

An Overview of Children's Source Monitoring II: Focused on the Characteristics of Sources, Source Judgment, and Individual Differences

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This paper is aimed to offer a comprehensive overview of research on children's source monitoring (SM), exploring significant factors known to impact children's SM focused on the context of children's testimony. The discussion was mainly presented the results of applied and experimental studies of children's SM. The ultimate goal of this review is to build a beneficial synthesis of currently available and relevant information concerning children's SM process and ability, thereby producing a reliable and concise interpretation that classifies important areas for potential future research of children's testimony. Various factors may influence children's SM; however, this overview was concentrated on, in particular, critical characteristics of the sources, the source judgment processes, and the individual differences within the context of children's testimony. The experimental research and implied conclusions criticized herein proposed a groundwork and theoretical perspective for potential state-of-the-art empirical studies in this research field. It is hopeful that these imperative and extensive knowledge can be incorporated into practical legal settings in children's lives and well-being.

Key words : source monitoring, characteristics of sources, source judgment, fuzzy trace theory, individual differences

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Each autobiographical event is distinct according to the incorporation of several aspects—namely, time, place, and sensory or perceptual modality—which define the source of the memory. The impact of a memory upon a person is powerfully bound to the memory's source; for instance, the impact of a past statement may alter a person's memory of it. Consequently, it is crucial that people be able to differentiate between firsthand memories and imagined or "secondhand" memories. Thus, in order to develop a reliable knowledge foundation, children need to be able to gather information from many different sources into cohesive understanding. In certain situations, children must also develop the skills necessary to discriminate among various sources of information in order to function competently in routine life. For example, a child should be able to recognize whether he or she has actually played a baseball game or merely dreamed of doing so and whether his or her parents taught him or her a lesson a teacher-or television show-did.

Source monitoring (SM) involves essential skills for children that mediate their ability to operate various cognitive and social functions. In regards to cognitive processes, an example is Jackson, a four-year-old boy starting to develop his autobiographical memory of events he has experienced personally. However, as a typical four-year-old, Jackson also has an active imagination and creates many mental "events".

If Jackson is unsuccessful in differentiating between memories of events that actually occurred and events he imagined, his accuracy of everyday happenings within his life history may create confusion. Moreover, if the imagined events include a frightening or negative component, his emotional well-being may be affected. As such identifying memories' sources is an indispensable cognitive ability as the meaning of a memory is bound closely to its source. Having a particular source in one's personal past makes a memory autobiographical; autobiographical memory cannot survive without the ability to identify the origin of memories.

Lee (2011) provided a vast and far-reaching review of research on children's SM, offering an evaluation of studies and theories exploring age-related shifts in children's SM ability. This article extends further describing the results of applied and experimental studies related to children's SM, scrutinizing several key factors may impact on children's source monitoring. Ultimately, the review aims to build a beneficial synthesis of currently available and relevant information concerning children's SM process and ability, thereby producing a reliable and concise interpretation that classifies important areas for potential future research of children's testimony.

Numerous factors may impact children's Source Monitoring; however, given the space restrictions, this overview was concentrated on sources, individual differences, and processes at the time of remembering in the context of

children's testimony. The experimental research and implied conclusions criticized herein put forth an underpinning and context for prospective innovative empirical studies.

Characteristics of the Sources

Source errors tend to be more common when potential memory sources are similar to one another in terms of their perceptual properties, semantic content, or cognitive operations (e.g., orienting tasks). The stronger the similarity, the greater the compromise in source attributions is.

Johnson, Foley, and Leach (1988) breakthrough study involved an experimenter saying certain words for participants while participants also imagined additional words; they subsequently attempted to remember which words had been spoken and which imagined. Participants directed to imagine words in their own voices were significantly more accurate than those directed to imagine the words in the experimenter's voice despite the fact that old/new recognition was equivalent in both conditions. Thus, sources can apparently be differentiated only along with qualitative content (e.g., remembered sound of voice or physical appearance) rather than quantitative characteristics (e.g., amount of sensory detail).

Meanwhile, Lindsay, Johnson, and Kwon (1991) study involved participants who watched a video in which two individuals took turns telling a story regarding circus acts (e.g., the

elephants act, the magician's act). Participants were then tested on their ability to identify which storyteller had incorporated specific details. When both storytellers were teenage girls, participants performed more poorly than when one was a teenage girl and the other a male senior citizen. Memories related to the speakers' appearance and sounds were more indicative of source when storytellers were dissimilar in these regards.

Source similarity effects in subsequent SM are not restricted to perceptual similarities; semantic and theoretical similarities can also diminish SM discrimination. SM features can be manipulated by individual's expectations and stereotypes. Marsh, Cook, and Hicks (2006) found that participants more often attributed stereotypically masculine accounts to a male speaker and stereotypically feminine accounts to a female speaker. Spaniol and Bayen (2002) concluded that SM judgments are more likely to be influenced by schemas when an individual's memory is comparatively weak, similar to misrepresented perceptions of vague or obscure stimuli. Foley, Johnson, and Raye (1983) determined that children faced more troubles discriminating between memories of what they had said and those of what they imagined they said (both internal events) than they did differentiating between what they had said and what another person had said (internal versus external events). Yet this distinction failed to clarify all the difficulties the children

encountered. The researchers further determined that children were as good as adults in distinguishing between what two different people said (i.e., two externally derived events). According to Lindsay et al. (1991), such within-class difficulty creates a more general struggle when distinguishing between memories involving similar characteristics.

Cognitive operations characteristics can provide particularly useful cues in status- SM, enabling individuals to discriminate between the public and private nature of events. This claim became evident in experiments involving an increased amount of encoded cognitive operations, which led to more accurate source discriminations. Foley, Durso, Wilder, and Friedman (1991) showed six-year-olds, nine-year-olds, and adults a set of words and pictures, asking the participants to either state the function of the item or generate an image and evaluate the vividness of their image. Participants were later asked to determine whether they saw the item as a word or picture; those in the function condition made more external SM errors than children in the imagery condition. The authors concluded that the children and adults in the imagery condition utilized more intentional and extensive cognitive processing than participants asked to provide a more automatic evaluation of function. Such extensive cognitive processing resulted in memories incorporating more cognitive operations than memories of participants in the function condition, which were subsequently activated the

source judgments. Furthermore, Foley et al. (1991) used items that Snodgrass and Vanderwort (1980) previously categorized as simple or complex for half of their item lists, demonstrating that participants in both conditions more accurately identified sources of complex items (demanding more cognitive processing).

Many researchers have relied on more general source monitoring framework to explain children's source of confusion, arguing that children find it particularly difficult to distinguish between perceptually and semantically similar sources of information. One study showed a videotape of a set of actions to 7- and 10-year-olds and adults; participants then performed, watched others perform, imagined themselves performing, or imagined another person performing these actions (e.g., "Please watch the girl touch her nose" versus "Please imagine touching your nose"). Next, the researchers asked participants to signify-according to each list of actions-which actions had been performed, which had been imagined, and which were new. Children had more difficulty distinguishing between imagined and actual actions than adults when the same actor participated in both kinds of actions (e.g., watching versus imagining the girl touch her nose), although they performed as well as adults when the sources of information were rather discriminable (self versus girl). All age groups consistently distinguished between the actions of

two perceptually or semantically distinctive actors, although children were more likely to confuse memories from different yet highly similar sources (Lindsay et al., 1991, Experiment 3).

Additional SM studies have suggested that children may be susceptible to confusion between actual and implied events that are perceptually and semantically similar. In the Foley et al. (1983) study, the children (6- and 9-year-olds) were just as precise as the adults when discriminating between the spoken words of two different speakers versus words the participants had said themselves and those spoken by another person, whereas younger (6-year-olds) participants struggled to discriminate between words they had said and those they had imagined saying. Thus, the authors concluded that younger children have a clear conceptual distinction between self and other but do not employ the same metamemory regulations as adults to discriminate between overt and covert verbalizations. Markham (1991) explored the causes behind such difficulties, asserting that such difficulties may stem from problems associated with discriminating among memories involving the same actor-similar to the problems among adults' SM (Johnson et al., 1988a)-or participation of the self in both overt and covert acts (e.g., say-think condition; Foley et al., 1983). In Markham's study, as no disparities in source discrimination were involved when either performing specific actions (Do condition) or

watching someone perform actions while imagining that person was performing other actions (Watch condition), the author reasoned that SM is more challenging when discrimination is required and the same actor is involved (either self or another person).

Expanding on Markham's explanation, Lindsay et al. (1991) used a series of experiments to demonstrate that SM is more difficult when discriminating between similar sources. Children encountered more difficulty when attempting to discriminate between words spoken by two speakers of the same gender than those spoken by different genders (Lindsay et al., 1991, Experiment 1). Furthermore, children struggled when attempting to decide from which of two televisions they had heard items similar in content, although the degree of difficulty was lessened when the content was unique to each story (Lindsay et al., 1991, Experiment 2). Finally, modifying Foley and colleagues' (Foley et al., 1983; Foley & Johnson, 1985) studies on overt and covert expression of words and actions, Lindsay et al. (1991, Experiment 3) demonstrated that children (7 to 10 years old) and adults appeared more confused when the same actor was the subject of the actual and imagined actions.

The effects of similarity extend beyond perceptual and semantic similarities to affect SM. Foley, Harris, and Hermann (1994) asked children (aged 3 and 8 years) to perform everyday actions (e.g., talking on the phone)

using a toy/ substitute (e.g., a miniature slide viewer for a toy camera or a wooden block for a toy shovel). When asked to indicate how they had performed each action (i.e., with a toy or substitute), the children correctly identified those actions performed with actual toys, although younger children more often claimed that they had used a toy when they had in fact used a substitute. The number of source misattributions was identical for both object and gestural substitutes. Therefore, the authors concluded that the 3-year-olds' confusion stemmed from the functional similarity of the actions rather than any perceptual similarity between the toys and substitutes. These results imply that the basis of similarity effects in SM for actions may lie in the activation of motoric representations (Day, Howie, & Markham, 1998).

Based on the research discussed thus far, perceptually or functionally similar sources appear to be more difficult to discriminate while similarity impacts encoding in at least two ways: 1) items' similar properties may be established in memory representations and 2) items may derive similar motor or cognitive operations that are also represented in memory. Discriminating between similar memory representations is undoubtedly more difficult, yet researchers have failed to determine whether similarity elucidates developmental differences in SM for thoughts and actions or verbalizations performed by the self.

Meanwhile, sources' complexity can also

impinge on source attribution accuracy, suggesting that the complexity of the stimuli to be discriminated affects SM misleading. Rather, the act of processing those stimuli during encoding affects SM accuracy. Particularly, any stimuli inducing cognitive operations subsequently encoded and used in source decision processes are more likely to be accurately ascribed to a source than those not evoking distinctive cognitive operations information. Given this understanding of complexity, a simple prediction emerges: Memories of stimuli requiring effortful processing will be more straightforwardly distinguishable from automatically encoded stimuli. Complex stimuli undoubtedly demand more processing than simple stimuli, suggesting that complex stimuli will be misattributed to other sources less often than simple stimuli. Foley et al. (1991) came to this exact conclusion in their previously discussed study involving a set of words and pictures-half simple items, half complex items.

Hence, events' or items' properties affect SM judgment accuracy. In particular, sources similar in content or function are more difficult to distinguish than those with unique properties as the latter have a better chance of producing memories incorporating characteristics distinctive enough to permit successful discrimination. The processing functions performed during encoding also affect SM as the effortful processing induced by complex sources results in effective source-specific information.

Characteristics of Process of the Source Judgment

As with most other cognitive tasks, SM is improved as allotted response time increases (Johnson Kounios, & Reeder, 1994) as well as with full (versus separated) attention at test (Jacoby, 1991). SM biases suggest that recollections are attributed to sources via decision-making processes. In one study, participants were tasked with differentiating between memories of their own actions and memories of a confederate's actions; they more often misidentified distracters (i.e., new items) as the confederate's actions, once again indicating the "it-had-to-be-you" effect (Johnson, Raye, Foley, & Foley, 1981). In addition, the pre-experiment familiarity with the distracter, combined with its compatibility with the actions included in the study, at time led participants to misjudge it as being from the acquisition phase. Participants' lack of approachable memory information (as the action had not really occurred) resulted in them identifying the distracter as something they had observed another person doing rather than doing it themselves. Likewise, in distinguishing between memories of imagined versus actual events, participants tended to designate falsely recognized distracter items as imagined rather than actual (Hoffman, 1997; Bink, Marsh, & Hicks 1999).

Hoffman (1997) created a situation in which participants developed stronger recognition

memory of imagined items than perceived items; when participants encountered a non-studied item, they tended to categorize it as perceived. Hoffman subsequently conducted a second experiment in which the situation was reversed; consequently, memory was stronger for perceived rather than imagined items and participants ascribed non-studied items to imagination rather than perception. Bink, Marsh, and Hicks(1999) supported assertions that such tendencies are not automatically based on strength per se; rather, the bias leans toward to sources with characteristics corresponding to those of false memories.

Since SM can be either automatic or deliberate-and both processes may be used in conjunction-distracting attention away from deliberate SM should boost errors in source discrimination, as demonstrated by Ackerman (1992, 1994). According to this series of studies linking source errors, inferential reasoning, and story recall, when conditions encouraged gist abstraction, source errors increased. For example, children listened to stories that required them to make an assumption in order to identify inconsistencies. The results indicated that they made more source errors by ascribing information to the story even when they actually inferred the information. The number of source errors diminished when children were directed to the inconsistencies, but subsequently increased after a delay.

Ackerman 's explanation relied on Fuzzy Trace

Theory. According to this theory, we ‘pull’ either a verbatim or gist memory to resolve from where a memory originated rather than use a decision process (or attribution) (as SM theory suggests). Accuracy is determined by the trace accessed. Verbatim memories (memories of the detailed event) retain ‘source information’ which characterizes ‘source’ as a verbatim detail and ascribes it in the memory separately from representations of gist. According to Ackerman, conducting gist reasoning to resolve the story’s inconsistencies interfered with children’s processing of the verbatim (source) details. Conceptualizing the source as verbatim information meant the children failed to retrieve such information, resulting in source error—an effect that increases when children have to deal with unclear utterances by integrating information from various sources (Ackerman, 1994). Moreover, Fuzzy Trace Theory argues that such memories deteriorate quickly and younger children are less likely to utilize them (Brainerd & Reyna, 1990) whereas gist memories are more resilient and last longer (Connolly & Price, 2006).

Fuzzy Trace Theory asserts that both gist and verbatim memories engage in parallel encoding (Brainerd & Reyna, 1990). We access either one or the other—depending upon the quality and ease of accessibility—thereby determining the accurateness of our memories. “Gist-consistent” information is especially difficult to decline if we are using exclusively gist memories to do so

(Thierry, Spence, & Memon., 2000).

According to Fuzzy Trace Theory, plausible or “gist-consistent” information makes it particularly difficult for younger children to answer questions, especially after a long delay or after repeated events (Brainerd & Reyna, 1990). Furthermore, younger children tend to rely more on gist memories, encountering greater difficulty with source-specific questions. However, SM theory argues that source attributions are directly related to executive function, resulting in both age and cognitive development being key factors. Ackerman (1994) determined that children’s SM is responsive to instructions that focus their attention on or shift it away from source information. As indicated the previously discussed experiments conducted by Lindsay and Johnson (1989) and Zaragoza and Lane (1994, Experiment 3), in which participants viewed a scene and read a narrative about the scene that contained misleading details, participants who answered SM questions less often consistently asserted that they observed a misleading detail in the video—a claim that participants who completed the yes/no test did not offer as frequently.

However, the SM test did not completely eliminate the misinformation effect. Participants’ suggestibility in these studies may have been the result of “aware uses of memory”(Lindsay, Gonzales, & Eso, 1995), such as demand characteristics (e.g., believing the experimenter want post-event details to be reported or

knowing that misleading details were included in the post-event information without realizing that they differed in the target event) rather than actual source confusions. Yet aware uses of memory cannot completely justify the misinformation effect. Zaragoza and Lane (1994, Experiment 5) found (via confidence ratings) that some participants actually believed they had observed the misleading detail in the scene (as opposed to response bias or demand characteristics). In addition, source confusions are still possible (e.g., Lindsay, 1990), even when participants are informed that everything in the narrative is fallacious and that they should not report any items from the narrative.

Developmentally, the existence of misinformation effect fluctuates. Preschoolers seem to be the most susceptible as children grow increasingly resistant to suggestion with age (Ceci & Bruck, 1993, 1995, 1998). Lindsay et al. (1995) employed Jacoby's (1991) method to determine what proportion of children's suggestibility stems from actual source confusions, identifying separate contributions of aware and unaware uses of memory (calculated by comparing the number of errors made in response to a standard yes/no recognition test to those made after receiving opposition instructions).

Preschoolers make more aware than unaware errors after a delay (21 percent aware, 14 percent unaware), whereas older children (third graders) demonstrated the reverse pattern (11

percent aware, 20 percent unaware). In other words, younger children evidently appear susceptible to social pressures during misinformation experiments, although actual source errors remain possible even when considering opposition instructions.

Newcombe and Siegal (1996) also used the misinformation paradigm to examine whether children's reports were more accurate when the target event source is explicit. Three- to five-year-old children heard a story about Loren eating her breakfast and subsequently listened to a narrative incorporating misleading details about Loren's breakfast foods and why she was sick (taken from Ceci, Ross, & Toglia, 1987). The authors compared participants' responses to the question "Do you remember how Loren was sick when you heard the story the first time?" Children responding to the source-explicit question provided an accurate answer (i.e., the detail from the story rather than the post-event narrative) more often than those in the control group. However, the authors did not clarify whether the specific reference to time or a more general effect of making the source explicit resulted in the more accurate reports-although children are evidently skilled to monitor unknown sources via a variety of memory questions.

Parker (1995) sought to distinguish between performed and imagined actions, revealing that children interviewed both immediately after an event and two weeks later accurately identified

more action sources than children interviewed only at the two-week delay. Parker thus suggested that it may be possible to prevent children from losing SM capabilities. Poole and Lindsay (1995) attempted to enhance children's SM by emphasizing various sources, although preschoolers remained confused. In their study, the children interacted with "Mr. Science" to conduct several simple science experiments. Three months later, the children's parents read them a story three times about science experiments that the children had never actually performed with Mr. Science. In subsequent interviews, the two different sources (event and story) were emphasized to the children, and they practiced determining which details came from which event. However, preschoolers still erroneously responded to questions about information sources encountered only once (event or story).

Individuals can develop source attributions based on the degree of accuracy (e.g., Dodson Holland, & Shimamura, 1998). For example, in attempting to remember who made a specific comment, although the individual might not be able to remember specifically who stated it, he or she might remember that a woman (rather than a man) was the speaker. Moreover, the memory might include the information that the female speaker was in one of the individual's courses the previous week. Creating specific source attribution relies, in part, on such accessible memory information; the information that can be remembered about a previous event

is often sufficient for only a relatively primitive level of SM. Furthermore, source attribution specificity is subject to the current goals (which can change) of the individual doing the remembering.

Most SM attributions are made promptly and without conscious reflection (as is the case with most recognitions in ongoing perception). For example, in sharing an anecdote, one may unfold the story, intertwining recollections of the to-be-related episode with memories of other experiences or stories told by others, filling in weak areas within the narrative with inferences and unconsciously sensationalizing the plot or moral of the story. The objective here is to be entertaining rather than monitor the origins of the material. However, rapid and heuristic SM processes may be unsuccessful in demonstrating a source attribution at the appropriate grain size; consequently, the individual doing the remembering has a non-objective experience of being unable to identify the memory's source. In such cases, the individual may embrace more intentionally controlled reflective strategies, such as deliberately cuing memory in various ways to retrieve additional source-specific details or recapturing memories associated with the memory in question (e.g., what happened before or after the event) or memories of other events concerning the same agent or context.

Accessing memories of associated events to guide SM judgments has received little attention in the current literature, although Johnson,

Foley, Suengas, & Raye (1988) found that participants report more memories of preceding and succeeding events for memories of actual events than for imagined events. Thus, memories of associated events would seem to play significant roles in resolving SM failures.

Another deliberative SM strategy involves reasoning (e.g., inferring when an event occurred based on lead effects). This strategy may emerge from the insufficient retrieval of memorial information due, for example, to deficient attention during the event itself or poor cuing (e.g., only partially mapping onto the to-be-remembered past event and/or also mapping on to various other past events—namely, cue overload). Thus, various manipulations that can degrade the encoding or retrieval of an event's source-specific features may ultimately lower SM performance. According to Lane (2006), participants who experienced or retrieved misleading suggestions when their attention was divided were more apt to build false-memory reports at a later time that were consistent with such suggestions.

Characteristics of Individual Differences

As with most other cognition types, variability exists among people's SM skills—even in identical situations. Research has sought to identify predictors of such variation, focusing in particular on imagery ability. Automatic and uncomplicated

imagery increases source confusion between actually perceived and imagined stimuli (Foley et al., 1991; Markham & Hynes, 1993). Foley et al.'s (1991) study detailed earlier in this discussion determined that participants who estimated the function of an item were more confused about which items were presented as words and which as pictures than those who had been precisely instructed to imagine the item. Unprompted imagery is an automatic process that likely requires few effortful cognitive operations. Memories of the words took on the characteristics of memories related to perceiving a picture (i.e., entailing visual information), thereby making source discrimination more challenging.

Foley et al. (1991) discovered that both children and adults exhibited a similar propensity to spontaneously imagine the image in the function condition. Additional research has verified that age-invariant individual differences in vividness of imagery can significantly impact SM accuracy. Explicitly, forming vivid images implies the establishment of an unfavorable effect on a variety of SM types.

Given the individual differences in the ease with which images are formed, variation in the degree of confusion also exists. Markham and Hynes (1993) categorized adults as high or low imagers according to their Vividness of Imagery Questionnaire (Marks, 1973) scores, a questionnaire that measures the ease and vividness with which people form images. The

authors subsequently showed participants whole and half shapes, asking them to evaluate the pictures for complexity. Half of the participants in each of the high- and low-imagery groups were also asked to imagine the half shapes as whole before rating the complexity. On a follow-up SM test, the high imagers instructed to form images exhibited more confusion than those who were not told to imagine the image, albeit their scores remained good. According to Markham and Hynes, the high imagers' images of the half shapes were as perceptually detailed as the whole shapes, making source discrimination particularly difficult. Consistent with Foley et al.'s (1991) outcomes, low-imagery participants instructed to visualize images tended to be less confused than those who were not told to imagine images. Markham and Hynes argued that low-imagery participants presumably created images spontaneously, leading to memories incorporating few cognitive operations cues for distinguishing between memories of the whole and half shapes. Source confusions between perceived and not-perceived stimuli are principally challenging when involving similar memory characteristics as the lack of cognitive operations information hinders source accuracy. Limited discriminatory information may stem from task demands (e.g., evoking spontaneous imagery) or individual differences in the ease and richness of images formed. Finally, the tendency to employ imagery repeatedly may also affect the degree of source confusion between perceived

and non-perceived events; frequently imagining a fictitious item or event can create a rich memory that is as perceptually detailed as a memory of an actual event (Ceci, Huffman, Smith, & Loftus 1994).

Another factor receiving reasonably consistent attention within the literature is representational understanding. Researchers have determined that very young children may be unsuccessful in making accurate source judgments as they do not perceive a need to distinguish among memories from different sources of information. Taylor, Esbensen, and Bennett (1994) used a series of experiments to teach preschoolers specific facts that they previously had not known (e.g., the color of tigers' stripes is black). When asked to indicate the source of the information, children under five and some five-year-olds reported that they had always known the information. Once the learning 'event' was made prominent (by explicitly telling the children that they were going to be taught something new), they were able to identify when they learned the facts.

Thus, the authors concluded that the children did not comprehend that access to a source of knowledge is a required condition of knowledge. This conclusion does not imply that young children (under five) cannot access SM at all; indeed, they can accurately distinguish among certain types of action memories as well as older children (e.g., Roberts & Blades, 1995). Rather, it is more accurate to say that knowledge

attributions may be undermined as young children have yet to appreciate the value of the association between knowledge and its source.

Moreover, acknowledging knowledge-source connections is not the only step involved; young children must also appreciate the need to assess the reliability of the sources. Some researchers argue that young children assume information gleaned through direct experience is more reliable than information from adults (e.g., Perner, 1991). However, in certain circumstances, children appropriately assess distinctions in such information (Robinson, 1994). Robinson (2000) further argued that the ability to employ knowledge sources appropriately is especially powerful when sources contradict one another.

Such research is important given children's eyewitness reports as interviewers may provide information to children that is incompatible with the children's memories about the event. How children deal with such incompatible representations-and the consequences for SM-can considerably impact the accuracy of their event reports.

According to Welch-Ross, Diecidue, and Miller (1997), if a child can hold more than one representation of a situation his or her in mind, the child is less likely to be susceptible to suggestion as he/she can simultaneously represent both the original information and the misleading information. These researchers correlated preschoolers' conflicting mental representation (CMR) score-a composite of several theories

related to mind tasks (e.g., appearance/reality, pretend/real)-to their suggestibility score-derived from the children's answers to misleading questions about a previously read story (e.g., the story indicated that Sally drank her orange juice, whereas the interviewer asked "Didn't Sally drink apple juice?"). After controlling for age, the researchers determined that children who performed better on the CMR tasks (indicating they had progressed to the dual-representation theory of mind and could thus store both accurate and misleading information in their memory for comparison) were also more resistant to suggestion. The authors suggested that those who performed more poorly might be more susceptible to suggestion as they failed to represent both the original story and the misleading information; being unable to hold the two sources of information in their memory, they would be unable to correctly monitor the source of those memories. Hence, variability among imagery propensity and representational understanding might impact children's SM ability.

Conclusion

The impact of Source Monitoring skill on children's lives is currently appreciated in regards to other aspects of children's cognition (e.g., event memory). However, the role of SM skills in supporting social behavior is not as well

understood.

This review has sought to incorporate and provide a profitable synthesis of critical factors known to influence children's SM by examining the extensive literature related to how children's SM ability influences event memory. The work discussed in this paper has identified many challenges for further research, including tracking the exact mechanisms involved in children's source confusions. Are children aware of the need to monitor the sources of their memories? Do they encode information in such a way that it can be effectively used in source reasoning? Can they be trained in the meta-cognitive awareness of when they need to distinguish between different memories? Can they alter the weight of the criteria used in source judgments?

All in all, SM plays an essential role in various aspects of children's lives, which leads this discussion to investigate primary factors impacting children's SM, distinguishing not only the characteristics of the sources, but also children's relationship to these sources and how it affects subsequent SM. The cognitive operations in which children engage when exposed to sources also affect subsequent source judgment. In certain circumstances, cognitive operations can be used as cues for the source. Moreover, individual differences (e.g., imagery ability/representational understanding) affect how processing is conducted at encoding and during remembering, thereby impacting SM. The nature of the task during remembering can further

influence source judgment. Thus, such factors must be considered before interpreting results and drawing discerning conclusions in regards to children's SM abilities.

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아동의 출처감찰 수행에 대한 고찰 II: 출처 특성, 출처 판단, 개인차 변인을 중심으로

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출처감찰(Source Monitoring)은 특정 사건이 언제, 어디서, 어떻게 일어났는지를 기억하는 과정에 영향을 미치는 인지적 활동을 일컫는다. 출처감찰 수행과 관련된 선행 연구들에 의하면, 아동은 성인과 달리 실제 목격한 혹은 경험한 사건에 관한 정보와 단순한 상상이나 환상에 의한 정보 혹은 소문을 통해 획득한 정보들을 명확히 구별하지 못하는 것으로 보인다. 이와 같은 출처감찰 수행의 오류는 수사면담 맥락에서 아동 회상 보고의 정확성 즉, 아동 진술의 신빙성에 중요한 영향을 미칠 수 있다. 따라서 본 논문은 아동의 법정 증언 능력과 관련된 실증 연구들을 중심으로 아동의 출처감찰 수행에 미치는 주요 요인들에 대한 고찰을 시도해 보고자 하였다. 아동의 출처감찰에 영향을 미치는 다양한 요인들 중에서도 특히 출처의 상이한 특성들, 출처 판단 과정의 특성, 그리고 출처감찰을 수행하는 개인차 특성들을 중심으로 살펴보고자 하였다. 아동 성범죄, 아동 학대 등 치명적인 범죄 사건들에 연루된 아동들의 진술 요구가 점차 증가하는 현 시점에서 본 논문이 제시하는 학문적 지식들은 아동 진술에 대한 정확한 이해 및 해석에 유용한 자료로 응용될 수 있을 것이다.

주요어 : 출처감찰, 출처특성, 출처판단, 퍼지흔적이론, 개인차