MEMORY AND AFFECT IN DEVELOPMENT

The Minnesota Symposia on Child Psychology

Volume 26

Edited by

CHARLES A. NELSON

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University of Minnesota

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Preface

This volume represents the papers presented at the 26th Minnesota Symposium on Child Psychology, held 24–26 October 1991, at the University of Minnesota, Minneapolis. As has been true since the inception of the Minnesota Symposia series, the faculty of the Institute of Child Development invited an internationally renowned group of investigators to present their work and to consider problems of mutual concern.

Of the many changes that have occurred in recent years in developmental psychology, two have been particularly prominent. One has been how diverse this field has become, thus resulting in the need for cross fertilization among disciplines. A second has been a trend for greater communication between those conducting basic research and those conducting clinical research, or indeed, engaged in the practice of psychology itself.

There are a number of examples of both of these trends, some of which will be illustrated in subsequent volumes. However, one that is particularly noteworthy concerns the relation between memory and emotion. Those who study emotion and emotional development know how substantial a role memory can be in their studies; one need only consider Freud's contribution as but one example (for some discussion of this, see Bretherton's chapter in this volume). On the other hand, although many who study memory and memory development need pay little attention to the role of emotion, there are certain subfields of memory research where emotion plays a prominent role. One example concerns memory of affectively relevant material (e.g., witness to a crime); a second concerns memory of emotionally charged situations (e.g., trauma, abuse).

When this symposium was first conceived, my idea was to bring together individuals who studied memory, individuals who studied emotion, and finally,

individuals who studied the relation between memory and emotion. A second aim was to bring together both basic and applied researchers. By all accounts the symposium was a success, and I am confident that this is reflected in the resulting volume.

The opening chapter by Katherine Nelson (*Events, Narratives, Memory: What Develops?*) provides an incisive review of an extended research program on memory development by one of the foremost researchers in this field. In many respects this chapter anchors the book, as it provides a detailed exposition of early memory, and in so doing sets the stage for the succeeding chapters. Nelson's work is critiqued and amplified by Patricia Bauer (*Identifying Subsystems of Autobiographical Memory: Commentary on Nelson*), who served as discussant of Nelson's paper at the symposium.

Following Nelson's exposition of early memory, Robyn Fivush (*Emotional Content of Parent-Child Conversations about the Past*) offers a splendid example of how memory and affect are interrelated. Drawing on research of her own and of others, Fivush interweaves the threads of work on memory and emotion to present a view of how memory and emotion mutually influence one another. She does so, in part, by adopting a method pioneered by Nelson: the in-depth study of a small sample of children and their parents. The result is as clear a mien on this subject as any that exist. A critique of this work, and of Nelson's, is then provided by Louise Hertsgaard and Alexandra Matthews (*The Ontogeny of Memory Revisited: Commentary on Nelson and Fivush*), who argue that recent research in cognitive neuroscience may help shed additional light on memory/affect relations.

Peggy Miller, Lisa Hoogstra, Judith Mintz, Heidi Fung, and Kimberly Williams (*Troubles in the Garden and How They Get Resolved: A Young Child's Transformation of his Favorite Story*) amplifies some of the points raised by Fivush, and focuses their paper on one child's memory and reconstruction of his favorite story: Peter Rabbit. Drawing on his (fascinating) retellings of this story, Miller et al. are able to offer some compelling insights into the child's affective life. This is expanded upon in Ganie DeHart's incisive critique of this work (*Placing Affect and Narrative in Developmental and Cultural Context: Comments on Miller et al.*).

In many respects the chapters by Nelson, Fivush, and Miller et al. lay the ground work for the final chapters and commentaries of this volume, all of which are concerned with applying research on memory and emotion to real-life situations. In Graham Davies's chapter, for example (*Children's Memory for Other People: An Integrative Review*), research on children as eyewitnesses is discussed. In this comprehensive review, Davies discusses children's eyewitness memory based on both laboratory and field research. In somewhat startling fashion, Davies notes that these seemingly related areas are often at odds with one another. As Davies discusses, this can often make more difficult (viz. expert witnesses) the task of prosecuting those who perpetrate crimes against children.

This theme is amplified by Steven Penrod (*The Child Witness, the Courts, and Psychological Research*), who comments on this issue from the perspective of both researcher and practioner (in this case, lawyer).

The final chapter in the volume represents yet another application of work on memory and affect. Here Margaret Steward (*Understanding Children's Memories of Medical Procedures: "He Didn't Touch Me and it Didn't Hurt!"*) discusses her own work and the work of others on children's understanding of medical procedures. Drawing on both basic and applied research on memory and on emotional development, Steward tackles the challenging problem of how children remember and understand the procedures that are performed on them in the hospital (some of which are highly invasive). If the clinical relevance of this research is not readily apparent, it is made all the more so by the commentary that follows, by Susan Phipps-Yonas (*A Case Example of Clinically Relevant Research: Commentary on Steward*).

In integrative symposia such as this, the challenge of tying loose ends together can be formidable. In the current case, this challenge does not go unmet. Here Inge Bretherton (*From Dialogue to Internal Working Models: The Co-Construction of Self in Relationships*), a pioneer in the study of memory/affect relations, brings together bits of her own research to expand on many of the themes discussed in the preceding chapters.

Collectively, the chapters comprising this volume represent an attempt at integrating across historically separate domains of study. It was my goal as editor to bring the excitement that was generated about the relation between memory and affect during the actual symposium to the published version.

The Minnesota Symposia on Child Psychology has a long and cherished history here at the Institute of Child Development. Many people are responsible for assisting me in making the symposium itself, and the resulting volume, a success. First and foremost, of course, I owe my thanks to the presenters and contributors. Not only did they rise to the challenge of preparing lengthy talks and lengthy chapters, they did so with great aplomb and nary a missed deadline. Second, the graduate students at the Institute of Child Development deserve thanks for attending to the many administrative details of the symposium. Third, to Helen Dickison and my secretary, LuJean Huffman-Nordberg, I owe my eternal gratitude. Without these individuals letters of invitation would not have been sent and speakers would not have been picked up at the airport. Fourth, I'd like to thank Jackie Goodnow for being a sounding board for the theme of this symposium. When I first conceived of this topic, it was very much a loose constellation of ideas, with no central core. Jackie, who was then in residence as a visiting faculty member, and I met on several occasions, where she did a splendid job of helping me articulate what it was I wanted to accomplish in the symposium. Finally, I would like to acknowledge the financial support for the Symposium from the Institute of Child Development (Richard Weinberg, Director) and the Center for Research in Learning, Perception, and Cognition (Albert

Yonas, Director), both of the University of Minnesota; the National Institutes of Child Health and Human Development (R13 HD21906; Megan Gunnar, Principal Investigator); and the General Mills Foundation.

Charles A. Nelson

Contents

1 Events, Narratives, Memory: What Develops?

Katherine Nelson
City University of New York Graduate Center

Students of memory have been faced with the persistent problem of what it is that they are studying, and whether it comes in different types or whether there is a single structure, process, or function called Memory. Developmentalists face this problem particularly when they try to determine when and if some memory capacity or function emerges in childhood. In recent years developmental researchers have focused attention on generic event memory or scripts, episodic memory for specific episodes of events, and autobiographical memory as a particular type of episodic memory that constitutes one's life story. In contrast to these types of event memory is semantic memory, as first identified by Tulving (1972), which is organized as a decontexted knowledge system. In this paper I trace the evolution of thinking about these types of memory, based on early work with my group of colleagues and students at Yale and CUNY, and then bring this thinking up-to-date, based on a broad range of studies from other labs as well as our own.

Tulving's (1972) distinction between semantic and episodic memory was influential in my initial approach to problems in memory development in early childhood, beginning in the mid-1970s. However, because memories for real-life experiences, especially those from the infancy and very early childhood period, do not seem well-characterized as *semantic* (because they might not have any verbal component), I preferred the term *generic* as a contrast to *episodic*. Yet as has become evident, there is more than one type of generic memory.

The developmental problem posed by this distinction at first appeared to me to be frameable simply in terms of the origins of episodic and generic (semantic) memory—might one precede the other in development? (See Nelson & Brown, 1979.) When we first began pursuit of this question, there was next to no

research on memory in children younger than school-age. One of the reasons for this neglect seemed to be the kind of memory that developmental researchers were concerned with, primarily verbal memory tested with lists of words or pictures. Preschool children were shown to perform poorly on these kinds of laboratory-based tasks. As Donaldson (1978) demonstrated for many types of tasks, preschool children may perform in ways that better reflect their cognitive abilities when presented with situations that make "human sense" to them, that is, that resemble situations that they experience in their everyday lives. Following this line of work memory researchers began to ask, not whether children could remember the things we had devised for them to remember—usually words, pictures, or objects—but what they could remember about the things they did everyday.

Thus the situation with respect to pre-school memory has changed dramatically over the past 20 years as an emerging perspective on ecologically valid and ethnographically situated memory research took memory out of the laboratory and into homes and day care centers to focus on the activities that children are involved in in their everyday lives and the kinds of information that they must remember if they are to carry through those activities successfully. This has been our focus at CUNY from the beginning. We have studied children's memory for experienced events, involving people, places, and actions. We have viewed memory for words and objects not as decontexted items but in terms of how they fit into the child's schemas for knowing about events. (See Perlmutter, 1980 for a collection of papers on this early work.)

Our first studies primarily concerned children's general event memory, or scripts for familiar events (Nelson & Gruendel, 1981). We found that children as young as 3 years had quite good and reliable representations of familiar, routine events, and could present a verbal account of them. We characterized this knowledge as generic, because it was almost always formulated in very general terms. Because the same children seemed not to have very good representations of *specific* episodes in their lives (Hudson & Nelson, 1986), we tentatively concluded that generic memory preceded episodic in development. This seemed to be a somewhat radical conclusion in that it implied that children's memory was abstract before it was specific, the opposite to traditional assumptions about development.

The script model that Schank and Abelson (1977) developed to describe narrative understanding and plans in terms of action sequences organized around a goal seemed to fit these early data from young children quite well. Our studies showed that preschool children have good generic script-type knowledge enabling them to represent familiar events in canonical causal-temporal sequences of actions, organized in terms of central events or goals, embedding sets of objects that fill action-object slots, and roles that people play within the event script. This generic knowledge, in the form of general event representations or scripts, was further shown to play a role in children's understanding and use of complex

language, interpretation of and memory for stories and dramatic play, production of fantasy stories, and even the organization of object categories (French & Nelson, 1985; Lucariello & Nelson, 1985; Nelson, 1986; Nelson & Gruendel, 1979).

We therefore proposed that children first constructed scripts for familiar events, and that only after having established a sufficient body of script knowledge, would they be able to use that knowledge as a background from which to remember or reconstruct memory for a specific *novel* event. This conclusion seemed to fit well with the apparent difficulty that young children had in remembering episodes without a great deal of cuing from adults (Nelson, Fivush, Hudson, & Lucariello, 1983; Nelson & Ross, 1980). It also suggested an explanation for the phenomenon of infantile amnesia, the inability to remember events from the early years of one's life (Nelson, 1990; in press).

As I have commented elsewhere (Nelson, in press), it is quite remarkable that developmental psychologists—even those studying memory in young children—have in general neglected the infantile amnesia phenomenon, despite its clear implication that some very dramatic development takes place in the early childhood years that either establishes a new memory system, or enables existing memories to persist, or represses those that do exist (Freud, 1963). (See Pillemer & White, 1989 for a review of these issues. See also Bachevalier, 1992 for an alternative, neurally based explanation of the phenomenon.) The explanation for this development that was suggested by our initial inquiry was that adults do not remember episodes from early childhood because young children do not have episodic memory, but only general script memory; everything that is remembered from an experience is entered into the general script system. Only after that system is well-established could specific episodes be seen as novel and memorable in their own right.

Note that script memory is highly functional. It enables a person to predict and plan for future encounters of a similar situation, as well as to guide action within a familiar event, and to interpret reports or stories told by other people about such an event. Indeed, from a functional perspective, scripts appear to have much greater value than episodic memories for one-time happenings (Nelson, 1989b; in press). Thus it seems that evolution might have developed script-type generic memory as the basic form of human (as well as of other mammalian) memory. This possibility raised the questions: Why should children (or adults) ever have episodic memories? When might episodic memories become part of a long-lasting autobiographical memory system?

Contrary to our earlier conclusion, however, subsequent investigations at CUNY (e.g., Hudson, 1986; Hudson & Nelson, 1986; Nelson, 1989a; Nelson & Hudson, 1988)—and a great deal of research that Robyn Fivush, Judith Hudson, and other researchers have carried out since—established that very young children—as young as 1 year of age—*do* have, not only general event representations, but also specific memories for particular episodes in their lives. Our initial

supposition that generic memory was first established to the exclusion of specific memories appeared to be wrong. These conclusions are based on a variety of studies, including parental reports, experimenter interviews about specific naturally occurring experiences, taperecording children talking alone (see description that follows), and questioning children about staged experimental episodes.

There remains something elusive about these findings, however. Children often require extensive cuing to elicit any information about events that they have experienced. Asking children to report on events they have experienced is not always fruitful; it often seems that the adult's memory is not matched by the child's, although children may report elements that adults have not noticed or have forgotten. Perhaps the absence of adult memories for early childhood experiences is the result of differential interests or attention. Moreover, young children's memories do not usually seem to endure for longer than about 6 months, unlike the memories of older children and adults, which in some cases last for decades. (Fivush & Hamond, 1990 have found evidence of memories in 4 year olds from as long as 2 years in the past, but this time span may be exceptional. Further verification to determine the conditions under which long-lasting memories in the early childhood years may be established is clearly needed.)

The questions raised earlier remain unanswered, however. The establishment of clear evidence that children have some episodic memories suggests further questions that might provide the central clue: *What* episodes do children remember and *why?*

In what follows I seek answers to these questions through evidence of very early episodic memory accounts and generic memory in one child's talk to herself, inquiring as to what enters into that talk and why. I then consider evidence of the influence of adult talk on the development of episodic or autobiographical memory with respect to the past, the present activity, and the future, and consider how each of these types of talk may affect memory for an event. I then consider the psychological and social sources of episodic and autobiographical memory together and suggest issues that may be resolved in future research. Finally, I consider how what Tulving referred to as Semantic Memory may have its roots as well in parent-child talk.

CHILD TALK ABOUT THE PAST: MONOLOGUE AND DIALOGUE

In pursuit of the answer to the "what" question, in 1981 I enlisted the help of a very cooperative mother and father of a 21-month-old highly verbal little girl, Emily. They agreed to record her talk to herself at bedtime and naptime for the purpose of investigating the nature and form of early episodic memories. I hypothesized that talk to self, which many very young children engage in, might contain revealing references to aspects of memory for real life events from the

child's own perspective that would not be apparent when prompted by adults, even by parents. The resulting transcripts of her talk yielded a rich collection of her memories, both specific and general. These have been subsequently reported in previous publications (Nelson, 1988, 1989a, 1989b), which provide details about the research methods.

The first transcripts that emerged from this study indicated that Emily at 21 months was recalling (alone in her crib) fragments of remembered experiences, such as going to the library with her grandmother. (Such memories were verified by her mother who reviewed the tapes prior to their transcription.) By 24 months a surprising development was observed. The transcripts still contained fragments, but also some recounts that were quite coherently organized as what appeared to be "proto-narratives," that is, they had the form of a sequence of actions connected temporally and causally within a bounded temporal space. An example of this type from 23 months is the following:

> When my slep and, and, Mormor came. Then Mommy coming, then get up, time to go ho-o-ome. Time to go home. Drink P-water [Perrrier]. Yesterday did that. Now Emmy sleeping in regular bed. (1)

This account of mommy getting her at her baby sitter's is certainly not very elaborate or unusual, and it scarcely would count as a full-fledged narrative or story, yet it does have a coherent temporally organized action line, complete with different actors and locations.

Accounts of autobiographical memory in children as well as adults often invoke the idea of memory as narrative. Finding evidence for aspects of narrativity in very early episodic memories is at least suggestive that an important role in establishing episodic memory may be played by the narrative form itself. In order to evaluate this proposal we must be clear as to what counts as a narrative, and what does not. At the most basic level, narratives consist of the report of a sequence of actions by actors that are connected in some way, usually because they are organized to achieve a goal or solve a problem. There is a point to the narrative, a reason for the telling (Labov, 1972; Peterson & McCabe, 1983). Skilled narrators, of course, organize their stories around the point; thus they may not simply lay out in sequence the actions as they happened, but provide causal statements, evaluative comments, and re-arrange the events to provide suspense.

Bruner and Lucariello (1989) based their analysis of Emily's monologues on Burke's (1945) proposals about the "grammar of motives." In particular, they proposed that any narrative is based on implicit assumptions about the way things usually happen—the canonical who, where, why, what, and how of an event. The canonical form is equivalent to the script or general event representation that Gruendel and I studied, and that Schank and Abelson (1977) based their script and story analysis on. Whereas a script may form the basis for a simple narrative,

for example, a recount of what happened at school, a good story, as Bruner and Lucariello (1989) pointed out, is formulated around "trouble" in the canonical form of the expected event: "Actions do not reach goals, scenes and agents do not match, instruments and goals are out of kilter, and so on. The narrative is a vehicle for characterizing, exploring, preventing, brooding about, redressing, or recounting the consequences of 'trouble.' " (pp. 76–77).

Bruner and Lucariello's idea of stories emerging from canonical event schemas is consistent with Gruendel's (1980) analysis of children's stories formulated around familiar events. She found that, when asked to tell a story, 4-year-olds produced simple scripts, while older children first transformed the script with a simple deformation of canonical form (e.g., having a garden produce lollipops rather than flowers), and only later (beginning at 8 years) produced a full problem-solving story line.

We would not expect then, that Emily's memory recounts at 2 to 3 years would be full story-like narratives. But as the months went by Emily's protonarratives became more elaborate, incorporating linguistic devices identified on *a priori* grounds as characteristic of mature narratives, marking sequence, canonicality, and perspective (Bruner & Lucariello, 1989). For example, a production at 32 months is the following:

> We *bought* a baby, cause, the well because, when she, well, we *thought* it was for (2) Christmas, but *when* we went to the s-s-store we didn't have our jacket on, but I saw some dolly, and I *yelled* at my mother and said I want one of those dolly. So after we were finished with the store, we went over to the dolly and she *bought* me one. So I have one.

Linguistic devices such as those marking intentionality ("we thought," "I want"), temporality ("when," "after"), and causality ("so") take the canonical form of an event and transform it into a story with a point, providing a "landscape of consciousness" as well as a "landscape of action" (Bruner, 1986). Productions such as (2) certainly suggest that acquisition of the narrative form itself may have influenced Emily's organization of episodic memories. But how did she acquire the narrative form?

> Did the narrative format effectively organize her memories (perhaps thereby transforming them into autobiographical memories), or alternatively, did the memory recounts simply provide the content for practicing the narrative format? Where does the narrative format come from?

Before considering possible answers to these questions, we should note at least one other type of event report in Emily's monologues, the general script. An early example of a general script is the following:

> I can't go down the basement with jamas on. I sleep with jamas. Okay sleep with (3) jamas. In the night time my only put big girl pants on. But in the morning we put

jamas on. But, and the morning gets up . . . of the room. But, afternoon my wake up and play. Play with Mommy, Daddy . . . (24 mo.)

Although this account is somewhat inaccurate, it reflects Emily's concern with how things go. Later in the third year her "scripts" became highly extended, one concerned with the day's routine contained over 50 separate propositions reporting events in their canonical order, with several repetitions of the same event sequence. It is notable that these were formulated in terms of what will happen tomorrow, that is, the script served as the basis for anticipation of familiar event sequences. Later we see that this relation has its basis in parental talk.

These two types of event recounts found in Emily's monologues—general script and specific past episode—may be seen to have different relations to memory—specifically to autobiographical memory—and to the narrative process by which they are produced. As previously noted, script reports establish the canonical form of events but have no *point* beyond understanding (and therefore to some extent controlling) how the world is and what one can expect to happen.

Specific episodic recounts might concern a specific experience of a routine event (such as being picked up at her baby sitter's), but more often are based on a variation of a routine—for Emily, seeing a tow truck, getting a new TV, buying a doll. A relevant question is whether these variations or *episodic memories* recalled in her crib talk might establish them as *autobiographical memories,* in the sense that adults have autobiographical memories, or whether they represent only evanescent memories similar to an adult's memory for an unremarkable recent meal. There is in fact no evidence that these were more than evanescent memories. There was no case in the transcripts of a memory that was recounted at say 2 or $2\frac{1}{2}$ years being repeated or re-remembered at $2\frac{1}{2}$ or 3 years. The relation between episodic memories and autobiographical memory is addressed at greater length in a later section. Here I note only that autobiographical memory is not only long-lasting, but is presumably long-lasting for a reason. Thus the basic question is why some memories persist while others do not.

Relatedly, we might ask: why did Emily repeat these memories to herself? It is interesting that most of her accounts of specific episodes were not of episodes that she had talked about with her parents, at least according to mother's report, nor were they the sort of things that her parents would have specifically prepared her for with anticipatory talk. For example, the doll buying episode (2) was not anticipated because it was not planned. Indeed, as I have noted frequently, Emily's crib memories were of the ordinary, quotidian things of her life, not of the truly novel (from an adult point of view) such as the birth of her brother, her first day at nursery school, or her trips to visit grandparents by plane.

In fact, in the parent-child pre-bed talk available in this study there is little talk with parents about specific episodes from the past, although from what we know of other studies it is virtually certain that Emily experienced such talk. Still, the unremarkable topics of her memories, and her mother's disclaimer, indicate that Emily was not basing her crib memory talk on what her parents had rehearsed