memories are long term memories that can be consciously remembered, which include: specific events and factual knowledge. Eyewitnesses use declarative memories, specifically episodic memory when they are asked to recall specific events that took place in the past. For example, "Do you remember what the doctor said to you last time you visited him?" Research on children as eyewitnesses found that children do not have accurate long term memories for past events.

The hippocampus is not yet completely developed until 2–8 years of age; however, there are mixed findings for the exact moment when the hippocampus stops maturing. Though the hippocampus
may stop maturing at a certain age, behavioral evidence shows that declarative memories are known to develop from childhood up until adulthood.\textsuperscript{[9]}

A study looking at age differences in which children can remember episodic memories (e.g. their first day of school, attending a friend's birthday party), elementary and preschool students were questioned about delay interval in past experiences and found significant differences in what children recall. Elementary school students were more successful at this task than preschoolers. Overall, children need more prompts to remember past events and recall fewer details than older children.

Stress also appears to disrupt the function of the hippocampus as it reduces the likelihood for details to be remembered in a logical sequence.\textsuperscript{[10]} Since most children are asked to recall stressful events for eyewitness testimonies, they may explain them in fragmented sequences of events.

**Prefrontal Cortex**

The prefrontal cortex is another brain region involved in eyewitness testimonies. Its function in relation to memory is to create memories that are vivid and that have a lot of contextual detail.\textsuperscript{[9]} Research in the Journal of Law and Human Behaviour found that the ability for child eyewitnesses to accurately recall details of events increases with age, as did the ability to answer specific questions, identify the confederate and resist suggestion. Studies have found that children tend to give few details of the event and sometimes distort them in eyewitness testimonies.\textsuperscript{[10]} This brain region is one of the last regions to develop.

Short term memory occurs in the prefrontal cortex. Working memory is another process that relies on the prefrontal cortex.\textsuperscript{[12]}

**Temporal Lobe**

The temporal lobes are involved in several functions of the body including: hearing, meaning, auditory stimuli, memory, and speech. They also play a role in emotion and learning\textsuperscript{[13]} and are concerned with processing and interpreting auditory stimuli. This is a major location for memory storage and is associated with memory skills.

Parts of the temporal lobe show late maturation. These regions are of the last brain regions to mature.\textsuperscript{[14]} The gray matter in the temporal lobe continues developing until it reaches its peak development at age 16 for both males and females.

**Amygdala**

The amygdala is located deep within the temporal lobe of the brain and is involved in the acquisition and retrieval of information on highly salient events.\textsuperscript{[15]} It is also involved in several functions of the body, which include determining what and where memories are stored in the brain. The determination of what/where memories are stored is dependent on how big of an emotional response an event evokes.\textsuperscript{[15]} This is related to eyewitness testimonies because young children usually have poorer recall for details of events, but when an event evokes a highly aversive response (unpleasant, arousing), they tend to remember it.

The amygdala does not stop developing until late adolescence. Research studies have found that in normal developing children, the volume of amygdala increases substantially between seven to 18 years of age.\textsuperscript{[16]} This influences how children perform as eyewitnesses because children will have poorer skills for storing and recalling memories of events prior to the age of seven.
Short Term Memory
Short term memory is defined as the ability to store information for a short period of time. If it is rehearsed enough, it will be transferred into long term memory. This is important to know in regards to eyewitness testimonies because children have problems transferring short term memories to long term, as discussed previously.

Overall, there are a number of differences in memory among adults and children. With regards to short term memory, a child’s capacity to store items is less than that of an adult. More specifically, evidence has shown that a five year old can only store up to five items in short term memory, whereas adults are able to store around seven items. This can play a role in how accurate a child’s memory performance is in comparison to an adolescent or an adult’s recall of the same crime scene.

The amount of time elapsed from when the child witnessed the scene to when they give their testimony is also a contributing factor to how short term memory influences the accuracy of their recall as an eyewitness. It was found that a child’s short term memory is more susceptible to interference as the amount of time increases between the event and the testimony. This can lead to misinformation on the child’s part and an inaccurate recall of events. One explanation for this is that information that is learned shortly after the event is combined with information that is being temporarily stored in short term memory, having yet to make it into long term memory, causing contradictory traces to coexist.

Long Term Memory
Eyewitness testimonies can be impacted by long term memory by the loss of information during the process of encoding and storing event details into long term memory. According to the information processing model, if sensory information about an event is not directly transferred from short term memory into long term memory, the information is difficult to retrieve. Research has also found that the rate of transfer of sensory information from short term to long term memory is related to age of the witness. Older children have higher success rates in transferring memory from short term to long term than younger children, which plays a role in why younger children have poorer recall in eyewitness testimonies.

Selective attention also contributes to the impairment of younger children's information encoding process. Namely, if children's attentions are disrupted by an object (e.g. a gun) while witnessing a crime, they might be unable to fully encode all of the details, resulting in poor recall of the event later on in life.

Factors Affecting Eyewitness Testimony

Retroactive Interference
Retroactive interference encourages incidental forgetting, in which the newly learned information impairs the retrieval of previously learned knowledge, especially for similar and related information. For example, if you have already learned about proactive interference and recently learned new information about retroactive interference, the knowledge you learned about retroactive interference has the tendency to impede the retrieval of the knowledge of proactive interference.

The passage of time is not of major importance but still has relevance to retroactive interference. The results of a study on rugby players by Hitch and Baddeley showed that trace decay contributes relatively nonsignificant effects on retroactive recall.
Consolidation of the previously learned knowledge and the new information is important. If the previously learned knowledge is well consolidated in memory, the impeding influence caused by the new encoding has less effect; inversely, if the newly learned information is better encoded than the old knowledge, the interference is greater. This is especially true when the previously learned knowledge is simply encoded in short-term and working memory—basically, the low level of consolidation. The similarity between the new information and old knowledge can have an effect on performance as well. When the recently acquired information is phonologically and semantically similar with the known knowledge, the rate of retroactive interference is increased through confusion between the two materials.

The encoding process, retrieval traces and contextual cues of the newly learned information play significant roles in impairment. The ways that information is encoded can impair the retrieval performance of that information. The better encoding, the better retrieval will be, especially under circumstances of appropriate retrieval traces and sufficient contextual cues. How to retrieve the encoded information, a.k.a retrieval strategy, is also essential for preventing retroactive interference. The failure in binding and tracking the contextual information has an increased impact on the retroactive interference effect.

Retroactive interference can also be attributed to personal experiences and memories. The schematic knowledge in memory is useful in forming expectations and drawing inferences for understanding, but it is also able to cause distortion and interference when the encoding information is inconsistent with what has been stored. In addition, the extent of knowledge stored in memory has impacts on the accuracy of the encoding and storing of information. Knowing a lot about a subject helps to improve the accuracy of other related subjects. A lack of essential experience can interfere with the processes of learned knowledge and increase the risk of retroactive interference when learning new information about the already learned subject.

Memory capacity involves the state of maturity and plasticity of the brain and can impair memory performance especially in terms of interference. The development of brain function has a great influence on memory capacity which is responsible for the performance of memory. This includes verbal expression, object recognition, etc.

In children, memory capacity, source monitoring, and language development are limited because their brains are not yet mature. These limitations enhance the effect of retroactive interference on the accuracy of a child’s eyewitness testimony. For instance, a five year-old child is generally able to tell the genital contact of a sexual abuse perpetrator, but it is difficult for the child to identify other features such as facial features and clothing due to their underdeveloped memory capacity. The undeveloped conceptual functions of a child’s brain restricts their capacities in object recognition, social cognition, language, and human capacity (the ability to remember the past and imagine the future), and impairs the retrieval and accuracy of their eyewitness memory.

Due to their young age, children have less personal experience, making them vulnerable to impairments from retroactive interference. Therefore, when used as eyewitnesses, it is less possible for them to encode and store the features of the criminal in an appropriate or sufficient way, which impedes the accuracy of the eyewitness retrieval.

Stress and Trauma
There are many reason why children eyewitness testimonies may not be completely accurate, one of which could be stress and trauma. When children experience a traumatic and stressful event, their ability to accurately recall the event becomes impaired.
The American Psychological Association often claims that emotional events are remembered less accurately than details of neutral or everyday events. Their explanation for why stress and trauma could impair memories under high emotional arousal is a decrease in the available processing capacity which leads to lower memory processing.\[291\]

Stressful events can also have positive effects on children. Physiological evidence indicates that stressful events are retained particularly well the more children experience positive events in their lives.\[30\]

Other theorists have relied on The Yerkes-Dodson Law for explaining the effects of stress on a child's memories. The Yerkes-Dodson Law states that too little or too much stress is associated with a decline in memory. Too much stress can narrow someone's attention for stressful memories but aid in consolidation so that details are attended to. Goodman gave inoculations to 76 children between the ages of three and seven and found that those who were most severely distressed by the experience (those who screamed, cried, struggled) later remembered more about the event and were more resistant to suggestion than those who did not experience distress.\[30\]

In order to help reduce stress and trauma to the child, some studies have shown that good social support during the interviewing process can help children reduce their anxiety. If an interviewer is supportive by smiling, nodding his head and compliments the child during the interviewing process the child's anxiety decreased by a decent margin. The study also showed that the less supportive an interviewer was, the higher the child's anxiety rose.\[31\]

Early research has studied the impacts of emotion on memory. Sigmund Freud used his psychoanalytic approach to study people with hysteria. Freud found that people are constantly confronted with thoughts and some of the memories are too painful, so people become repressed.\[32\]

Another method by Kuehn analyzed the data from police reports about victims experiencing traumatic events. He looked specifically at how capable these victims were in being able to provide a description of the traumatic event in a police report. These victims experienced two homicides, 22 rapes, 15 assaults and 61 robberies, respectively. He found that victims of robberies were able to provide more detailed description for the events than did victims of rape or assault. He also found that people who were injured provided more less of description than non injured people.\[32\]

Stress and trauma can also cause create other problems in eyewitness testimonies such as repression. Repression has an impact on eyewitness testimonies because if a child goes through a stressful or traumatic event they will sometimes repress their memories. According to Freud's theory on repression, a repressed memory is the memory of a traumatic event unconsciously retained in the mind, where it is said to adversely affect conscious thought, desire, and action. As a result, children will have trouble recalling this information or accessing it consciously. If a child who has witnessed a traumatic event is used as an eyewitness, they may have a harder time recalling the event due to the possibility of memory repression.

According to the journal of Law and Human Behaviour, children who have been through traumatic events will find it harder to remember a regular event as opposed to a non-traumatic event. In a study conducted by Goodman, they found that non-abused children were more accurate in answering specific questions and made fewer errors in identifying an unfamiliar person in pictures.\[33\]

**Intelligence**
Another factor that has been studied as a contributing variable in the accuracy of child eyewitness testimony is intelligence. Individual differences in intelligence, based on IQ, have been used to explain variances in memory performance among children giving eyewitness testimonies.

The ability for a child to give a free narrative of what happened involves the practice of episodic memory and working memory, which are both influenced by an individual’s capacity to cognitively process events. A child’s fluid and crystallized intelligence are theorized to predict memory recall. Evidence has shown that higher verbal intelligence is positively correlated with memory performance and negatively correlated with suggestibility in children.

Further analyses of research concerning intelligence and free recall have shown that there are relatively large differences in intelligence when a positive correlation between recall and intelligence is demonstrated. This implies that intelligence significantly influences child eyewitness memory when comparing high and low levels; however, small differences in intelligence are not significant.

Another finding in the influence of intelligence on a memory recall in children is that it seems to be age-dependent. Differences in age group explain the variance in which intelligence has an effect on memory performance. Older children have higher correlations of intelligence and recall, whereas chronological age is more significant of a factor than intelligence for young children's eyewitness memory. More specifically, a study examining the influence of fluid intelligence on recall of children’s eyewitness memory regarding a videotaped event found that there was not a positive relationship between fluid intelligence and free narrative for six and eight year olds; however, the positive relationship was present for ten year olds.

Likewise, in studies of real cases of children testimony, the general finding is that intelligence is a considerable predictor for witness reports for children in their late elementary school years, but not for children up to the age of six. Therefore, the effect of individual differences in intelligence on eyewitness memory increases with the child’s age.

The range in children’s intellectual capacities may explain the positive relationship between intelligence and eyewitness memory. Intellectually disabled children and children with below average to very low IQ's have been included in studies examining the influence of intelligence on memory recall. It was found that when giving an eyewitness testimony, there is a stronger positive relationship between intelligence and recall for intellectually disabled children, with recall accuracy being poorer with children of lower IQ than for children with average or high intelligence. A possible explanation for this may be that in comparison to a child of mainstream intelligence, children of lower intelligence encode weaker memory traces of events.

Another explanation is that individuals with intellectual disabilities have poorer cognitive and language functioning, which would directly impact their performance on memory and language tasks. A study examining the extent to which the degree of intellectual disability (mild to moderate) has an effect on the relationship between intelligence and witness memory found that there was no significant difference in same-aged children with mild intellectual disabilities (IQ 55-79) and children with normal intelligence (IQ 80-100). Individuals with moderate intellectual disabilities (IQ 40-54) performed significantly worse on almost every eyewitness measure.
**Suggestibility**

In general, the judicial system has always been cautious when using children as eyewitnesses resulting in rules that demand all child testimonies be confirmed by designated officials prior to its acceptance as evidence in the court of law.[40] One of the reasons for this partiality is suggestibility—a state in which a person will accept the suggestions of another person and act accordingly.[41] With regards to court proceedings, a child’s testimony or recollection of an event is especially vulnerable to leading questions.[40]

Although suggestibility decreases with age, there is a growing consensus that the presence of an interplay between individual characteristics and situational factors may affect suggestibility, in this case, of children. This explains why children of the same age may significantly vary in levels of suggestibility.[42]

There are several factors that contribute to a child’s suggestibility. Age-related differences are often synonymous with developmental differences, though the latter, when not comparing two different age groups, has no effect on a child’s suggestibility.[43] Basically, individual differences between children of the same age group do not play a significant role in a child’s level of suggestibility. If there is a difference in suggestibility levels of children that are of the same age, they are most likely due to maturational differences in specific cognitive skills.[42]

Studies also show that it is not the leading questions themselves that can alter a child’s recall of the event, but the event in question. When children are questioned about true events that they actually participated in, they are much more accurate with their answers. With suggested events in which the questioner is suggesting the child may have been involved, children become more suggestible and easier to influence. Younger children also have a larger tendency to change their answers when making “yes,” “no,” or “I don’t know” statements.[42]

It is yet to be determined whether there is a particular age or level of specific cognitive functioning at which suggestibility becomes more of a universal trait or characteristic; However, a study involving four year-olds suggests that due to their development of theory of mind, this may be close to the age at which suggestibility begins its ‘trait-like’ transition.[42]

Emotion can also make children more suggestible. When using sad stories, children are much more vulnerable to misleading questions than when using angry or happy events. In an experiment, when asked to recall a sad story previously read to them, children were much more descriptive and detailed when answering misleading questions, as opposed to when regular, stories were used.[44] Very similar results were found in a separate experiment in which stress was induced in children.[45]

Children were also more likely to agree with misleading questions and more likely to incorporate fabricated details when asked to recall the event. In this experiment using sad, angry or happy stories, it is at age six that the researchers deemed the average age at which suggestibility levels off.

As with most factors that elicit suggestibility, susceptibility to emotional influences decrease with age. Possible reasons for this may be the increase in narrative skill, knowledge, memory abilities, as well as the ability to properly encode memories. It is also implied that older children may be less trusting of adults’ omniscience and more willing to contradict them.[44]

In 1999, Ceci and Scullin developed the Video Suggestibility Scale for Children (VSSC), which measures individual differences in suggestibility in preschool children.[46] The scale was administered to children of 3–5 years of age.
The results suggested that children tend to respond affirmatively to suggestive questions and change their answers in response to negative ones. Older children were able to recall the events in the video better than younger children, but were also more likely to shift their answers in response to negative feedback. Overall, this scale and study supports Gudjonsson's view that there are at least two basic types of interrogative suggestibility.\[47\]

### From Childhood to Adolescence

In general, adolescents are far more trustworthy eyewitnesses than children. They are already fully mature in terms of cognition (i.e. narrative skills, memory recall and encoding, etc.) Researchers found that the ability to recall single pieces of spatial information developed until ages 11 to 12, while the ability to remember multiple units of information developed until ages 13 to 15. However, strategic self-organized thinking, which demands a high level of multi-tasking skill, continues to develop until ages 16 to 17.

The frontal lobe and prefrontal cortex continues to develop until late adolescence, depending on the complexity of the task. When accomplishing complicated tasks, teenagers are still developing the cognitive skills necessary to efficiently manage multiple pieces of information simultaneously. These skills improve over time as the connections between brain cells become more refined, enabling more information to be simultaneously managed.\[48\]

In regards to credibility as an eyewitness, adolescents are no longer easy to manipulate and are not suggestible like young children. This is due to obvious cognitive factors, as well as maturation as a person. Young children look at adults as powerful and extremely knowledgeable whereas adolescents are not so intimidated when questioned by adults.\[49\]

However, this does not mean that adolescents are invincible and impermeable when on the stand. Because adolescents have much more experience in the world, their knowledge may actually hinder their eyewitness performance. When asked about details of a story or movie that was just read or watched, college students were just as likely as sixth graders to produce detailed, but false additions.\[45\] This study further explains that this is a result of behavioral scripts. They used inferences from what they already knew about people, actions, and situations and acted based on their instincts.

For example, when asked about a movie about cheating on tests, the college students added details explaining why the student cheated although it was not included in the film. They described the thoughts and feelings of the student because they are able to draw from their own separate experiences and knowledge of the situation. However, third graders were found to be less suggestible in questioning due to their limited knowledge as well as their limited script involving cheating.

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7. Neuroscience for kids

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Child Sexual Abuse Allegations: What Every Attorney Should Know, Simpson. page 42 of 96

**Relevant Articles related to Child Testimony**


**Abstract:** Responds to the comments made by M. D. Everson and K. C. Faller (see record 2012-04562-004) & T. D. Lyon et al. (see record 2012-04562-003) on the current authors' chapters in the book The Evaluation of Child Sexual Abuse Allegations: A Comprehensive Guide to Assessment and Testimony (see record 2009-01883-000). Our series of three chapters (Faust, Bridges, & Ahern, 2009a, 2009b; Bridges, Faust, & Ahern, 2009) on the methodology of identifying sexually abused children elicited a number of comments, both supportive and critical. The criticisms appear related to three primary issues or apparent misconceptions of our work, perhaps due in part to incomplete exposition or ambiguity in presented material: our use of hypotheticals, our argument against “double-dipping,” and our use of Bayesian analyses. We address each of these criticisms here in the hope of clarifying any misunderstandings and contributing in a constructive way to progress in this critical arena.


**Abstract:** Over the last decade, there has been a significant growth in the study of individual differences factors predicting children's suggestibility. In this paper, we synthesize the results of 69 studies examining the relationship of demographic factors (socioeconomic status and gender), cognitive factors (intelligence, language, memory, theory of mind, executive functioning, behavioural ratings of distractibility, and creativity), and psycho-social factors (social engagement, self concept/self-efficacy, stress/emotional arousal/state anxiety, maternal attachment styles, parent-child relationship, parenting styles, temperament, and mental health) and children's suggestibility. We found that for cognitive factors, language ability and creativity were fairly consistently related to suggestibility. The highest correlations for psycho-social factors and suggestibility were obtained for measures of self-concept/self-
efficacy, maternal attachment, and the parent-child relationship. Implications for future research and mechanisms underlying children's suggestibility are discussed.


Abstract: Modern scientific research on child maltreatment victims' memory abilities and court experiences has informed and guided legal professionals, policy makers, mental health professionals, and the lay public for nearly three decades. The importance of addressing legal, psychological, and clinical issues on behalf of child witnesses has spawned an abundance of research. For the past several decades, our laboratory has conducted a number of research projects to examine child maltreatment victims’ abilities and experiences as witnesses. In this paper, we first review several scientific studies performed by our laboratory with maltreated children and adults. Specifically, we describe some of the laboratory's key studies on maltreated children's memory and suggestibility and then some of our key studies on maltreated children's reactions to criminal and dependency court, including their later reactions as adults. Following this, we address practical strategies used to deal with many of the challenges involved in child witness research projects when actual child victims are involved. We focus on methods for recruiting maltreatment victims, seeking informed consent for research participation, ensuring representativeness of samples, selecting appropriate interview questions and questionnaires, and retaining participants longitudinally. When considering each of these, we first address a number of general points, and then separately discuss problems and practical strategies that emanate from research on memory and suggestibility of maltreated children, followed by problems and practical strategies that arise in research on children's legal involvement. The one exception is that in considering practical challenges of conducting longitudinal research, the issues for memory and suggestibility research and those for children's legal involvement studies largely overlap and are discussed together.


Abstract: This study examined event memory and suggestibility in 3- to 16-year-olds involved in forensic investigations of child maltreatment. A total of 322 children were interviewed about a play activity with an unfamiliar adult. Comprehensive measures of individual differences in trauma-related psychopathology and cognitive functioning were administered. Sexually and/or physically abused children obtained higher dissociation scores than neglected children, and sexually abused children were more likely to obtain a diagnosis of posttraumatic stress disorder than physically abused children, neglected children, and children with no substantiated abuse histories. Overall, older children and children with better cognitive functioning produced more correct information and fewer memory errors. Abuse status per se did not significantly predict children’s memory or suggestibility whether considered alone or in interaction with age. However, among highly dissociative children, more trauma symptoms were associated with greater inaccuracy, whereas trauma symptoms were not associated with increased error for children who were lower in dissociative tendencies. Implications of the findings for understanding eyewitness memory in maltreated children are discussed.


Abstract: This article summarizes the extensive research literature on laypeople's and jurors' beliefs about children's memory, suggestibility and responses to child sexual abuse. In particular, it discusses the extent and types of misconceptions held by laypeople/jurors, as well as the effects of age, education and gender on those misconceptions. The results from an analysis of mock jury studies where different types of expert testimony were presented are then considered in order to understand the types of expert testimony that would be admissible in courts in Australia, with a particular focus on the Uniform Evidence Act. As a result of this analysis, particular reform options are discussed and recommended in order to counter juror misconceptions in child sexual abuse trials.

**Abstract:** (from the chapter) When children are victims of a crime, frequently their testimony is the only prosecution evidence in the case. This is because crimes against children—particularly crimes of child abuse - typically occur in situations that are unlikely to involve other evidence or other witnesses. It is thus especially important that child witness evidence be collected, documented and evaluated carefully. Elsewhere, Pezdek (1994) has argued about the costs and benefits of weighing children's eyewitness accounts too lightly or too heavily. Suffice it to say here, that weighing children's eyewitness accounts too lightly can result in the perpetuation of child victimization; weighing children's eyewitness accounts too heavily can result in false charges that can permanently destroy families. In light of the dire consequences at both ends of this criterion, it is critical for forensic investigators and the courts to understand the factors that affect children's memory for traumatic events, and to follow procedures that are most likely to maximise the veracity of children's accounts. In this chapter we first present what is known from the scientific research about factors that affect the veracity of children's memory, with the focus on the topics of the suggestibility of children's memory and false memories for childhood events. Second, we review research on interview procedures and the special measures that have been suggested for interviewing children and presenting their evidence at court and discuss the experimental and field research on the utility of these procedures. Together, these two sections of this chapter provide the reader with a solid understanding of how best to interview children and present their evidence at court and the scientific basis for these recommendations. We believe that professionals are more likely to follow the suggested procedures if they understand the rationale for them.


**Abstract:** The Evaluation of Child Sexual Abuse Allegations: A Comprehensive Guide to Assessment and Testimony is composed of 20 chapters written by scholars with diverse areas of expertise, such as clinical decision making, child forensic interviewing, research on memory and suggestibility, and professional ethics. The majority of chapters offer excellent reviews of relevant research as well as practical guidelines for forensic evaluators seeking to update to best practice standards. However, at least four chapters in the Kuehnle and Connell (2009) book dispute the validity of long-established forensic methodology. Because of concerns that such criticisms of established practice may be mistaken by the courts and child welfare professionals as representative of empirical or expert consensus, we assembled a group of experienced forensic evaluators and respected child maltreatment researchers to prepare articles that challenge the most troubling chapters in the Kuehnle and Connell book. The resulting six articles were published as a recent special issue of the Journal of Child Sexual Abuse (JCSA) (2012, Volume 21, Issue 1) entitled, “Contested Issues in the Evaluation of Child Sexual Abuse Evaluations.” The six commentaries in this section continue the discussion of this critical debate about what constitutes appropriate practice in CSA evaluations. The reader is cautioned that each commentary represents only one side of the debate. As authors of two of the JCSA special issue articles (Everson & Faller, 2012; Faller & Everson, 2012), we urge the reader to refer to the special issue articles, as well as the original Kuehnle and Connell chapters, for a more complete perspective.


**Abstract:** The most available form of evidence in child sexual abuse cases is what the child has to say about his or her alleged experience. The most difficult skill for clinicians to develop is the “how tos” of talking to children in a developmentally appropriate, nonjudgmental, facilitative, and empathetic manner. This manuscript provides insight into obtaining historical details about a child’s experience and guidance regarding how to incorporate those details when formulating a balanced and defensible opinion. The consultative report should be an instrument to explain the presence or absence of physical findings, the significance of symptoms temporally related to sexual contact, and discrepancies between a child’s perception of an experience and physical findings.

Abstract: Over the past three decades, there have been contested issues and controversies about the most appropriate and effective techniques for investigating and forensically interviewing children when sexual abuse allegations occur. The current special issue of the Journal of Child Sexual Abuse focuses on some of the controversies and contested issues, and also challenges some of the ideas advanced by some authors in the Kuehnle and Connell book. Commentaries by some of the authors of this special issue and other experts in the field will also be published. It is hoped that this exchange will enable greater consensus about evaluating child sexual abuse allegations, thereby ensuring that children who have been sexually abused are identified in the evaluation or investigation of the allegations, and that children who have not been sexually abused are also correctly categorized.


Abstract: Exposure to childhood trauma, especially child maltreatment, has important implications for memory of emotionally distressing experiences. These implications stem from cognitive, socio-emotional, mental health, and neurobiological consequences of maltreatment and can be at least partially explained by current theories concerning the effects of childhood trauma. In this review, two main hypotheses are advanced: (a) Maltreatment in childhood is associated with especially robust memory for emotionally distressing material in many individuals, but (b) maltreatment can impair memory for such material in individuals who defensively avoid it. Support for these hypotheses comes from research on child abuse victims’ memory and suggestibility regarding distressing but nonabusive events, memory for child abuse itself, and autobiographical memory. However, more direct investigations are needed to test precisely when and how childhood trauma affects memory for emotionally significant, distressing experiences. Legal implications and future directions are discussed.


Abstract: (from the chapter) In this chapter, we first describe a modicum of case law that concerns child witnesses. We then turn to a brief history of scientific research on child eyewitness memory. Internal and external validity issues and ethical concerns are also reviewed. We then discuss methodological issues regarding trauma and child memory, child maltreatment and memory, children's suggestibility and false memory, forensic protocols, and children's testimony in court.


Abstract: Studies on the influence of expert evidence and judicial instructions in child sexual abuse (CSA) cases have produced mixed outcomes. Using repeated measures, we tested the effectiveness of expert evidence and judicial directions in challenging common misconceptions about children’s memory and responses to sexual abuse. A CSA Misconceptions Questionnaire was administered to 118 psychology undergraduates who later served as virtual jurors in a simulated criminal trial. Specialized CSA knowledge was provided by a psychologist or via judicial directions. Expert evidence had two levels: clinical versus scientific testimony. Timing of judicial instructions had two levels: directions presented before the child testified versus during the judge’s summing up. In a fifth control condition, no specialized CSA information was included. After reading a trial transcript, mock-jurors assessed witness credibility, rendered verdicts and again completed the CSA Misconceptions Questionnaire. All four interventions significantly increased jurors’ CSA knowledge. The more they knew, the more likely they were to convict. Perceived victim credibility fully mediated the effect of CSA knowledge on verdict: information presented via expert testimony or judicial directions enhanced perceptions of victim credibility, which in turn increased convictions. Conviction rates were significantly higher in response to expert testimony from a clinical psychologist and a judicial instruction provided in the trial summation. These results are promising for courts and policy-makers grappling with low conviction rates in CSA jury trials.

Abstract: (from the chapter) Although much of this chapter will have a legal/forensic perspective, the issues discussed have important implications for all clinicians, practitioners, and educators who are working with children in a variety of settings. Namely, to understand the harmful effects that suggestibility can have on children's recollections of personal experiences is important for anyone interacting with children. For example, what would you do if you suspected that a child might be the victim of abuse or a bullying situation? How do you verify a child's report about a domestic violence situation or make decisions regarding the child's best interests when a child is trapped in the midst of a bitter parental divorce? Having the best interest of the child at heart, most professionals would strive to obtain as much information as possible from the child, resulting in the child being asked many questions. However, the way a child is questioned about a negative experience may influence his or her memory for what happened. Therefore, a primary goal of this chapter is to build upon what we know about children's memory (Chapters 7 and 8) to help readers understand the most effective and least damaging procedures to use when talking to children about past experiences. Investigating children's nonabuse experiences (e.g., witnessing a bad car accident, negative interactions with a teacher) should be approached with the same care and precautions that one might use when concerned about an abuse situation. The variables and techniques described in the following sections evolved from forensic interviews surrounding suspected child abuse but should be applied to any situation in which children talk about negative events.


Abstract: We describe a Bayesian approach to evaluating children’s abuse disclosures and review research demonstrating that children’s disclosure of genital touch can be highly probative of sexual abuse, with the probative value depending on disclosure spontaneity and children’s age. We discuss how some commentators underestimate the probative value of children’s disclosures by: confusing the probability of abuse given disclosure with the probability of disclosure given abuse, assuming that children formally questioned about sexual abuse have a low prior probability of sexual abuse, misstating the probative value of abuse disclosure, and confusing the distinction between disclosure and nondisclosure with the distinction between true and false disclosures. We review interviewing methods that increase the probative value of disclosures, including interview instructions, narrative practice, noncontingent reinforcement, and questions about perpetrator/caregiver statements and children’s reactions to the alleged abuse.


Abstract: From its inception, child eyewitness memory research has been guided by dramatic legal cases that turn on the testimony of children. Decades of scientific research reveal that, under many conditions, children can provide veracious accounts of traumatic experiences. Scientific studies also document factors that lead children to make false statements. In this paper we describe a legal case in which children testified about their mother’s murder. We discuss factors that may have influenced the accuracy of the children’s eyewitness memory. Children’s suggestibility and resistance to suggestion are illustrated. Expert testimony, based on scientific research, can aid the trier of fact when children provide crucial evidence in criminal investigations and courtroom trials about tragic events.

Abstract: This article reviews some sensitivity versus specificity imbalances in forensic investigations of child sexual abuse. It then proposes the development or further testing of additional approaches for those children who do not respond to the current, single-interview National Institute of Child Health and Human Development (NICHD) protocol. Although there are other interview protocols based on similar principles, the NICHD protocol has the strongest evidence base in both field and laboratory studies to elicit detailed and accurate information from children. Adaptations of the NICHD protocol or additional approaches need to be developed and tested for nondisclosing, partially disclosing, or recanting children, very young children, children with developmental disabilities, and children whose sexual abuse allegations are evaluated in the context of custody or visitation disputes.


Abstract: In eyewitness studies as in actual investigations, a minority of children generate numerous false (and sometimes incredulous) allegations. To explore the characteristics of these children, we reinterviewed and administered a battery of tasks to 61 children (ages 4–9 years) who had previously participated in an eyewitness study where a man broke a “germ rule” twice when he tried to touch them. Performance on utilization, response conflict (Luria tapping), and theory of mind tasks predicted the number of false reports of touching (with age and time since the event controlled) and correctly classified 90.16% of the children as typical witnesses or exuberant (more than 3) false reporters. Results of a factor analysis pointed to a common process underlying performance on these tasks that accounted for 49% of the variability in false reports. Relations between task performance and testimony confirmed that the mechanisms underlying occasional intrusions are different from those that drive persistent confabulation and that deficient cognitive control fuels young children’s exuberant false reports.


Abstract: The current study was designed to investigate children's memory and suggestibility for events differing in valence (positive or negative) and veracity (true or false). A total of 82 3- and 5-year-olds were asked repeated questions about true and false events, either in a grouped order (i.e., all questions about a certain event asked consecutively) or in a nongrouped order (i.e., questions about a certain event were interspersed with questions about other events). Interviewer gender was also varied. Individual differences, including attachment style, inhibition, and behavioral adjustment, were examined as potential predictors of memory and suggestibility. Results revealed significant age, valence, and veracity effects on children's memory reports. Path analysis demonstrated that individual differences in behavioral problems and inhibitory ability predicted children's provision of inaccurate information. Implications for psychological theory and legal application are discussed.

Dates of Abuse


Abstract: [Chapter] review relevant literature and formulate specific hypotheses concerning pretrial biases and their relation to decisions in child sexual assault cases / rely on research on the perceived credibility of adult rape victims to direct much of my discussion.


Abstract: In a study of the ability to reconstruct the times of past events, 86 children from 4 to 13 years recalled the times of 2 in-class demonstrations that had occurred 3 months earlier and judged the times of hypothetical events. Many of the abilities needed to reconstruct the times of events were present by 6 years, including the capacity to interpret many temporally relevant cues, but there were substantial changes well into middle childhood in the availability of temporally useful episodic information.
Children were poor at remembering the events' proximity or order with respect to a major holiday, but the order of the 2 target events was well recalled by 6 years.

**Dr. Simpson suggests the following books (and chapters)**


IV. Memory Development

The following text borrows extensively from Wikipedia, which offers a helpful synopsis of memory development.

The development of memory in children becomes evident within the first 2 to 3 years of a child's life as they show considerable advances in declarative memory. This enhancement continues into adolescence with major developments in short term memory, working memory, long term memory and autobiographical memory.[1]

Recent research on the development of memory has indicated that declarative, or explicit memory, may exist in infants who are even younger than two years old. For example, newborns who are less than 3 days old demonstrate a clear preference for their mother’s own voice.[2]

Cognitive Neuroscience of Memory Development

Declarative memory develops very rapidly throughout the first 2 years of life; infants of this age show evidence of cognitive development in many ways (e.g., increased attention, language acquisition, increasing knowledge). There is a difference in the brain development of explicit and implicit memory in infants. Implicit memory is controlled by an early-developing memory system in the brain that is present very early on, and can be explained by the early maturation of striatum, cerebellum, and brain stem, which are all involved in implicit learning and memory.[3] Development of explicit memory depends on a later developing memory system in the brain that reaches maturity between 8 and 10 months of age. Explicit memory depends heavily on structures in the medial temporal lobe, including the hippocampus and the parahippocampal cortex. Much of the brain system is formed before birth, however the dentate gyrus within the hippocampal formation has about 70% of the number of cells in adults.[4]

Rapid myelination of axons within the central nervous system occurs during first year of life which can dramatically increase the efficiency and speed of transmission in neurons. This can explain the higher processing speed of older infants as compared to younger ones.[5]

Working Memory

According to Baddeley's model of working memory, working memory is composed of three parts. First is the central executive which is responsible for a range of regulatory functions including attention, the control of action, and problem solving. Second, the phonological loop, which is specialized for the manipulation and retention of material in particular informational domains. Finally, the visuospatial sketchpad stores material in terms of its visual or spatial features. The strength of the relationships between the three components of working memory vary; the central executive is strongly linked with both the phonological loop as well as the visuospatial sketchpad which are both independent of each other. Evidence indicates linear increases in performance of working memory from age 4 years through to adolescence.[6]

Central Executive

In children under the age of 4, the memory storage capacity limitation constrains complex comprehension processes. As the child grows older however, less processing is necessary which opens more storage space for memory.[7]

Phonological Loop

Evidence indicates linear increases in performance from age 4 years through to adolescence. Prior to about 7 years of age, serial recall performance is mediated by the phonological store which is one component of the phonological loop. Preschool aged children do not use a subvocal rehearsal strategy to maintain decaying phonological representations in the store but instead they identify visual features of pictures in order to remember them. This is evident first by watching children
for overt sign of rehearsal (for example lip movement) and second if the child is given nameable pictures, there are no differences in retrieval found for long versus short words. At the age of seven, children begin to use a subvocal rehearsal process to maximize retention in the phonological store. As development continues, nonauditory memory material is recoded into a phonological code suitable for the phonological loop when possible.[7]

**Visuospatial Sketchpad**
Younger children (under the age of 5) are more dependent than older children or adults on using the visuospatial sketchpad to support immediate memory for visual material. Older children adopt a strategy of verbally recoding pictures where possible and also use the phonological loop to mediate performance of the “visual” memory task. Between the ages of 5 and 11, visual memory span increases substantially and it is at this point when adult levels of performance are reached.[7]

**Long Term Memory**
Explicit memory becomes much better over the developmental years. However, there are small effects of age on implicit memory, which could be because implicit memory involves more basic processes than declarative memory which would make it less affected by a child’s developing cognitive skills and abilities.

**Pre-school Children**
Infants at as early as 7-months-old can conceptually differentiate between categories such as animals and vehicles. Although infants’ concepts may be crude by adult standards, they still allow infants to make meaningful semantic distinctions. An example is that infants can differentiate between items belonging to a kitchen and those items belonging to a bathroom.[8] At the very least, these categories lay a foundation for early knowledge development, organizing information in storage and influence future encoding. Infants from 16 months old are able to draw on their semantic knowledge in generalization and inference. This knowledge can also be used by older toddlers, 24-month-olds, to facilitate acquisition and retention of new information. Their knowledge of causal ordering of events can be used to help to recall the sequence of events.

Knowledge itself will not alter retention performance, rather how well that knowledge is structured will alter performance. Better retention was shown with information that had greater cohesion and more elaborative elements. Familiarity and repetition of an experience can also influence the organization of information in storage for preschoolers and older children.[9] Children who experienced an event twice recalled the event better 3 months later than did children who only experienced it once and showed equally good recall at 3 months compared to recall at 2 weeks after experiences.

**School Age Children**
Age differences in memory are attributed to age-correlated growth in the foundation of knowledge. What children know affects what they encode, how that information is organized in storage, and the manner in which it’s retrieved. The greater the background knowledge about the to-be-encoded information, the better that the information is remembered.[9] Because older children have more knowledge than younger children, older children perform better than younger children in most memory tasks. When familiarity and meaningfulness of material were equated across age, developmental differences in memory performance was no longer a factor.

Children’s use of memory strategies and the development of metamemory skills are also instrumental in age-related changes in memory, particularly later in childhood years.[10] Knowledge influences memory by affecting retrieval, by facilitating spread of activation among
related items in memory and by facilitating the use of strategies. Knowledge also provides better elaboration of information which can strengthen its storage in memory.

**Episodic Memory**
By school age, the typical child shows skill in recalling details of past experiences and in organizing those details into a narrative form with cohesion. Memories formed at this age and beyond are more likely to stand the test of time over the years and be recalled in adulthood, compared to earlier memories. Young children can sometimes retain information from specific episodes over very long periods of time, but the particular information a child of a particular age is likely to retain over different periods of time is unpredictable. This depends on the nature of the memory event and individual differences in the child such as gender, parental style of communication, and language ability.[9]

**Autobiographical Memory**
The amount of information that is able to be recalled depends on the child’s age at the time of the event. Children at the age of 1-2 can recall personal events, though only in fragments when questioned several months later. Two-year-old children form autobiographical memories and remember them over periods of at least several months.[9]

Difficulty in assessing memory in young children can be attributed to their level of language skills; this is because memory tests usually occur in the form of a verbal report. It is unclear whether performance on memory assessments is due to poor memory for the event or to the inability to express what they remember in words. However, memory tests assessing performance with a nonverbal photograph recognition test and behavioral re-enactment showed that children had signs of recall from 27 months, as opposed to 33 months, where children showed only reasonable verbal recall.[11]

**Childhood Amnesia**
Infantile amnesia is the tendency to have few autobiographical memories from below the age of 5. Although autobiographical memories start forming between the ages of 2 and 3 and can be remembered for several months, they are nearly always forgotten by adulthood. This can be attributed to lack of memory rehearsal; young children do not engage in rehearsal of remembered information. There are two theoretical explanations for why this may occur; although they take different approaches, they are not mutually exclusive of each other.

**Cognitive Self**
Autobiographical memories can only begin to form after infants have developed a sense of self to whom events having personal significance can occur.[12] Evidence of a sense of self develops towards the end of the second year of life, in between 21 and 24 months of age. The development of a cognitive self provides a new framework from which memories can be organized. With this cognitive advancement, we see the emergence of autobiographical memory and the end of infantile amnesia.[13]

**Social Cultural Influences**
Language and culture play central roles in the early development of autobiographical memory. The manner in which parents discuss the past with their children and how elaborative they are in reminiscing has an impact on how the child encodes the memory. Children whose parents talk in detail about the past are being provided with good opportunities to rehearse their memories. The parents’ use of language at the time in which the event occurred can also play a factor in how the child remembers the episode. Cultural differences in parenting styles and parent-child relationships can contribute to autobiographical memory at an early age.[14]
Memory Strategies
Memory strategies are ways in which individuals can organize the information that they are processing in order to enhance recall in the future. Memory strategies that are helpful may include but are not limited to verbal rehearsal or mnemonics. The use of memory strategies varies in both the types of strategies used as well as the effectiveness of the strategies used across different age groups.[15]

Metamemory
As children grow older, they show increasing evidence of metamemory which is the knowledge about their memory and how it works.[1] There is strong evidence that suggests that greater awareness and knowledge about ones memory leads to increased use of memory strategies and greater levels of recall.[16]

In children under 7, the relationship between metamemory, strategy use, and recall is very weak or absent. This can be seen when comparing older children (over the age of 7) and preschool children on sorting tasks where children are asked to sort objects into groups that go together (for example animals) and attempt to recall them.[17]

Preschool Children
Preschool children use simple tactics for remembering but do not use mental strategies and do not typically differentiate memory and perception. In order to remember objects, they tend to verbally name or visually inspect items and use memory strategies intermittently or inconsistently even if they are aware of how they can improve recall.[18] Memory Strategies are used more consistently by children if they are reminded and taught to use them each time they are processing something that should be remembered.[19]

By age 7
By the age of 7, the awareness of the benefits of memory strategies in learning arises. The goal is for children to recognize the advantage of using memory strategies such as categorizing rather than simply looking or naming.[20] At this age, children spontaneously use rehearsal to enhance short-term memory performance and retrieval strategies begin to be used spontaneously without the guidance of others.[19]

Late Elementary School
In late elementary school, children engage in self-directed use of organization and demonstrate the ability to impose a semantic structure on the to-be-remembered items to guide memory performance. For example, if a child is packing their bag for school they can go through each part of their day and think of each item that they need to pack.[19] Children at this age understand the advantages of using memory strategies and make use of strategies like categorization over looking or naming if they are instructed to think about learning strategies prior to learning.[20]

Early Adolescence
In early adolescence, children begin to use elaborative rehearsal meaning that items are not simply kept in mind but rather are processed more deeply. They also prefer to use memory strategies such as categorization rather than simple rehearsal, looking or naming and use these strategies without needing to think about memory strategies prior to learning.[20]

References
8. Mandler, Fivush & Reznick, 1987
10. O’Sullivan & Howe, 1998
TOPIC: Suggestibility

The following text borrows extensively from Wikipedia, which offers a helpful synopsis of suggestibility.

Suggestibility is the quality of being inclined to accept and act on the suggestions of others. A person experiencing intense emotions tends to be more receptive to ideas and therefore more suggestible. Generally, suggestibility decreases as age increases. However, psychologists have found that individual levels of self-esteem and assertiveness can make some people more suggestible than others, which has resulted in the concept of a spectrum of suggestibility.

Child suggestibility

When talking about suggestibility it is important to not overlook the part of the population that is the most susceptible to influence, children. Children have an ever developing mind that is constantly being filled with new information from sources all around them. Thus, researchers have identified key factors, both internal and external, that are strong markers for suggestibility in children.

Internal

- **Age**
  Children have a remarkable ability to remember events in their lives. The real variability between ages in suggestibility is the amount of detail provided for an event. Memory detail will be greater for older children. The problem as it relates to suggestibility is when children, and even adults, blend previous knowledge of similar experiences into their recollection of a single event. Children, particularly younger children, are prone to including details that are similar yet unrelated to the specific event showing that the age of a person is critical in their susceptibility to influence.

- **Prior Knowledge**
  As mentioned before, the possession of prior knowledge that relates to an event can be particularly dangerous when dealing with child suggestibility. Prior knowledge, as it relates to suggestibility is the use of past experiences to help reconstruct past or current events. Prior knowledge of an event can actually be effective at producing accurate recall of a particular situation, but can also be equally as effective at producing false memories. Research showed that when presented with a previously familiar situation, children were likely to falsely recall events as if they had happened.

- **Gist Extraction**
  Although children are extremely likely to recall false memories when past events are similar to a current event, they will also recall false memory details that are seemingly unrelated to the event. Researchers named this phenomenon global gist, which is a representation that identifies connections across multiple events. Children will falsely recall information that fits with their representation of the events around them.

External

- **Interviewer Bias**
  Interviewer Bias is the opinion or prejudice on the part of an interviewer, which is displayed during the interview process and thus affects the outcome of the interview. This happens when interviewers pursue only a single hypothesis that supports what they already think, and ignore any details that counter their hypothesis. The goal is not to get the truth, but simply corroborate what is already believed, and some believe this to be a necessary way of extracting information from children.

- **Repeated Questions**
It has been shown that asking children the same question over and over again in an interview will often cause the child to reverse their first answer, especially in yes or no questions. It is the child’s belief that since the question is being repeated that they must have not answered correctly and need to change their answer.

- **Interviewer’s Tone**
  Children are extremely perceptive of people’s tones, especially in an interview situation. When an interviewer’s tone dictates the questioning, a child is likely to construct memories of past events when they actually have no memory of that event. An example would be that when a positive tone is used, it has shown to produce more detailed and accurate accounts of events. Conversely, it has also been shown to have the opposite effect and produce just a lot of false information to appease the interviewer.

- **Peer Interactions**
  Children’s accounts of events can be greatly distorted by information from their peers. In some cases, children who were not present at the time of an event will recall being at the event, and details of the events. This information most likely has come from their peers. These children also most likely speak up just so not to feel left out.

- **Repeating Misinformation**
  Repeating misinformation is simply when an interviewer gives a child incorrect details of an event. This technique is used over several interviews and occurs several times within a single interview. It has been shown to have a great effect on the accuracy of a child’s recollection of an event, and eventually, the misinformation will be included in the child’s account of a given event.

References
3. [http://www.stonybrookmedicalcenter.org/psychiatry/kotov_r](http://www.stonybrookmedicalcenter.org/psychiatry/kotov_r)

Further reading


TOPIC: Misattribution of Memory

The following text borrows extensively from Wikipedia, which offers a readable synopsis of *misattribution of memory*.

Memory plays an important role in a number of aspects of our everyday lives and allows us to recall past experiences, navigate our environments, and learn new tasks [1]. From this view, information about a source of memory is assumed to contain certain characteristics that reflect the conditions under which the memory representations were attained [2]. Judgments about these sources are made by evaluating the amount and nature of the characteristics [2]. The accuracy of their recall varies depending on the circumstances at which they are retrieved [2]. Generally speaking, Misattribution of Memory involves source details retained in memory but erroneously attributing a recollection or idea to the wrong source [1]. Misattribution is likely to occur when individuals are unable to monitor and control the influence of their attitudes, toward their judgments, at the time of retrieval [3]. Thus, memory is adapted to retain information that is most likely to be needed in the environment in which it operates [1]. Therefore, any misattribution observed is likely to be a reflection of current attitudes [3].

Misattribution is divided into three components: cryptomnesia, false memories, and source confusion. It was originally noted as one of Daniel Schacter's, *The Seven Sins of Memory* [4]. His book, *The Seven Sins of Memory: How the Mind Forgets and Remembers*, identifies misattribution as a type of memory distortion or inaccuracy [4]. For example, people may assert that they saw a face in one context when they actually encountered it in another [4].

Components of Misattribution

**Cryptomnesia**

*Cryptomnesia* occurs when a forgotten memory returns without it being recognized as such by the subject, who believes it is something new and original. It is a memory bias whereby a person may falsely recall generating a thought, an idea, a song, or a joke, not deliberately engaging in plagiarism but rather experiencing a memory as if it were a new inspiration.

In the first empirical study of cryptomnesia, people in a group took turns generating category examples (e.g., kinds of birds: parrot, canary, etc.). They were later asked to create new exemplars in the same categories that were not previously produced, and also to recall which words they had personally generated. People inadvertently plagiarized about 3–9% of the time either by regenerating another person's thought or falsely recalling someone's thought as their own. Similar effects have been replicated using other tasks such as word search puzzles and in brainstorming sessions.

Research has distinguished between two kinds of cryptomnesia, though they are often studied together. The distinction between these two types of plagiarism is in the underlying memory bias responsible—specifically, is it the thought that is forgotten, or the thinker? The first type of bias is one of familiarity. The plagiarizer regenerates an idea that was presented earlier, but believes the idea to be an original creation. The idea that is reproduced could be another's idea, or one's own from a previous time. B. F. Skinner describes his own experience of self-plagiarism:

"One of the most disheartening experiences of old age is discovering that a point you just made—so significant, so beautifully expressed—was made by you in something you published long ago."

The second type of cryptomnesia results from an error of authorship whereby the ideas of others are remembered as one's own. In this case, the plagiarizer correctly recognizes that the idea is from an earlier time, but falsely remembers having been the origin for the idea (or, having lost the
specific memory of encountering it in print or conversation, assumes that it "came to" the plagiarizer as an original idea). Various terms have been coined to distinguish these two forms of plagiarism — occurrence forgetting vs. source forgetting and generation errors vs. recognition errors. The two types of cryptomnesia appear to be independent: no relationship has been found between error rates and the two types are precipitated by different causes.

Cryptomnesia is more likely to occur when the ability to properly monitor sources is impaired. For example, people are more likely to falsely claim ideas as their own when they were under high cognitive load at the time they first considered the idea. Plagiarism increases when people are away from the original source of the idea, and decreases when participants are specifically instructed to pay attention to the origin of their ideas. False claims are also more prevalent for ideas originally suggested by persons of the same sex, presumably because the perceptual similarity of the self to a same-sex person exacerbates source confusion. In other studies it has been found that the timing of the idea is also important: if another person produces an idea immediately before the self produces an idea, the other's idea is more likely to be claimed as one's own, ostensibly because the person is too busy preparing for their own turn to properly monitor source information.

False Memories
False memories occur when a person's identity and interpersonal relationships are strongly centered around a memory of an experience that did not actually take place [7]. These false memories are often of a traumatic life experience and can become very detrimental to everyday life. False Memories are often the result of leading questions in a therapeutic practice termed Recovered Memory Therapy [8]. In this practice, psychiatrists often put their patients under hypnosis to recover suppressed memories. This can be detrimental, as the individual may recall memories that never occurred. For example, there are instances of reported cases in which individuals falsely recall sexual abuse and pursue justice. These cases are extremely painful to both the accuser and to the accused, and may result in wrongful conviction. Due to incidents like these, false memories and repressed memories have lost most of their validity and reliability in a court of law [8].

Source Confusion
Source confusion occurs when an individual misattributes a source of a memory [9]. Understanding the source of one’s memories is important to memory processes necessary for every day living. In one particular case of source confusion, a female rape victim falsely accused a memory doctor of being her rapist. In this case, the doctor had made a television appearance seen by the female victim prior to her attack. The women misattributed the doctor’s face with that of her attacker [8].

An additional example of source confusion involves Ronald Reagan. In this instance, Ronald Reagan tells a story about a heroic pilot to whom he personally awarded a medal [8]. However, he was actually recalling the story line from a theatrical production entitled “Wing and a Prayer” [8]. Reagan misattributed a real life experience with one he had actually seen in a movie. However, he strongly believed that he was involved in the medal process to this war hero.

A source monitoring error is a type of memory error where a specific recollected experience is incorrectly determined to be the source of a memory. This error occurs when normal perceptual and reflective processes are disrupted, either by limited encoding of source information or by disruption to the judgment processes used in source-monitoring. Depression, high stress levels and damage to relevant brain areas are examples of factors that can cause such disruption and hence source-monitoring errors.
One of the key ideas behind source monitoring is that rather than receiving an actual label for a memory during processing, a person's memory records are activated and evaluated through decision processes; through these processes, a memory is attributed to a source. Source monitoring relies heavily on the individual's activated memory records; if anything prevents encoding the contextual details of an event while it happens, relevant information will not be fully retrieved and errors will occur. If the attributes of memory representations are highly differentiated, then fewer errors are expected to occur and vice versa. Two cognitive judgment processes exist regarding source monitoring; these are commonly called heuristic and systematic judgment processes.

**Heuristic judgments** are made quickly without the conscious awareness of the individual, making use of perceptual, contextual, and other event-related information. These occur more frequently because they are efficient and occur automatically without the individual putting forth conscious effort. A decision is made about a source when relevant information is of a certain significance and the memory occurring at a certain time or place makes sense logically; errors then occur based on the amount of information stored at encoding or the way that an individual's brain makes decisions based on prior experiences. Within the source-monitoring framework, "heuristic" is a type of decision process; this term is directly related to the psychological heuristics.

**Systematic judgments** are decision processes whose procedures are accessed consciously by the individual; the same types of information used in heuristic judgments are also used in systematic judgments. In this process, all memory-relevant information is retrieved from memory and assessed deliberately to determine whether a memory is likely to have come from a specific source. Systematic judgments occur less frequently in source judgments because they are slow and require a lot of conscious effort. Errors occur due to a misassignment of the weight of certain aspects of memories: assigning high importance to visual information would mean that having poor details of this aspect would be cause for an assumption that the event didn't happen or was imagined. Errors will occur if an individual's subjective logic leads them to perceive an event as unlikely to occur or belong to a specific source, even if the truth was otherwise. Simple memory decay can be a source for errors in both judgments, keeping an individual from accessing relevant memory information, leading to source-monitoring errors.

There are three major types of source monitoring: external source monitoring, internal source monitoring, and reality monitoring, all of which are susceptible to errors and make use of the two judgment processes.

**External source monitoring:** This type of source monitoring focuses on discriminating between externally retrieved sources, such as events happening in the world surrounding the individual. An example of this would be determining which one of the individual's friends said something rude.

**Internal source monitoring:** This type of source monitoring focuses on discriminating between internally derived sources, such as the individual's memories. An example of this would be differentiating between memories of thought ideas and spoken ideas.

**Reality monitoring:** This type, also known as internal-external reality monitoring, is derived from the previous two types and focuses on discriminating between internally and externally retrieved sources. An example would be discriminating a plane crashing into a building portrayed in real life and on a newspaper.

**Cognitive Causes**

**Causes of Cryptomnesia**
Cryptomnesia is a source-monitoring error in which people often have difficulty determining whether a concept was internally generated or experienced externally. People occasionally
misattribute the creation of a novel thought or idea as their own, when in fact they are retrieving it from a previous experience. Some individuals fail to establish memories with enough detail to generate a source attribution, causing a misattribution of memory to the wrong source [10]. People often truly believe that the information they plagiarized was actually that of their own.

Unintentional plagiarism is greater for information generated by others than ourselves. Researchers believe this may due to having better memory and associations for words we generate, as self-generated information is better remembered later [11]. Moreover, cryptomnesia increases when information is generated by others before a self-generated idea. This may be due to the likelihood that people were thinking of their next response, rather than processing the source of the information [12].

**Causes of false memories**

False recognition can occur as the result of making an implicit associative response, an automatic association between two concepts in memory [4]. It is believed that associative responses never come to conscious attention, thus the activation of the concept is assumed to be implicit [4]. An implicit associative response has shown to arise when seeing a word such as "car", might cause people to unconsciously think of an associative such as "truck". If the word truck is later presented to them, they may state they recognize seeing the item when they had actually generated it themselves. It is believed that the activation from the shown word may also activate the associative word, allowing the information to be easily accessible to the mind [13]. Research has also shown that the more similar the presented and associative words are, or the more similar list items there are, the more likely it is that a false recognition error will be made [4].

Gist-based similarity, the robust encoding of semantic information rather than distinctive encoding [4] is another cause of false recognition. When studying a list of numerous related words, there is a high level of semantic overlap between memory items. The inability to keep each concepts separate and distinct from one another makes it difficult to recollect specific details, subsequently causing people to make responses based on memory gist’s rather than specific details. People may form a well-organized idea of what the semantic gist is, and anything that is semantically similar to that idea may be falsely recognized. Gist-based similarity has also been shown to occur in circumstances in which implicit associative responses are an unlikely source of misattribution [4].

The false recognition error also becomes evident when a time pressure is presented during a recognition decision [14]. Processes that work to discover a source for the basis of recognition take time to execute, as a result of a lack of time, false recognition errors are made more often. It has also been noted that misattribution may be a product of adaptive features of memory, rather than a product of a flaw in the memory system. The misattribution error often leads to conclusions of an inefficient memory system, however some researchers believe that the error is a cost associated with the benefits of a functioning and adequate memory system [4]. The misattribution error reflects an adaptive memory system in which information that does not require people to remember all the specific details is lost. Specific details would only be preserved in situations where the specific details need to be remembered, such as memories of a highly emotional experience [4]. The use of semantic gists may be a fundamental mechanism of memory, allowing people to categorize information and generalize across situations, a function associated with higher intelligence [4].

**Neurological Causes**

**Neurological Basis of False Recognition**
Brain-damaged patients have provided useful insights into the underlying biological mechanisms involved in false recognition. Results from studies comparing levels of false recognition between patients with frontal lobe damage and age-matched controls, showed a significantly higher level of false recognition amongst the frontal lobe damaged individuals [4]. The damage is believed to have caused disruptions in the adequate encoding of item-specific details or caused defective retrieval monitoring processes. These types of processes are needed to accurately recall the origins of memory representations, and without them, errors of origin can be made. Studies of false recognition in amnesic patients with damage to either the medial temporal lobe or other diencephalon structures, have demonstrated that the same processes involved in accurate recognition, are also involved in false recognition [4]. These cortices play a role in strategic monitoring processing, as they attempt to examine other cortical outputs. If these cortices were damaged, there would be no control over the cortical outputs, increasingly the likelihood of a false recognition error. Additionally, patients suffering from amnesia or Alzheimer’s disease have a reduced level of false recognition, believed to be caused by taking too many trials to create the semantic gist information needed for the attribution error [4].

False Memories and PET Scans
A follow-up to the previous research was conducted by Daniel L. Schacter and colleagues. Similar to the study by Henry L. Roediger and Kathleen McDermott, subjects were read a list of associated words before they went into the PET scanner. During the first scan, subjects would make recognition judgments to determine what were the previous presented words [4]. During the second scan, subjects had to make judgments about words that were not presented. For example: bed, rest, dream, tried, and awake would be in the list but not the word “sleep”. As with the study by Henry L. Roediger and Kathleen McDermott, subjects claimed to remember similar amounts of non-presented words as they did the words that were actually presented [4]. The researchers noted that brain activity during the true and false recognition tasks were very similar. Monitoring the blood flow in the brain revealed there were in the left medial temporal lobe for both veridical and illusory recognition [15].

That is not to say that there were not differences. While monitoring blood flow in the brain during false recognition, a part of the frontal lobe that is thought to be a key monitor of memories actually showed greater activity when presented with a false recognition than with a true one [4]. There seemed to be some discrepancy as subjects attempted to scrutinize the out-placed words, but were overcome by powerful memory illusion [4]. This study demonstrates the ability of technology to help researchers understand to a greater extent the power of false memories.

Source Confusion and FMRI Scans
T. Awipi and L. Davachi sought to provide evidence of competing subregions in the medial temporal lobe (MTL) that differed on the type of content they encoded. The researchers conducted a study in which subjects were asked to perform an encoding task in a functional magnetic resonance imaging (FMRI) scanner, where they were presented with 192 full colour photographs of scenes (containing a centrally presented novel scene and a smaller image of one of six objects). Participants were also instructed to imagine using the presented object in each scene, and were asked to report whether they were successful. A memory test was administered after participants were removed from the scanner. The test consisted of all previously viewed scenes (old) and an equal number of novel scenes (new). They were asked to make an old/new judgement, and if the scene was responded as being old, they were asked to report is as being "remembered" or "familiar". They were then asked to pick an object that was paired with that scene. The researchers were trying to determine the levels of activation for source recollection for the objects paired with the scene during encoding [16].
The researchers found that perirhinal cortex activation was greater for objects recalled, and parahippocampal cortex activation was greater when scenes were recalled. The results provide evidence of distinct encoding activation in the subregions of the medial temporal lobe. The first subregion is the perirhinal cortex, which encodes item information. The second subregion, the parahippocampal cortex, is involved in source information. The evidence provides support for the role of the right perirhinal cortex in attributing an object to the right source. As decreased activation was associated with poorer performance, decreased activation of the right perirhinal cortex could be a possible mechanism for source confusion.

Experimental Research

Misattribution
In one of the earliest studies involving misattribution, the Canadian cognitive psychologist Bruce Whittlesea presented subjects with a list of common words. Each word was briefly displayed to the subject. The task required the subject to judge whether a target word was semantically related to any word in the list. Unlike Whittlesea’s first experiment involving the recognition of target words, this study involved the manipulation of processing fluency through the conceptual context of the target word, rather than the physical context. After the subjects were given a brief moment to study the list of words, the subjects were presented with sentences that would contain a word that was capitalized at the end of the sentence that would have either been, or not been, from the previously presented list. The word at the end of the sentence was either highly predictable given the context of the sentence, for example: “The stormy seas tossed the BOAT”, or the end word was less predictable such as: “She saved her money and bought a LAMP”. The subjects were then required to state whether the capitalized end word had appeared, or not, on the previous list of words. If not, they were to respond by saying that the word was “new” versus it being “old”.

The study revealed that the new words that were highly predictable were more likely to be incorrectly identified as being previously seen, whereas the new words that were less predictable were not so identified. In fact, subjects actually named predictable words faster than they did unpredictable words. Whittlesea was able to conclude from this study that subjects misattributed their fast responses for highly predictable words as an indication that they had previously experienced the word whereas in fact that was incorrect. As a result, the fluency of processing caused the subjects to misinterpret their quickness as a case of familiarity.

Cryptomnesia
Some of the most common experimental designs in the study of cryptomnesia involve solving word puzzles. One such study from Stanford University in 1993 monitored subjects’ memory for solutions found to a word puzzle game when paired against a computer opponent. After several rounds of generating solutions in turn, participants were asked to generate a list of solutions they provided themselves, or a list of new solutions and rate their confidence in the source of each solution listed. Subjects were more likely to plagiarize solutions given by the computer opponent than their own solutions after indicating that they were very confident that the solution was truly novel; when subjects indicated that they were "guessing" whether the solution had been seen before, they were more likely to duplicate solutions they had found during the first round of the test.

In an extension of this test, after each puzzle solution was generated, participants were asked one of two questions: is this word greater than 3 letters long? (physical judgement) or does this word have a positive connotation? (semantic judgement). Participants then generated lists of solutions as in the first test. While the same correlation of confidence level and error type were seen, participants were much more likely to plagiarize answers after making a physical judgement as compared to a semantic one.
False Memories
Researchers Henry L. Roediger and Kathleen McDermott conducted an experiment in 1995 that dealt with a procedure developed by James Deese. This procedure, known as the Deese-Roediger-McDermott paradigm, invites subjects to believe they have experienced a particular word in a given list. The subjects are read a list of associated words by the experimenter. These associated words could be, for example: bed, rest, dream, tried, awake, etc. After the subjects have heard these words, they are required to engage in a free recall task in which they must list the words they have heard. The researchers carried out two experiments. The first one involved six lists of associated words. The second experiment involved a wider set of materials, in which twenty-four 15-item lists were read to the subjects.

The results of both experiments demonstrated that the subjects were confident about their incorrect answers regarding words heard in the list. For example, given the list: bed, rest, dream, tried, awake. Many of the subjects heard “sleep” which was not one of the words presented. This false memory effect occurs because the words associated with sleep are in the list leading subjects to believe that the words associated with the words provided in the list have to be right. In fact, with the second experiment the results were 55% false recall rate compared to 40% for the first experiment. This indicated that the more words and lists available the harder it is to actually recall words correctly. This experiment illustrates how subjects can provide false recall without noticing their errors. Even after the researchers indicate that they did not say the mistaken words, subjects still felt very convinced that the researcher had said the word.

False memories can also be created through leading questioning and simple use of imagination. In 1996, Ira Hyman Jr. and Joel Petland published a study showing that subjects can falsely 'remember' anecdotes from their childhood, based on suggestions from the researcher and corroboration of these fictitious events from family members. Subjects' parents were interviewed to create a list of memorable childhood events (vacations, instances of being lost, etc.), to which one false event was added, namely spilling a bowl of punch at a wedding reception. For each event, subjects were provided with several cues to aid in memory (age at the time, location, nature of the event, etc.) and asked to describe the situation in as much detail as possible. If a participant was unable to recall any event, they were asked either to quietly think about the event for about a minute and then provide any additional information remembered (control condition) or imagine the event happening and describe the people who would have been involved, what the location would have looked like and how the event might have occurred (imagery condition).

After three interviews in this fashion, 25% of participants from the imagery condition reported remembering the false situation of spilling the punch bowl, as compared to fewer than 10% of subjects in the control condition. An overall improvement in the detail of responses given and the confidence of those responses was observed for both true and false memories in the imagery condition, while those in the control condition showed much less improvement. While participants who 'remembered' the false situation rated this event as being less emotionally intense than the other remembered true events, participants rated their confidence in accurately remembering the false scenario than any of the true events.

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Articles on Misattribution Error


Abstract: Semantic false memories are confounded with a second type of error, over-distribution, in which items are attributed to contradictory episodic states. Overdistribution errors have proved to be more common than false memories when the 2 are disentangled. We investigated whether overdistribution is prevalent in another classic false memory paradigm: source monitoring. It is. Conventional false memory responses (source misattributions) were predominantly over-distribution errors, but unlike semantic false memory, overdistribution also accounted for more than half of true memory responses (correct source attributions). Experimental control of overdistribution was achieved via a series of manipulations that affected either recollection of contextual details or item memory (concreteness, frequency, list order, number of presentation contexts, and individual differences in verbatim memory). A theoretical model was used to analyze the data (conjoint process dissociation) that predicts that (a) overdistribution is directly proportional to item memory but inversely proportional to
Repeatedly thinking about a non-event: Source misattributions among preschoolers.
Abstract: (from the chapter) review the factors alleged to be responsible for the creation of inaccurate reports among [3–6 yr olds], focusing on so-called "source misattribution errors" / present the 1st round of results from an ongoing program of research that suggests that source misattributions could be a powerful mechanism underlying children's false beliefs about having experienced fictitious events / very young children may be disproportionately vulnerable to these kinds of errors [this is] discussed in the context of the ongoing debate over the veracity and durability of delayed reports of early memories, repressed memories, dissociative states, and the validity risks posed by therapeutic techniques that entail repeated visually guided imagery inductions

Abstract: Illusory memories are unsettling, but far from uncommon. Over the past several years, increasing experimental and theoretical attention has focused on misattribution errors that occur when some form of memory is present but attributed to an incorrect time, place or source. Demonstrations of errors and distortions in remembering raise a question with important theoretical and practical implications: how can memory misattributions be reduced or avoided? We consider evidence that documents the occurrence of illusory memories, particularly false recognition responses, and then review three ways in which memory distortion can be minimized.

Appropriating the actions of another: Implications for children's memory and learning.
Abstract: Perspectives on reality monitoring and sociocultural learning were integrated in 4 experiments concerning children's memory of contributions to the outcomes of collaborative exchanges. 204 children (aged 4 yrs to 8 yrs 11 mo) made collages with an adult and were later surprised with a reality-monitoring task in which they were asked to remember who placed particular pieces on the collage. In Exps 1–3, 4-yr-olds were more likely to claim they contributed pieces that the adult actually contributed rather than the reverse. This bias was interpreted as evidence for appropriation, a process in which individuals adopt another person's actions as their own. The extent to which Ss committed misattribution (MA) errors depended on their involvement as decision makers (Exps 1 and 3) and on the outcomes of the collages themselves (Exp 2). Exp 4 demonstrated the importance of shared exchanges for producing the MA errors observed in Exps 1–3.

Abstract: Imagery encoding effects on source-monitoring errors were explored using the Deese-Roediger-McDermott paradigm in two experiments. While viewing thematically related lists embedded in mixed picture/word presentations, participants were asked to generate images of objects or words (Experiment 1) or to simply name the items (Experiment 2). An encoding task intended to induce spontaneous images served as a control for the explicit imagery instruction conditions (Experiment 1). On the picture/word source-monitoring tests, participants were much more likely to report "seeing" a picture of an item presented as a word than the converse particularly when images were induced spontaneously. However, this picture misattribution error was reversed after generating images of words (Experiment 1) and was eliminated after simply labelling the items (Experiment 2). Thus source misattributions were sensitive to the processes giving rise to imagery experiences (spontaneous vs deliberate), the kinds of images generated (object vs word images), and the ways in which materials were presented (as pictures vs words).
Source monitoring in eyewitness memory: Implicit associations, suggestions, and episodic traces.
Abstract: Both the distinctiveness heuristic and discrepancy detection hypotheses were investigated by independently manipulating both schema consistency and incidental suggestion in an eyewitness memory paradigm. A sequence of slides was shown, followed by a postevent questionnaire that contained both schema-typical and schema-atypical information. Fifteen minutes later, a source-monitoring task was administered. In Experiment 1, the proportion of source misattribution errors was greater for schema-typical items than for schema-atypical items, and the proportion of errors on suggested items was greater than that on control items. Suggestion affected schema-typical and schema-atypical items equally, providing no support for the predictions of either hypothesis. In Experiment 2, the interval between the questionnaire and the source test was manipulated. The results of Experiment 1 were replicated under the short delay, whereas the proportion of errors increased under the long delay. An associative network model involving two types of episodic traces was used to account for the results.

Abstract: (from the chapter) Memory errors in everyday life are pervasive and can range from being minor inconveniences to having significant consequences. At the root of many memory errors are source misattributions in which a person mistakenly claims that the source of a remembered event was something other than what it actually was (e.g., a person claiming to have performed an action that he or she merely thought about completing; erroneously remembering that he or she saw an event when he or she actually only read about it or saw pictures of it). The present chapter examines how source misattributions can create false beliefs and memories in which people claim that they did things that they actually did not. The role of three different but related everyday experiences in the creation of such memory errors is explored in depth—hearing or talking about various experiences, engaging in mental imagery, and viewing photographs—followed by presentation of a new study examining how photographs can lead to false claims of having committed actions that were not actually performed.

The aboutness principle: A pervasive influence on human inference.
Abstract: When people perceive a response (or outcome), whether their own or another person's, they represent it as being about something, and this thing that the response is about is inferred to be the source of the response. The first section of this article discusses natural assumptions underlying the operation of this aboutness principle and describes the problems with its use, illustrated by such well-established cases of social-cognitive shortcomings as the correspondence bias, representativeness error, misattribution, accessibility bias, and saying-is-believing effect. The second section uses the aboutness principle to review lay psychological theories discussed in this special issue, including people's theories of causality, stability, and change in personal attributes, conditions for valid memories or judgments, group attribute clusters, and persuasive influences.

Abstract: Memory for emotional items can be less prone to some types of memory distortion, such as reality-monitoring errors, than memory for neutral items. The present fMRI study examined whether this enhanced reality-monitoring accuracy reflects engagement of distinct processes recruited during encoding of emotional information. Participants only imagined named objects (word-only trials) or imagined named objects and then also viewed photos of them (word-picture trials). Half of the items were emotional (e.g., snake, casket). Later, participants heard object names and indicated whether the corresponding photo had been shown. Reality-monitoring errors occurred when participants attributed an item from a word-only trial to a word-picture trial. Such misattribution errors occurred less frequently for emotional than neutral items. Activity in emotion-processing regions (e.g., orbitofrontal cortex,
amygdala) reduced the likelihood of later misattributions, likely due in part to interactions with regions that promote memory accuracy (e.g., the hippocampus). Distinct neural processes also increased the likelihood of reality-monitoring errors, depending on the emotional content of the items. Activity spanning the fusiform and parahippocampal gyri (likely reflecting mental imagery) increased the likelihood of reality-monitoring errors for neutral items, while activity in the anterior cingulate increased the likelihood of reality-monitoring errors for emotional items.

**Schema-driven source misattribution errors: Remembering the expected from a witnessed event.**

**Abstract:** When recollection is difficult, people may use schematic processing to enhance memory. Two experiments showed that a delay between witnessing and recalling a visual sequence increases schematic processing, resulting in stereotypic memory errors. Participants watched a slide show of a man and a woman performing stereotype-consistent and stereotype-inconsistent actions, followed by an immediate or delayed memory test. Over a two-day delay, stereotype-inconsistent actions were increasingly misremembered as having been performed by the stereotype-consistent actor (Experiment 1). All the source errors increased, regardless of stereotype consistency, when the wrong actor was suggested. When we merely suggested that 'someone' performed an action (Experiment 2), only stereotype-consistent source errors were increased. Although visual scenes are typically well remembered, these results suggest that when memory fades, reliance on schemata increases, leading to increased stereotypic memory errors.

**Schema reliance in source monitoring: The impact of aging and emotional focus.**

**Abstract:** Three experiments investigated the interplay of emotion and aging on reliance on schematic knowledge when remembering. Of additional interest was whether older adults' reliance on schematic knowledge is associated with declines in reflective processes supported by frontal brain regions. For generality, these issues were investigated in three types of situations: memory for a story (Experiment 1), memory for who said what (Experiment 2), and memory for options from past choices (Experiment 3). The same three findings emerged across each of these different types of situations. First, younger adults (17-26 yrs) asked to focus on how they feel about an event later relied more on their schematic knowledge when attributing information to the event than did younger participants who had not focused on their feelings. Second, in the conditions that did not require emotional self-focus, older adults (62-85 yrs) showed more schema reliance than did younger adults. Third, this increased reliance for older adults in the non emotional self-focus conditions was negatively correlated with a measure of frontal brain region or executive function. This pattern of results suggests that both emotional focus and age-related changes increase schema reliance when making source judgements about a previously-experienced event. Relying on general knowledge about an event can be a useful strategy to help fill in gaps in memory or to avoid more effortful extended retrieval. However, schema reliance can also result in memory source misattributions. The source misattributions associated with schema reliance are most likely due to a combination of factors, including disruption of the reflective processing required to encode and consolidate source-specifying information, increased associations that may later be misattributed to the event itself, and shifts in which aspects of the event are focused on. Schematic knowledge in memory attributions plays an important role in helping people remember information. However, reliance on schematic information can lead to memory misattribution errors that are especially pernicious because they seem so plausible.


**Abstract:** We investigated the role of emotion on item and source memory using the item method of directed forgetting (DF) paradigm. We predicted that emotion would produce source memory impairment because emotion would make it more difficult to distinguish between to-be-remembered (R items) and to-be-forgotten items (F items) by making memory strength of R and F items similar to each
other. Participants were presented with negatively arousing, positively arousing, and neutral pictures. After each picture, they received an instruction to remember or forget the picture. At retrieval, participants were asked to recall both R and F items and indicate whether each item was an R or F item. Recall was higher for the negatively arousing than for the positively arousing or neutral pictures. Further, DF occurred for the positively arousing and neutral pictures, whereas DF was not significant for the negatively arousing pictures. More importantly, the negatively arousing pictures, particularly the ones with violent content, showed a higher tendency of producing misattribution errors than the other picture types, supporting the notion that negative emotion may produce source memory impairment, even though it is still not clear whether the impairment occurs at encoding or retrieval.
TOPIC: Schema / Script Memory

The following text borrows extensively from Wikipedia, which offers a readable synopsis of schema.

In psychology and cognitive science, a schema (plural schemata or schemas) describes an organized pattern of thought or behavior that organizes categories of information and the relationships among them. It can also be described as a mental structure of preconceived ideas, a framework representing some aspect of the world, or a system of organizing and perceiving new information. Schemata influence attention and the absorption of new knowledge: people are more likely to notice things that fit into their schema, while re-interpreting contradictions to the schema as exceptions or distorting them to fit. Schemata have a tendency to remain unchanged, even in the face of contradictory information. Schemata can help in understanding the world and the rapidly changing environment. People can organize new perceptions into schemata quickly as most situations do not require complex thought when using schema, since automatic thought is all that is required.

People use schemata to organize current knowledge and provide a framework for future understanding. Examples of schemata include academic rubrics, social schemas, stereotypes, social roles, scripts, worldviews, and archetypes. In Piaget's theory of development, children adopt a series of schemata to understand the world.

Some general principles from script memory research include:
- Primary Rule: The first in a series of events is remembered best.
- Recency rule. The last in a series of events is also remembered best.

History
Before psychology separated from philosophy, the term "schema" was prominently discussed in philosophy by Immanuel Kant.[4] Early developments of the idea in psychology emerged with the gestalt psychologists and Jean Piaget: the term "schema" was introduced by Piaget in 1926.[5] The concept was introduced into psychology and education through the work of the British psychologist Frederic Bartlett,[6] who drew on the term body schema used by neurologist Henry Head. It was expanded into schema theory by educational psychologist R. C. Anderson.[5] Since then, many other terms have been used to describe schema, such as including "frame", "scene", and "script".

Schematic processing
Through the use of schemata, a heuristic technique to encode and retrieve memories, the majority of typical situations do not require much strenuous processing. People can quickly organize new perceptions into schemata and act without effort.[7]

However, schemata can influence and hamper the uptake of new information (proactive interference), such as when existing stereotypes, giving rise to limited or biased discourses and expectations (prejudices), may lead an individual to "see" or "remember" something that has not happened because it is more believable in terms of his/her schema.[8] For example, if a well-dressed businessman draws a knife on a vagrant, the schemata of onlookers may (and often do) lead them to "remember" the vagrant pulling the knife. Such distortion of memory has been demonstrated. (See Background research below.)

Schemata are interrelated and multiple conflicting schemata can be applied to the same information. Schemata are generally thought to have a level of activation, which can spread among
related schemata. Which schema is selected can depend on factors such as current activation, accessibility, and priming.

*Accessibility* is how easily a schema comes to mind, and is determined by personal experience and expertise. This can be used as a cognitive shortcut; it allows the most common explanation to be chosen for new information.

With priming, a brief imperceptible stimulus temporarily provides enough activation to a schema so that it is used for subsequent ambiguous information. Although this may suggest the possibility of subliminal messages, the effect of priming is so fleeting that it is difficult to detect outside laboratory conditions. Furthermore, the mere exposure effect—which requires consciousness of the stimuli—is far more effective than priming.

**Background research**

The original concept of schemata is linked with that of reconstructive memory as proposed and demonstrated in a series of experiments by Bartlett.[9] By presenting participants with information that was unfamiliar to their cultural backgrounds and expectations and then monitoring how they recalled these different items of information (stories, etc.), Bartlett was able to establish that individuals' existing schemata and stereotypes influence not only how they interpret "schema-foreign" new information but also how they recall the information over time. One of his most famous investigations involved asking participants to read a Native American folk tale, "The War of the Ghosts", and recall it several times up to a year later. All the participants transformed the details of the story in such a way that it reflected their cultural norms and expectations, i.e. in line with their schemata. The factors that influenced their recall were:

- Omission of information that was considered irrelevant to a participant;
- Transformation of some of the details, or of the order in which events, etc., were recalled; a shift of focus and emphasis in terms of what was considered the most important aspects of the tale;
- Rationalization: details and aspects of the tale that would not make sense would be "padded out" and explained in an attempt to render them comprehensible to the individual in question;
- Cultural shifts: the content and the style of the story were altered in order to appear more coherent and appropriate in terms of the cultural background of the participant.

Bartlett's work was crucially important in demonstrating that long-term memories are neither fixed nor immutable but are constantly being adjusted as our schemata evolve with experience. In a sense it supports the existentialist view that we construct our past and present in a constant process of narrative/discursive adjustment, and that much of what we "remember" is actually confabulated (adjusted and rationalized) narrative that allows us to think of our past as a continuous and coherent string of events, even though it is probable that large sections of our memory (both episodic and semantic) are irretrievable to our conscious memory at any given time.[9]

An important step in the development of schema theory was taken by the work of D.E. Rumelhart describing our understanding of narrative and stories.[10] See also J. M. Mandler[11] Further work on the concept of schemata was conducted by Brewer and Treyens (1981)[12] who demonstrated that the schema-driven expectation of the presence of an object was sometimes sufficient to trigger its erroneous recollection. An experiment was conducted where participants were requested to wait in a room identified as an academic's study and were later asked about the room's contents. A number of the participants recalled having seen books in the study whereas none were present. Brewer and Treyens concluded that the participants' expectations that books are present in academics' studies were enough to prevent their accurate recollection of the scenes.
In the 1970s, computer scientist Marvin Minsky was trying to develop machines that would have human-like abilities. When he was trying to create solutions for some of the difficulties he encountered he came across Bartlett’s work and decided that if he was ever going to get machines to act like humans he needed them to use their stored knowledge to carry out processes. To compensate for that he created what was known as the frame construct, which was a way to represent knowledge in machines. His frame construct can be seen as an extension and elaboration of the schema construct. He created the frame knowledge concept as a way to interact with new information. He proposed that fixed and broad information would be represented as the frame, but it would also be composed of slots that would accept a range of values; but if the world didn’t have a value for a slot, then it would be filled by a default value. Because of Minsky’s work, computers now have a stronger impact on psychology. In the 80’s, David Rumelhart extend Minsky’s ideas, creating an explicitly psychological theory of the mental representation of complex knowledge.

Roger Schank and Robert Abelson were the ones to come up with the idea of a script, which was known as a generic knowledge of sequences of actions. This led to many new empirical studies, which found that providing relevant schema can help improve comprehension and recall on passages.

**Modification**

New information that falls within an individual's schema is easily remembered and incorporated into their worldview. However, when new information is perceived that does not fit a schema, many things can happen. The most common reaction is to simply ignore or quickly forget the new information. This can happen on a deep level—frequently an individual does not become conscious of or even perceive the new information. People may also interpret the new information in a way that minimizes how much they must change their schemata. For example, Bob thinks that chickens don't lay eggs. He then sees a chicken laying an egg. Instead of changing the part of his schema that says 'chickens don't lay eggs', he is likely to adopt the belief that the animal in question that he has just seen laying an egg is not a real chicken. This is an example of 'disconfirmation bias', the tendency to set higher standards for evidence that contradicts one's expectations. However, when the new information cannot be ignored, existing schemata must be changed or new schemata must be created (accommodation).

Jean Piaget (1896-1980) was known best for his work with development of human knowledge. He believed knowledge was constructed on cognitive structures and he believed we developed our own cognitive structures through schema by accommodating and assimilating information. Accommodation is creating new schema that will fit better with the new environment or adjusting old schema. You should think of accommodation as change. Accommodation could also be interpreted as putting restrictions on schema you have already had. Accommodation usually comes when assimilation has failed. Assimilation is when you use current schema to understand the world around you. Piaget thought that schema would be applied to everyday life and therefore you would accommodate and assimilate information naturally. For example, if this chicken has red feathers, Bob can form a new schemata that says 'chickens with red feathers can lay eggs'. This schemata will then be either changed or removed, in the future.

Assimilation is the reuse of schemata to fit the new information. An example would be, when an unfamiliar dog is seen, a person will probably just integrate it into their dog schema. However, if the dog behaves strangely, and in ways that doesn't seem dog-like, there will be accommodation as a new schema is formed for that particular dog. With Accommodation and Assimilation comes the idea of equilibrium. Piaget describes equilibrium as a state of cognition that is balanced. When schema are capable of explaining what it sees and perceives. It moves development along in
Piaget did not think that development progressed steadily but actually in leaps and bounds. When information is new and cannot fit into existing schema, this is called disequilibrium and it is an unpleasant state for the child’s development. When disequilibrium happens, it means we are frustrated and we will try to restore the balance in our cognitive development by trying to overcome the new information through accommodation. If the new information is taken then assimilation of the new information will proceed until they find that they must make a new adjustment to it later down the road, but for now the child remains at equilibrium again. The process of Equilibration is when you move from the equilibrium phase to the disequilibrium phase and back into equilibrium.[20]

There are different kinds of schema that someone can experience. The first and most obvious one is self-schema; this schema contains information that we think about ourselves. It can sometimes influence, modify or distort what we remember or how we recall information. The next schema is person schema, which is the idea that we all have schema that includes judgments and traits that everyone possesses. Role schema is when we have ideas based on the jobs that other people have and social positions in the world. Event schema is what we associate with activities and events that other people perform.

There are advantages and disadvantages to having schema affect our lives; some of the advantages about having schema in our cognitive development is that we now contain some information about how other people behave and think too. We now know what is an appropriate way to respond to certain situations because we formed a schema about what the procedure is. We have a reference for behavior in certain situations based on our event schema, also it helps us explain why certain people have behaviors that are social due to our role schema.

With advantages come disadvantages; when we form schema it may restrict and distort the way we view things or remember things about information and at times may make us overlook some things we should have paid attention to. Schema is hard to change because we are attracted to information that supports our schema rather than disproves it and is inconsistent. This may pose a problem for people because it is hard to change someone’s mind about an idea they have already based a large schema about.[21]

**Self-schemata**

Schemata about oneself are considered to be grounded in the present and based on past experiences. Memories, as mentioned, are framed in the light of one's self-conception. For example, people who have positive self-schemata (i.e. most people) selectively attend to flattering information and selectively ignore unflattering information, with the consequence that flattering information is subject to deeper encoding, and therefore superior recall.[22] Even when encoding is equally strong for positive and negative feedback, positive feedback is more likely to be recalled.[23] Moreover, memories may even be distorted to become more favorable - people typically remember exam grades as having been better than they actually were.[24] However, when people have negative self views, memories are generally biased in ways that validate the negative self-schema; People with low self-esteem, for instance, are prone to remember more negative information about themselves than positive information.[25] Thus, memory tends to be biased in a way that validates the agent's pre-existing self-schema.

There are three major implications of self-schemata. First, information about oneself is processed faster and more efficiently, especially consistent information. Second, one retrieves and remembers information that is relevant to one's self-schema. Third, one will tend to resist information in the environment that is contradictory to one's self-schema. For instance, students with a particular self-schema prefer roommates whose view of them is consistent with that schema.
Students who end up with roommates whose view of them is inconsistent with their self-schema are more likely to try to find a new roommate, even if this view is positive. [26] This is an example of self-verification.

As researched by Aaron Beck, automatically-activated negative self-schemata are a large contributor to depression. According to Cox, Abramson, Devine, and Hollon (2012), these self-schemata are essentially the same type of cognitive structure as stereotypes studied by prejudice researchers (e.g., they are both well-rehearsed, automatically activated, difficult to change, influential toward behavior, emotions, and judgments, and bias information processing). [27]

Self-Schema can also be self-perpetuating, it sometimes can represent a particular role in society that is based on stereo-type for example "If a mother tells her daughter she looks like a tom boy, her daughter may react by choosing activities that she imagines a tom boy would do. Conversely, if the mother tells her she looks like a princess, her daughter might choose activities thought to be more feminine." This is an example of the self-schema becoming self-perpetuating when the person at hand chooses an activity that was based on an expectation rather than their desires. [28]

References
g systems yielded a similar pattern of results.

...ed a considerable array of data that demonstrates that children's reports of a unique event versus an instance of a repeated event. The influence of postevent misinformation on children's reports of a unique event versus an instance of a routine, or of an instance of a routine, is quite different from their reports of a unique event. Nelson and her colleagues (e.g., 1986) have reported a considerable array of data that demonstrates that children's reports of a routine, or of an instance of a routine, is quite different from their reports of a unique event. Based on this literature on children's script memory it seemed reasonable to speculate that prior similar experiences with the target event would mitigate and/or heighten the influence of suggestions on children's reports of an instance of a routine. In Experiment 1, 4-, 6-, and 8-year-olds participated in one or four play sessions. Children in the 4-sessions condition (4-S) participated in play sessions on four consecutive days. During each session some target details remained the same (fixed) and some changed (variable). The single play session in the 1-session condition (1-S) was identical to the last play session in the 4-S condition. Three days later children were asked to think about the last play session and to answer related questions. Embedded in some of the questions were suggestions that things had happened during the final play session that had not occurred during any of the play sessions. Some of the suggestions related to fixed event details and some related to variable event details. Other questions presented neutral information about target details and served as control items. One day later, children were asked to think back to the final play session and to answer questions based on memory for it. Children were asked for free and cued recall and then to answer a set of "yes/no" recognition questions. Correct and incorrect responses were analyzed. Experiment 2 was similar to the 4-S condition of

Research Related to Schema / Script Memory


Abstract: When typical and atypical information about a situation are presented, the atypical is found to be better recognized. This phenomenon is referred to as the "typicality effect." To test whether the typicality effect is age related, 41 younger and 36 older participants listened to two scripts that consisted of typical and atypical activities. The recognition was scored in two ways— with and without taking confidence rating into account. The two scoring systems yielded a similar pattern of results. Nevertheless, the weighted scores analyses were more sensitive to group differences than the unweighted scores. The older adults demonstrated typicality effect with the false alarm and hit rates corrected for false alarms scores but not with the hit rate score. A key factor in understanding the effect of age on the typicality effect is taking into consideration the conservative response bias found in the older group. The clinical contribution of these findings, in terms of assessment and remediation of age-related memory impairment, is discussed.


Abstract: Much of what is known about the influence of postevent misinformation on children's event reports is based on studies in which children were exposed to the target event once. Nelson and her colleagues (e.g., 1986) have reported a considerable array of data that demonstrates that children's reports of a routine, or of an instance of a routine, is quite different from their reports of a unique event. Based on this literature on children's script memory it seemed reasonable to speculate that prior similar experiences with the target event would mitigate and/or heighten the influence of suggestions on children's reports of an instance of a routine. In Experiment 1, 4-, 6-, and 8-year-olds participated in one or four play sessions. Children in the 4-sessions condition (4-S) participated in play sessions on four consecutive days. During each session some target details remained the same (fixed) and some changed (variable). The single play session in the 1-session condition (1-S) was identical to the last play session in the 4-S condition. Three days later children were asked to think about the last play session and to answer related questions. Embedded in some of the questions were suggestions that things had happened during the final play session that had not occurred during any of the play sessions. Some of the suggestions related to fixed event details and some related to variable event details. Other questions presented neutral information about target details and served as control items. One day later, children were asked to think back to the final play session and to answer questions based on memory for it. Children were asked for free and cued recall and then to answer a set of "yes/no" recognition questions. Correct and incorrect responses were analyzed. Experiment 2 was similar to the 4-S condition of
Experiment 1. Only 8-year-olds were tested and some different materials were used during the play sessions. In Experiment 1, the proportion of incorrect responses was higher for preschoolers than for older children, but age did not enter into any important interactions. Responses to questions about fixed items were more often correct and less often incorrect among children in the 4-S condition than among children in the 1-S condition. Responses to questions about variable suggested items were more often incorrect among children in the 4-S condition than among children in the 1-S condition. There was no effect of sessions on correct responses to questions about variable control items. In Experiment 2, children's responses to questions about variable details were substantially more often incorrect when the items were suggested than when they were control. There was not a reliable suggested/control difference in responses to questions about fixed details. Children's script memory is used to interpret these data. Scripts are hypothesized to be abstract cognitive representations of what usually happens during an instance of a routine. Fixed details of a routine are proposed to be represented as part of the script. Memory for them is strong and, in the present study, children successfully resisted related suggestions. Memory for variable components of a routine is hypothesized to be a list-like set of experienced options that may be only loosely associated with particular instances. Children had difficulty resisting suggestions related to variable details of the routine.

**Fuzzy-trace theory and eyewitness memory.**

**Abstract:** Comments on V. F. Reyna and C. J. Brainerd's (see record 1995-39565-001) Fuzzy-Trace theory (FTT) and eyewitness memory (EWM). Evidence indicates that the reality of EWM should be recognized as FTT is extended into areas such as suggestibility and false memories. Such memories are unequivocally gist, yet according to FTT gist memories are well retained by adults and are much less susceptible to distortion than verbatim memories. The definition of gist must be unambiguous and should show how it relates to other ethereal entities such as schema and scripts. Developmentally, scripts and more specific memories are closely interrelated whereas according to FTT, verbatim and gist memories are separately stored and individually accessed. The script memories precede and are derived from specific memories. This seems at variance with the FIT in which verbatim memories appear developmentally later than gist memories.


**Abstract:** Children's memory for a specific episode of a repeated event was investigated in 2 experiments. In Exp 1, 80 children (aged 4 or 7 yrs) experienced a standard novel event 1, 2, or 4 times, followed by an episodic event for those children who had multiple standard experiences. The episodic event involved the addition of both schema-typical and schema-atypical activities to the standard event. Following a 1-wk delay, children were asked to recall both event types. 4-yr-olds were more confused than older children regarding when the new activities had been experienced, although experience improved memory for the schema-atypical activities. 7-yr-olds were able to establish more accurate memories for both the schema-typical and the schema-atypical changes. For Exp 2, 12 additional 4-yr-olds who were recruited from the same pool as Exp 1 participated. Exp 2 demonstrated that 4-yr-olds could establish distinct memories for both types of changes when the standard event was simplified. The results are discussed in terms of the development of the relation between script memory and memory for a specific instance of an event.

**The impact of children's script memory on suggestibility.**

**Abstract:** Suggestibility and recall performance regarding a specific occurrence of a controlled repeated event were examined. Twenty-four 4- to 5-year-olds and twenty-four 7- to 8-year-olds participated in repeated sessions of a novel event. Half of the children in each age group took part in 2 sessions, and half experienced 4 sessions. Items within the event were fixed across sessions, varied once, or always varied. In a third or fifth session, children responded to a memory interview targeting the final game session. Questions in the interview focused on central and peripheral information, and item variability.
Questions included misleading information that was either internal to the script or external to the script. The interview included 3 general probes, 12 direct probes, and 28 forced-choice questions. The forced-choice questions were divided equally into misleading and non-misleading questions. The older children were less suggestible than the younger children. However, as children recalled more they were also more suggestible. Additionally, the children made more script-consistent errors than external errors. Younger children were more suggestible for central than for peripheral information, but both age groups recalled more central information. As variability increased, suggestibility increased, although increased experience led to a different pattern of responding for older children. Additionally, the children were more suggestible in response to non-misleading questions rather than misleading questions. Results were interpreted in terms of script theory and the schema confirmation-deployment hypothesis, as well memory trace strength theory and source-monitoring theories. This is the first research to examine questions of age, information centrality, information variability, and level of recall as they pertain to both suggestibility and script memory in children.

Memory for typical and atypical actions in scripted activities.

Abstract: Describes 2 experiments in which 186 university students listened to stories containing scripted activities (e.g., eating at a restaurant) and later received a memory test on the actions. The actions varied in typicality with respect to the scripts. Memory performance at short retention intervals supported the representational assumptions of a "script pointer plus tag" hypothesis that predicts better memory discrimination for atypical than for typical actions and no memory discrimination for very typical actions. Results of Exp I indicate that the relatively poor memory for typical actions was not an artifact of Ss' circumventing memory retrieval; Ss did not prematurely decide that the typical actions "must have been presented." Exp II compared recall and recognition memory after different retention intervals. Assessments of both correct retrieval and guessing differed between recall and recognition tests. For both types of tests, the generic scripts played a more important role in guiding retrieval as the retention interval increased.

Sequencing and interleaving in routine action production.

Abstract: Analyzed the sequence of steps enacted during the performance of routine action tasks in the context of the 2 x 3 test. This test requires enactment of 3 routine tasks, each performed twice. Data from 35 healthy controls and 16 closed head injury patients (aged 17-80 yrs) were analyzed to derive 'modal routes' through the 'sandwich', 'toast', and 'present' tasks, along with transition probabilities for the steps in the modal routes. Also investigated were the amount of interleaving and a potential structural constraint on interleaving. The results indicate that serial order production is more flexible than some might predict, and that the patients and controls were more similar than dissimilar on the measures taken. The 1st result argues against script architectures that are overly rigid. The 2nd implies that the vulnerability to sequence and other errors in this patient group is not due to defects in script memories or serial order programming.

Effect of Presentation and Sex in Script Memory Organization.

Abstract: In recent years, most of the researches have been focused on everyday context that is repeatedly and regularly experienced by an individual. In this study, eighty-four words were structured hierarchically into eight such routine activities (scripts) within three important seasons' categories. Forty undergraduates, 20 females and 20 males, aged 19-20 years, served as subjects in a 2x2x5 factorial design with mode of presentation (organized and randomized), sex (male and female) and five trials as this levels. The short-term recall was obtained after each five trials. Finding revealed a prominent role of script in ordering retrieval and enhancing the short-term recall. The recall was found far superior and more organized with organized than randomized presentation of TBR words. The superiority of males over females were also observed.

The impact of traumatic events on eyewitness memory.
[Chapter] Abstract: Present a proposed framework for the study of the impact of trauma and stress on eyewitness memory. The framework deals with (a) how the nature of the original event affects memory and (b) changes in memory over time. This framework yields a taxonomy of the varying qualities of eyewitness recall that includes 6 behavioral/emotional/cognitive patterns of eyewitness memory for criminal events: remarkable memories, dissociation during event, state-dependent amnesia, normal forgetting, script memory, dissociative amnesia, and active forgetting.
TOPIC: Therapeutically Recovered Memories

The “encyclopedic knowledge” theory of memory leads laypersons to believe that amplifying or strengthening the memory system can improve accurate recall. But, if behavioral guidance is memory’s function, and conscious knowledge only a side-effect, then “amplifying” the system might not restore accurate recall. Sadly, many therapists also indulge this folk theory of memory and its recovery. Both therapist and client then believe there is a detailed, accurate, record that is eminently recoverable in all its details. Any increase in recalled details after therapy begins is assumed to be accurate. As reviewed above, most sensory details were never encoded. Those that were encoded decayed faster than semantics. Storage was not static. And, the retrieval context powerful affects reconstruction. The extra details recalled are mostly inferred from known information, shaped by current context and goals, and involve suggestion and misinformation effects introduced by the therapist and the client’s own motivations.

Therapeutic recovery of an accurate memory is thus dubious at best. All the memory enhancement techniques we know of are prospective, or require detailed contextual knowledge. To enhance a memory, attend very carefully as it happens, rehearse it often and deeply while verifying the information. Recall while in the same environment, state, mood, etc. as the original event. Repeat. Often. Sleep well. Unfortunately, these must all be done prospectively, planned out and performed as the processes of memory unfold.

After the fact, memory enhancement is quite difficult and always leads to some degree of distortion. In fact, evidence cited in support of accuracy in therapeutically recovered memory is overblown. These studies are typically methodologically weak and their “evidence” is often not interpretable solely as supporting the recovered memory. They also often use subjects who have freestanding memories.36 There is now mounting evidence that many people who report having recovered a memory for the first time in therapy have actually recovered that memory numerous times in life and then forgotten it again. Any accuracy in these individual’s memory is likely due to the same reasons spontaneously recovered and freestanding memories are more accurate than therapeutically recovered memory. Over the retention interval, there has been intermittent rehearsal.37 The less the client remembers, the more influence the current context has. The therapist cannot know the details or the facts of the encoding context or the events independently of the client’s own incomplete memory. She or he will ignorantly influence the recalled details with questions and even open-ended prompts. The differences between the original (encoding) context and the therapeutic (recall) context do not just result in a lack of context-dependent memory. One’s recall is still context dependent, but the mismatch in contexts will bias recall. Since the therapist seldom has accurate information about the original events or contexts, they will certainly pollute the memory in the recovery attempt. The filling-in of information via reconstruction is automatic, similar to how one’s blind spot is filled in on the retina. Neither the client nor the therapist will be able to determine which details, if any, are accurate.

Suggestion is rampant in such therapies. Recall can be biased extremely easily with post-event information that is only inferred from interview questions. Therefore, even a therapist with no agenda can exert a strong influence over the client’s reconstruction processes as they piece together a recovered memory. Even a mild therapist agenda, such as a tentative belief that the client was possibly sexually abused and repressed those memories and that the perpetrator is likely a male relative or family friend, can powerfully affect the client’s reconstruction process. Therapists who are convinced of the above scenario corrupt reconstruction even more so. Even what the therapist considered open-ended and inclusive questions can cause suggestion and misinformation
depending on the client’s interpretation of the question, the wording, and the intent of the therapist. These effects are stronger for a longer retention interval, such as occurs with most memory recovery therapies. Also, as mentioned earlier, imagination inflation, misattribution, and misinformation effects get more powerful over repeated sessions of discussing the possible past events.\footnote{38}

**A Logical Error**

Many therapists who use memory recovery therapy follow this flawed logic.

Syllogism A

a) IF one was sexually abused as a child,
   b) THEN one will have certain symptoms.
   c) Those symptoms are present in this client.
   d) THEREFORE, it is likely the client was sexually abused in the past, even if they do not remember it.

Clause (a) is the antecedent, and (b) is the consequent. In such conditional logic, the syllogism can properly yield the conclusion (d) only if (c) affirms the antecedent (a). However, note that (c) in Syllogism A actually affirms (b). This is a logical fallacy termed “affirming the consequent.” Consider a different syllogism.

Syllogism B

a) IF Bob swam in the Stinky River,
   b) THEN Bob will stink.
   c) Bob stinks.
   d) THEREFORE, Bob swam in the Stinky River.

Here too, (c) affirms (b) and thus (d) is not logically valid. Bob could stink from running, falling in the mud, or eating garlic. Just as one may stink without swimming in the Stinky River, there are other ways to have those symptoms (like suffering any trauma, not just sexual abuse). However, most people believe a syllogism based upon whether they think the conclusion is plausible or true, not based on sound logic. If the therapist suggests this line of reasoning, clients believe it is plausible. Accepting the logic as valid, they become even more likely to recall new details consistent with childhood sexual abuse.

**Expertise**

It was previously noted that one of the checks on inaccurate reconstruction is plausibility checking, informed by a person’s beliefs about the world and about how memory works.\footnote{39} As the person recollects, they filter through their current world knowledge to see if the recollection conforms to how the world works. Once an expert, such as a licensed psychotherapist, tells the client it is possible to suffer sexual abuse and not remember, the client is much less likely to reject any thoughts about such a hypothetical event. When asked to think about and discuss any evidence that such a thing ever happened, likely they will remember more details that substantiate the suspicion the more they discuss it.\footnote{40}

**Pattern Perception**

Once the client buys the flawed logic and begins participating in guided imagery, hypnosis, journaling, dream interpretation, and such, they will begin remembering snippets of experience that might be sexual abuse. Any scary events that they remember but for which they have source amnesia, can now be grafted in to a growing abuse narrative. Both misattribution and suggestibility are helping form the narrative. In trying to reconstruct this event, all their pattern perception and plausibility mechanisms will automatically be at work. Most likely they will
eventually recover a memory of abuse at the hands of a plausible person. It will often be a close male with whom the client feels emotional distance or conflict and who was alone with them one or more times.

**APA Working Group on Investigation of Memories of Childhood Abuse**
The American Psychological Association Working Group on Investigation of Memories of Childhood Abuse rejects the idea that any symptom pattern is an indicator of child sexual abuse. But they go further, noting:

When clients report what they phenomenologically experience as memories of previously unrecollected trauma, therapists should take … steps to avoid imposing a particular version of reality on these experiences and to reduce risks of the creation of pseudomemories…. It is important to remember that the goal of therapy is not archeology; recollection of trauma is only helpful insofar as it is integrated in to a therapy emphasizing improvement of functioning.

Therapists should carefully consider all alternative hypotheses, including that the retrieved material is (a) a reasonably accurate memory of real events; (b) a distorted memory of real events, with distortions due to developmental factors or source contaminations; (c) a confabulation emerging from underlying psychopathology or difficulties with reality testing; (d) a pseudomemory emerging from exposure to suggestions; or (e) a form of self-suggestion emerging from the client's internal suggestive mechanisms.41 Such an approach will limit the logical fallacy, and expertise influences warned of above.

**Recovered Memory Therapy**
Any therapeutic memory recovery that relies primarily on the client’s memory or that of his or her allies, and does not early on include memories from person’s with contrary viewpoints, public records, common sense, and fact checking, will tend toward distortion of the memory. Therapist-initiated therapy based on observed symptomology without freestanding memories of abuse is an egregious logical and clinical error that further encourages confabulation. It often leads to pseudomemories.

**Receiving accusations based on therapeutically recovered memory**
Memory is not a videotape of the past. Normal memory processes can include many types of distortion. Other evidence must corroborate any person’s recall. However, therapeutic memory recovery is the perfect storm of distortion-maximizing influences. It can and has generated pseudomemories and distortion. These could include distortions of the perpetrator’s identity, time and place of the event, and the exact nature of the event. Therapeutically recovered memories are more unreliable than freestanding memories, or spontaneously recovered memories.42 Also, if the abuse was understood as sexual and traumatic, and the place it occurred and the offender were continuously present in the accuser’s life, any recovered memory is less likely to be accurate, since those factors all make it forgetting the abuse in the first place highly unlikely. Further, discontinuous memories that were recovered all at once are more reliable than those recovered one detail at a time over an extended period.43

**Use of remote memory in assessing accusations**
Our everyday memory is usually accurate about the most important elements of a memory, but over time it can decay and details can be reconstructed allowing misattribution and suggestion effects. Other details can be lost through decay or blocking. Upon hearing of an accusation,…(forensic investigators)… should get as detailed a statement as possible while influencing that detail as little as possible. Use non-directive language.
(forensic investigators should)… Encourage the complainants to report what they saw, heard, felt, etc. Have them specify what they thought those perceptions meant and how they thought about it at the time and over time since then. Have them take their time and rewrite the statement to form a coherent, linear description of the events and the recall process. Only after confirming that the narrative is as complete and linear as the complainant thinks possible may questions be asked about internal inconsistencies. Thorough examination of the complaint and careful strategy in composing further questions should both ensue. Questions must be carefully constructed to limit the possibility of suggestion and misinformation effects. Any questions should mainly center on clarifying the complaint and resolving any ambiguity in the story. Avoid giving information not supplied, or suggesting things not alleged. The process should include asking for the complainant’s medical, mental health, and therapeutic history. The questions should be broad enough to include not only psychotherapists but also pastors, survivor groups, and self-help workbooks about psychology or trauma. Ascertain as clearly as possible whether the complainants memories were freestanding or discontinuous. If discontinuous, how did recovery occur? Was it in therapy or spontaneously? Was recovery fairly quick, in an all-at-once fashion, or did it take months or years for details to emerge? If they did undergo memory recovery therapy, it is important to ascertain whether the therapist ever committed the logical errors concerning symptomology, or exerted other undue influence on reconstruction, if possible. The entire deposition and question and answer process should be recorded for later review, to assess whether any suggestions were planted in the process.

Remember that vivid, detailed, memories are not more accurate than other memories. There is no property of the memory that can tell indicate if it is false. Pseudomemories have been shown to persist for a long time, contain great detail, evoke emotional response, and affect behaviors such as food preferences, etc., just as real memories do.

After obtaining a full statement, …(forensic investigators)…should assess the complaint by seeking corroboration and disconfirmation. It may be helpful to appoint different persons or subcommittees to seek corroborative versus disconfirming evidence. This may limit confirmation bias, in which seeking corroboration can blind one to disconfirming evidence and seeking disconfirmation can blind one to corroboration.

It is often thought that a measure of the complainant’s (and the accused’s) credibility can be helpful in determining the accuracy of the complaint. This arm of the investigation may be of some use. But, it should be noted that many abused persons may be disordered enough to seem unreliable, such as having a drug addiction or other maladaptive life habits. They may have time confusion and have difficulty sorting out the timeline. Considering long past events where not much is discoverable, it is tempting to look at the complaint itself to determine its accuracy. There is no known property of the memory itself which can differentiate a genuine memory from a pseudomemory. No differences in detail, emotion, durability, or effect on behavior have been observed. However, if the memory was discontinuous, there are properties of the recovery and circumstances recalled that may help determine whether the memory is more likely to be accurate. If the accuser perceived the abuse as traumatic or sexual at the time it occurred, it is unlikely that it would have been forgotten (remember persistence). Therefore it is more likely a false memory. If it was spontaneously recalled by encountering reminders in everyday life it is more likely a genuine memory than if the details came back slowly over a period of time, especially if undergoing suggestive memory recovery therapy. Of course this only applies if the offender and the location of the abuse were not still present in the accuser’s life (as constant reminders) after the abuse. These conditions, however, do not guarantee accuracy or falsehood, they only inform whether the memory is more likely to be true or false…

Conclusion

Accusations of misconduct, especially concerning sexual abuse, must be taken very seriously. Care must be taken to limit likelihood of introducing memory distortions or pseudomemories in the deposition process. Care must also be exercised not to accept false memories as true. Continuous
memories are least likely to be distorted or inaccurate. Discontinuous memories that were recovered all-at-once, concerning abuse that was not understood as traumatic or sexual at the time, are least likely to be falsely recovered. All memories must be corroborated, since reconstruction allows for the possibility of suggestion, misinformation, and other distortions.

References
38 French, Sutherland, and Garry, “Discussion Affects Memory for True and False Childhood Events”; Heaps and Nash, “Comparing Recollective Experience in True and False Autobiographical Memories.”; Sharman, Manning, and Garry, “Explain This: Explaining Childhood Events Inflates Confidence for Those Events.”
40 French, Sutherland, and Garry, “Discussion Affects Memory for True and False Childhood Events”; Heaps and Nash, “Comparing Recollective Experience in True and False Autobiographical Memories.”; Sharman, Manning, and Garry, “Explain This: Explaining Childhood Events Inflates Confidence for Those Events.”
47 McNally and Geraerts, “A New Solution to the Recovered Memory Debate.”
Appendix A: General Principles of Memory and Forgetting

I. Principles of Memory


Memory is a vital function supporting learning, consciousness, cognition and behavior. Yet most people have little grasp of how memory works, its real purpose, or how remembered information relates to actual past events. Most laypersons believe memory functions to provide conscious knowledge of the past. Memory researchers, however, view memory as guiding current behavior based on past experience. Conscious knowledge may be a side effect, or one means to achieve behavioral guidance, but is not the real objective of the system. From this viewpoint, forgetting and other memory “failures” illuminate normal function in the same way visual illusions reveal normal visual function. They are not mere inefficiencies but are the infrequent down-side of powerful heuristics that guide current behavior with minimal load on working memory and attention.

Most laypersons over-apply the popular computer model of memory. They believe encoding is encyclopedic and very detailed. They also believe “storage” is static retention of information, largely unchanged until recalled. Further, they believe that recall is mainly determined by the past events. Research indicates otherwise.

Attentional limits dictate that we encode little of our experience. “Storage” is not static, as on a hard drive. Our memory is updated after-the-fact with context and real world knowledge to improve future behavior. This updating often protects us from harm, but does not always increase accuracy. It can, under some conditions, result in forgetting or in false memory of details or entire events that never occurred. Finally, recall depends on one’s current context as much or more than on the past events themselves. Recall is not a search for the exact reproduction of an event. It is a reconstruction of the event based on fragments of encoded, updated, and inferred information, subject to constraints of the recall situation.

This misunderstanding of memory leads to poor evaluation of memories in certain instances. For example, humans tend to believe a vivid detailed, emotional accusation is either accurate or else fabricated. They do not consider the third possibility: Reasonable, normal people can have detailed, vivid memories they firmly believe, which are nonetheless entirely (or partially) false, even concerning important events and issues. To understand how this might occur, let us review memory function.

Memory Overview

Encoding

Most information is only encoded while directly attended, with our limited-capacity attention system. The Illinois Door Study\(^1\) demonstrates how surprisingly little we actually encode. Each subject was approached and asked directions by an experimenter. Two confederates then carried a door between the conversants. Another confederate changed places with the experimenter as the door passed, and continued the conversation. Half the subjects did not notice the mid-conversation person change! Apparently, we often encode only basic information such as “direction asker” about people. We may not notice clothing, height, and hairline change because they were not attended. Subsequent studies indicate that we notice such changes, given an adequate hint soon enough after the switch, but that information decays quickly.\(^2\) Only information that is attended and rehearsed is ultimately translated into semantic information (meaning) for later recall.
Repetition powerfully strengthens memories but has diminishing returns. Each repetition adds less strength than the last. More processing is better, but the type of processing is also critical in determining memory strength. In the “levels of processing” theory, “deeper” cognitive processes support better memory. Craik and Tulving had participants judge words in a list and then administered an unexpected memory test for the words. Those judging visual appearance (e.g. “Is this word in all capitals?”) remembered few words. Acoustic judgments (“Does this word rhyme with dog?”) yielded better memory. Semantic judgments (e.g. “Does this word complete the sentence?”) yielded the best memory. Memory seems to be optimized to retain meaning, not the sensory information itself. Deeper (semantic) processes improve memory regardless of whether the subject intends to remember. Motivation effects do not directly affect recall. Rather, higher motivation causes more and deeper processing, improving recall.

Encoding is thus the transforming of a small subset of the sensory information from an event into a semantic code for retention. The limited nature of encoding necessitates updating in storage and reconstruction at recall to yield a complete narrative of past events.

Storage
Information is not simply warehoused between encoding and retrieval, but updated. Originally encoded information is supplemented with information from later similar events, others’ accounts of that or similar events, mentally reliving the event, or even imagining such events. All possible sources of information are used to make a memory as detailed and accessible as possible for later use.

Storage is semantically organized. Information about a certain meaning is stored together, regardless of when the different information was obtained. So we often “remember” experiencing something during our first exposure to an event, even if we only learned about that facet of the event later.

Amnesia studies have revealed much about memory. Bilateral hippocampal damage leaves patients unable to form new declarative memories after the injury. Memory for days to decades predating the damage is impaired, depending on severity of the damage. Earlier memories are unimpaired. Thus, post-injury events and the more recent pre-injury events cannot be consciously recalled. However, non-declarative memory — skills, habits, conditioning, and priming which do not require conscious recall — is typically unaffected. These results indicate the hippocampus is essential to declarative memory encoding and is also required for conscious recall until the memory is fully consolidated, days to decades after the event. However, the hippocampus does not itself hold those memories. Memory elements are distributed throughout cortex; visual elements in visual cortex, auditory information in auditory cortex, etc. The hippocampus consolidates, or binds those elements together for later combined recall.

In addition to consolidating a single event, the hippocampus reconsolidates it each time it is recalled. During reconsolidation the memory can incorporate new information and is therefore vulnerable to change or even deletion. In rats, hippocampal disruption (with shock or protein synthesis inhibitors) shortly after recall destroys the memory. Distraction may disrupt reconsolidation in a similar fashion, but to a lesser degree. This vulnerability, a seeming weakness, is also a strength. The lability allows incorporation of new information into the memory. This is adaptive because one may only understand an event sometime after it occurs. Storing the later understanding with the original memory improves future responses. Without updating, memories could not incorporate new information, nor could a first impression be revised.

Non-activated memories decay or become less accessible over time. Decay is one way we forget. Rehearsing or using information builds memory strength, combating decay. Decay is functional
in that unused information may be old and no longer relevant. Losing it allows concentration of limited resources on processing current, relevant information. If I remember, with equal intensity, every item I ever ran out of while at the supermarket, I would be as lost as if I had no memory. I want to best recall items depleted most recently.

Levels of processing also affect retention. Deeper, semantic information is retained longer than shallower, sensory information. Thus we cannot simply “replay the video” to recall events. We retain the meanings of sensory information, but not the sensory information itself. It decays quicker than semantic information unless carefully, explicitly rehearsed. Anderson demonstrated this differential decay. Subjects read paragraphs of eight sentences, each concerning two agents and one action in either passive or active voice. Consider:

1) The painter shot the actor.
2) The actor was shot by the painter.

The action is the same in each, but 1 uses active voice and 2 uses passive voice. Paragraphs contained four active and four passive sentences. Subjects then reported which test sentences had been verbatim in the paragraph. Subjects verified both action and voice 98% correctly with no delay. With two minutes delay, subjects falsely recognized sentences in the wrong voice provided they referenced the right action. Acoustic representation of the sentences had decayed while semantic representation was still strong.

In summary, retained information is updated, not static. Sensory information decays quickly, leaving mostly semantic information. Furthermore, updating can lead to enhancement or deletion of memories. Updating can be adaptive, but can also be a source of errors. Misinformation experiments, discussed in the Reconstruction section, elucidate how such errors may occur. See the “Memory Concepts” section of this handout for a more detailed description of sensory, short-term, and long-term memory.

**Retrieval**

To be used, information must be retrieved, either automatically or effortfully. Much everyday recall is automatic retrieval. Semantic priming is an example whereby a stimulus (the prime) facilitates activation of a semantically related stimulus (the target). Primed targets are recognized faster than unprimed targets. For instance, people recognize dog as a word more quickly following puppy (a semantically related word) than following lramn (a non-word) or blanket (a semantically unrelated word).

Priming occurs through mental associations other than semantic relation, such as temporal contiguity or even arbitrary association. Paired-list recall demonstrates this. Subjects who studied paired-lists later recalled the second word of each pair, given the first as a retrieval cue, better than they could recognize the second words in a recognition list. Recognition is typically better than recall. However, in this case, subjects’ word recall exceeded recognition because the first words primed activation of the second words. Pairing the semantically unrelated words caused subjects to associate them.

Priming can even occur with no explicit pairing. After learning lists derived from certain categories, subjects remember more words when the category names are provided at recall as retrieval cues. Subjects not given category names at the first recall can remember more words at a second recall if given the category names. Thus, forgotten items are often available in our memory but are not accessible at that time or under those conditions. Furnishing more effective retrieval cues can improve recall.
Priming does occur in everyday life. Seeing something often primes recall of the last time we saw it. Next, memory of related information is primed, such as whom we were with or what happened next. Looking at our old yearbook pictures primes recall of names and events we could not otherwise retrieve that day.

**Context effects are strong memory phenomena that depend on temporal association.** The context in which we learn an item is automatically associated with that item. When the retrieval context (environmental, mental and physical conditions) is similar to the encoding context, recall is facilitated for items encoded in that context. For instance, people who learned word lists on land or underwater remembered more words if tested in the same condition. Subjects recalled more words when the encoding and recall contexts were the same (land-land or water-water conditions) than when they were different (land-water or water-land conditions).

**State dependent memory yields enhanced recall when internal state** (e.g. inebriation versus sobriety) is similar at encoding and recall. In a related effect, mood dependent memory, enhanced recall occurs when mood is similar at encoding and recall. Another mood effect, mood-congruent memory, entails enhanced recall when the items’ meanings are congruent to one’s current mood. Depressed persons often exhibit both effects, better recalling information encoded while depressed (mood dependence) and information with a depressing meaning (mood congruence). Mood-incongruent memory, enhanced recall of items with opposite meaning from one’s current mood, can occur when a professional or non-emotional demeanor is demanded. For instance, graduate students exhibited mood congruent recall at the end of class (under no demand for professional demeanor), but mood-incongruent recall at the beginning of class, when ongoing professional demeanor is expected. Such mood regulation further highlights that memory is more about present behavior guidance than about conscious knowledge of the past.

These context effects strongly influence recall, highlighting the role of retrieval cues in remembering. Recall relies crucially on current environment, not just past events. Retrieval cues and proper retrieval contexts are necessary for successful recall. These effects can affect both automatic and effortful recall. One can try to remember past events by trying to imagine or even go to the encoding context. When the retrieval context matches the encoding context and more detail is accurately remembered, it is termed context dependent memory, but the recall context exerts an effect whether or not it matches the encoding context. Context effects are so strong that they can warp memory as well. In an angry state, one is more likely to remember a given event as containing angry words, for instance. One must be quite sure of the original context to accurately improve recall.

**Reconstruction**
The concept of retrieval usually evokes a search analogy, such as for an artifact – a detailed, accurate, unchanged representation of a past experience. No such representation exists. Recall is not retrieval of a faithful reproduction of the event. Recall involves reconstructing the event from limited, stored information, updated information, current knowledge, and context.

How does reconstruction fill-in the encoded, updated information with useful, accurate information? It does so through real world knowledge, for instance with invariants. Much of the perceptual information we receive remains invariant as we move through the environment. (For instance, the earth is always below, the sky above, light comes from above, etc.). Humans abstract and use such invariants to navigate and judge distances. Similarly, invariants economize our information processing and storage. We need not store every aspect of an experience because certain attributes tend to covary with others. Storing them all is inefficient. Studies like the Illinois Door Study demonstrate that we store fewer details than we suppose. Reconstruction capitalizes
on context and invariants to supply missing information that is usually correct. Sometimes, however, this economy leads to inaccuracy.

An example of reconstruction error is the **misinformation effect**. Loftus and Palmer had participants answer questions immediately after watching video of low-speed car crashes with no vehicle damage.\textsuperscript{18} One group was asked to estimate the vehicles’ speed as they “hit” each other. The verb for the other group was “smashed.” One week later, the “smashed” group was twice as likely as the “hit” group, or a control group, to falsely report seeing broken glass at the scene. This minor wording change distorted later memory of crash severity. Reconstruction is always part of the recall process, but can only be definitively demonstrated when “recalling” details not in the original event, since any correctly remembered details could be due to accurate encoding, storage, and retrieval or from reconstruction.

People can even come to remember entirely false events such as getting lost as a child at a Disney park and being found by Bugs Bunny,\textsuperscript{19} or seeing a non-existent video of an event they know happened – such as the No. 30 bus explosion in the 2005 London Tavistock Square bombing.\textsuperscript{20} False memories become even more detailed and vivid when subjects are encouraged to simply talk about whether the supposed event might have happened, as one may do in psychotherapy or recovery groups.\textsuperscript{21} Over successive sessions, subjects “recall” more detail and develop more emotion about the false event. Those memories then become indistinguishable from true memories as judged by the rememberer and by third parties.

Some proponents of recovered memory therapies contend these experiments do not involve the intensity and personal nature of sexual abuse. Such trauma, they argue, causes memory mechanisms to function differently, sparing it from misinformation or suggestion effects. However, there have been recent experiments using personal, threatening events (which elevated cortisol and norepinephrine and suppressed gonadal hormones) in an army mock POW camp at Survival Training School. Well trained individuals misidentified their interrogator 93\% of the time when given misinformation (such as a picture or a description of an interrogator) versus 50\% of the time when not misinformed.\textsuperscript{22} Participants in the mock POW camp were physically, emotionally, and verbally abused by their interrogators under severe duress and were required to look at interrogator’s faces at all times. Yet when misinformed, they could not identify them properly. Clearly stress did not spare those memories from distortion. It should be noted that the army’s own estimate of unreported rapes within its ranks is about 19,000 per year.\textsuperscript{23} Thus, any soldier might reasonably fear sexual violence at any time in service. It is therefore unlikely that the stress of the mock POW camp is categorically different than that experienced in sexual trauma.

**Merely imagining an event increases false recall and increases one's confidence in the accuracy of such a memory.** Garry, Manning, Loftus and Sherman gave participants life-event inventories and two weeks later asked them to imagine an event – such as falling through a window and cutting their hand.\textsuperscript{24} Different groups imagined different events. Participants then completed a second life event inventory (they were told the first had been lost). More subjects recalled the imagined event as real in the second inventory with no change in other reported event frequencies. Imagination increased familiarity, which can increase belief in a statement’s truth, even if the familiarity comes from mere exposure to the statement with no fact-checking.\textsuperscript{25}

Finally, search, retrieval, and reconstruction are shepherded by cognition. This is undoubtedly why retrieval context has such a powerful effect. Environment and internal state affect cognitive state, affecting priming and reconstruction into a full memory. Researchers refer to this as **"retrospective bias"**. At retrieval, it seems the left prefrontal cortex generates possible missing information about events that are difficult to recall from simple hippocampal retrieval. Right
prefrontal cortex performs plausibility checking by reconstructing the original context and filtering out possible answers that are not relevant for the given context. This plausibility checking gives us a sense of how confident we are in the accuracy of a memory.

II. MEMORY “FAILURES”
False and distorted recall due to misinformation is but one kind of memory error. Daniel Schacter has classified memory failures into seven “sins” of memory. Transience, absentmindedness, and blocking are sins of omission or forgetting. Suggestibility, bias, misattribution, and persistence are sins of commission in which something is remembered intrusively or inaccurately. Schacter argues these “sins” are not errors, but rather the infrequent down-sides of adaptive trade-offs that give us efficient, useable memory systems. They indicate that memory’s function is not to produce conscious access to detailed knowledge of our past but to guide current behavior using past experience without exhausting limited resources of attention and information processing. Systematic study of these failures illuminates normal memory function the same way study of visual illusions informs us about visual function.

**Transience** is the loss of unused, old information via decay. As mentioned in the Storage section, such loss is useful when the information is no longer accurate. Interestingly, decreased likelihood of recalling old, unused information mirrors the actual probability with which information recurs in the environment. Anderson and Schooler found the probability of words recurring in the New York Times and in emails in a database followed the same mathematical function as human recall probability over a similar retention interval. Our forgetting curve seems to yield optimal adaptation to the environment.

**Absent-mindedness** is forgetting information that was not properly attended at encoding. Settling an argument between my kids upon arriving home interrupts my normal arrival routine and I may not place my keys in the usual place. My diverted attention is not on key placement, which is quickly forgotten. This seems a failure but points out an efficient rule. Given limited processing capabilities, it is best to limit and prioritize what is actually encoded and stored. Unattended information is often unimportant and unlikely to be useful later. The downside? If I am distracted, something may be unattended and not be properly encoded.

**Blocking** is failure to recall encoded information such as the inability to put a name to a familiar face. This often occurs for someone we have not met or thought of recently. Given limited resources, it is best to prioritize strengthening only activated memories. Transience is the downside of maintaining only information that is most current. Absent-mindedness is the downside of selective encoding, and blocking shows that some information is less accessible as it gets old or unused.

**Suggestibility** is distortion of a memory based on post-event misinformation. It is the downside of updating. Improving memory with post-event information can improve one’s response to future events. This is the adaptive genius of a semantically organized system with reconsolidation and updating. Post-event information usually further clarifies what happened or how to respond in future instances. Sometimes, however, post-event information can be misleading as in the Loftus and Palmer study. An inference from a single word change in post-event questions was stored with the representation of the actual collision, since both concerned the same event. This led to distorted recall later.

**Misattribution** is attributing information to the wrong source. Suggestibility in the Loftus and Palmer study was caused by misattributing the source of the inference. It came from the word “smashed” in a post-event question, but was attributed to observation of the accident. Similarly,
leading questions, poor interviewing technique, and repeated interviewing can distort eyewitness testimony. Even careful questioning may cause distortions. The effect has been shown for a single word that was not in a statement but in an inquiry. Misattribution is one reason that imagination inflation occurs and some false memories form. In recall following imagination, subjects misattribute images from the imagination task as having occurred at an actual event. Researchers refer to this as “source monitoring errors”.

**Bias** is memory distortion due to one’s expectations. Since memory is semantically organized, the similar meaning of one’s expectations and one’s actual observations at an event are difficult to separate in later recall. Sometimes, one’s understanding of what occurred at an event is based on one’s erroneous expectations. The belief is misattributed as due to observations at that event, when it is really due to pre-event expectations, not something that actually occurred. Also, expectations guide attention. Proper expectation leads to a focus on the most important things, facilitating memory for them. Misplaced expectations can bias one’s memory for the meaning or details of an event, especially complex or vague events that lack clear constraints that could direct attention to the most important information.

**Persistence** is intrusive, unwelcome, recall, such as occurs in post-traumatic stress disorder (PTSD). It also occurs after non-life-threatening stresses such as an office argument. Afterwards, mining that experience to optimize future responses to comparable situations is quite functional. This involves thinking about, analyzing, and modeling how things might have gone differently. The possible downside to reliving these experiences is that some people in some conditions experience stressful over-arousal while reliving the event. Rather than habituating to the trauma, they are sensitized to it. The prevalence of PTSD indicates that trauma most commonly triggers persistence, not repression or forgetting. In fact, contrary to many memory recovery proponents’ claims, sexual trauma is not more easily forgotten than other events. It is by far better remembered, especially if it is violent, significant, or repeated over time.29

Schacter declares that these “sins,” taken together, are not failures of the system, but rather the costs of an adaptive and efficient system.30 If the system’s purpose were encyclopedic knowledge of one’s past, then it is inefficient and untrustworthy at points. But reverse engineering the system through studying memory capabilities and limits indicates its purpose is rather to guide present behavior using knowledge from previous events, whether it is conscious and effortful or automatic.

**Consequences for remote autobiographical memory**

So what does all this mean for one’s memory of one’s own past? There are two types of long-term declarative (conscious) memory: semantic and episodic. Semantic memory concerns facts we know. Episodic memory concerns the episodes of our life and the flow of events within them. I remember that Columbus sailed westward through the Atlantic on the Nina, the Pinta, and the Santa Maria. This is a semantic memory. I also remember my kindergarten teacher telling the story as we colored a picture of 3 ships on the sea. That is an episodic memory. I can choose to think about either and thus rehearse them, but whereas I can verify the truth of the ship names, I cannot really verify all the details of what happened in class that day. Thus, rehearsal can have a very different effect on semantic than on episodic memory. Semantic memory is less susceptible to distortion through misinformation, suggestion, and context effects. Episodic memory is typically less often and less reliably rehearsed than semantic memory.

For instance, when asked what I did on the morning of September 11, 2001, I have some idea because I thought about and told others about those events repeatedly just after they occurred and sporadically since. However, when asked about September 10, 2001, I really have no clear memory of that. I do not recall ever recounting those events to anyone. Likely, no one ever asked.
Although my 9/11 memory got more rehearsal than my 9/10 memory, is the former more accurate than any other (well-rehearsed) memory? It is an example of a flashbulb memory, memory for an important and emotional event.

The vividness of such long-past memories was once thought to demonstrate their accuracy and permanence. However, such recall has since been repeatedly demonstrated to be malleable. Change has been demonstrated regarding the announcement of the O.J. Simpson murder verdict, the Challenger space shuttle explosion, and 9/11 terrorist attack. Participants’ narratives concerning how they heard, who told them, where they were when they found out, and other central information (as well as details) changed over a 9 to 18 month period. Even though the stories changed, participants expressed very high confidence in their accuracy.

Why do these stories change if they are so important to us and we retell them all the time? Marsh says retelling is not the same as recalling. Retelling of an event is aimed to affect the listener, not practice complete and accurate recall. A retelling may omit details that are “boring,” complicate the story, negatively characterize the speaker, or otherwise detract from the desired effect. Untold details are rehearsed less and may become irretrievable. The speaker may then reconstruct details if asked questions about missing information. The reconstructed details may be items for which the reteller has source amnesia and has misattributed to that event. Some details may be overemphasized, leading to later exaggeration of details or of the importance of one event versus another. Or, the speaker may misattribute and remember some aspect of a retelling as being something that actually occurred in the event. Thus, one is much more likely to be inaccurate about episodic than semantic information. Without the ability to verify the facts, an often retold or remembered story can change, even on the main points.

References


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About Dr. Paul Simpson

- Certified as an Expert Mental Health Evaluator by the Arizona Supreme Court.
- Since 2003 has provided over 240 one-day trainings in all 50 states for counseling professionals and probation officers on assessing and treating sexual compulsions.
- Has an extensive background in working with victims and perpetrators of sex crimes in outpatient and inpatient settings. This has included individual and family counseling, group counseling, and court-ordered psychosexual evaluations.
- As a former case manager with Child Protective Services (Tucson), Dr. Simpson has an extensive background in working with victims and perpetrators of sex crimes in outpatient and inpatient settings. This has included individual and family counseling, group counseling, and court-ordered psychosexual evaluations.
- Taught a graduate course in Adolescent Psychology for Northern Arizona University.
- Former case manager with Child Protective Services (Tucson).
- Author of Second Thoughts, a book that was instrumental in helping expose the false claims and dangers of ‘recovered memory therapy.’ Throughout the 1990’s Dr. Simpson was a leading national educator on False Memory Syndrome and trained thousands of counseling professionals on standards of practice. He also served as an expert consultant to the Arizona Board of Psychologist Examiners.
- Dr. Simpson has been a guest on The Joan Rivers Show, the Leeza Gibbons Show, Parent Talk Radio, Focus on the Family, Frontline, and Fox News. He has been a professional consultant to a number of national media, including 20/20, 60 minutes, NBC News, Nightline, The Oprah Winfrey Show, the Chicago Tribune, Dateline, The Today Show, Focus on the Family, and Vanity Fair magazine.

Publications and Research


Don’t tell anyone, but all of the above boring stuff is really a clever disguise to hide Dr. Simpson’s true identity – a mandolin-picking, bluegrass jamin’ nutcase. As a board member of the Desert Bluegrass Association (www.desertbluegrass.org) he wastes all kinds of time and money on a tremendously un-cool obsession – much to the embarrassment of his two children. If you want to embarrass your children as well, come and sit in on a free Bluegrass Workshop he leads every Monday night on the eastside of Tucson.

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