

## The development of coherence in adolescents' life narratives

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### Abstract

Although the ability to tell a story of a personal experience is learned between two and six years and is refined during middle childhood, how to coherently narrate the story of one's life seems to be acquired only during adolescence. The life story integrates autobiographical memories with a biographical view of the self. In an initial cross-sectional study of how life narratives gain in global coherence across adolescence, a sample of 12-, 15-, and 18-year-olds produced life narratives that were analyzed for elements that contribute to global coherence and for ways in which the textual openings set the stage for one's life. Results indicate linear age-trends for the temporal extension of causally linked statements, for causal links between events and personal change, for past-present comparisons, for other biographical concepts, and for hedges relating to explanations. There were also age-differences in the degree to which family history served as a setting for the life narratives. *Narrative Inquiry*, 2001, 11, 35-54

The ability to view oneself and others in their biographical contexts by constructing life stories is said to emerge during adolescence (Cohler, 1982; McAdams, 1985). The ontogenetic emergence of the life story weds two up to then relatively independent mental faculties, remembering the past and understanding persons. This paper explores the emergence of the life story in adolescence, focussing on various linguistic elements that contribute to textual global coherence in life narratives of early, middle, and late adolescents.

We use *life story* as an umbrella term both for specific linguistic products (*life narratives*) and for the ability to think in autobiographical terms (*autobiographical reasoning*; Habermas & Bluck, 2000). Life narratives are more than a mere list of unrelated stories. They integrate various past episodes, circumstances, and selves with the present self. However, they do not show the strong narrative structure which narratives of single personal experiences have (Labov & Waletzky, 1967; Stein & Glenn, 1979). They contain three kinds of statements: Basic narrative clauses that answer the question "What happened next?", abbreviated chronicles of events, and off-the-time-line comments or arguments (Linde, 1993; Rosenthal, 1995).

The elements of a life narrative are integrated with each other and with the self. Among the most important types of global coherence in complex narrative text are temporal, thematic, and causal coherence. Causal coherence is deemed the most important type of coherence by many approaches to single stories (e.g., Trabasso, Secco, & van den Broek, 1984). Causal coherence includes both physical causality and human motivation, with the latter prevailing in single narratives (McCabe & Peterson, 1988). Bieri

(1986) observed that when coherence is lacking, the narrator does not convey that she or he is living a reasonable, meaningful life.

### *Developing coherent life narratives in adolescence*

A major difference between narratives of single personal experiences and life narratives is that the latter cover the whole life. The thread of life narratives is the person of the narrator across developmental and idiosyncratic transformations. Life narratives have to give a plausible account of how the narrator has become who she or he is at present and at the same time to convince the listener of the narrator's self-continuity (Bieri, 1986). They provide the most comprehensive account of who one is by explaining how one has become.

We know of no analyses of the coherence of life narratives. A study that suggests to offer the analysis of "life story coherence" actually presents analyses of the coherence of single episode narratives (Baerger & McAdams, 1999). Also data on the development of the ability to construct life narratives are scarce. When grade-school aged children are asked to write the story of their life, they provide sequences of episodes, or generalized or extended events, which are ordered temporally but are not otherwise interrelated (Juen, 1997; cf. Linde, 1993). When a seven-year-old boy was asked for his life story, he only responded when the question was reframed in terms of important memories. He then recounted several memories without relating them to each other. Two 12- and 13-year-olds, in contrast, responded willingly by providing sequences of biographical events such as birth and major life transitions (Rosenthal, 1995). In an informal study, many of the 5- to 8-year-olds who had been asked to dictate their autobiography

to a researcher did not mention any past events at all (Engel, 1999, p. 115f.). Measures relying on autobiographical accounts such as the Adult Attachment Interview (AAI; Main, Kaplan, & Cassidy, 1985), are employed only from mid-adolescence onward. Diverse observations suggest that the ability to recount one's life is absent in children, but the development of this ability by mid- to late adolescence remains unexplored.

There is extensive evidence on the development of the ability to narrate not entire lives, but single events. The narrative structure of anecdotal stories of personal experiences, as defined by Labov's high-point analysis (Labov & Waletzky, 1967) or by story grammar approaches (e.g., Stein & Glenn, 1979), is acquired during the grade school years. Children reach almost adult level performance by ages 9 to 11 (e.g., Peterson & McCabe, 1983; Trabasso, Secco & van den Broek, 1984; van den Broek, Lorch & Thurlow, 1996).

Some developmental researchers appear to equate the grade-school child's ability to master the structure of single narratives of personal experiences with the ability to construct a life story (e.g., Fivush, Haden & Adam, 1995). However, these studies only concern single stories that cover time-periods of hours or days (Bourg, Bauer & van den Broek, 1997), making it difficult to gauge the possible developments in the structuring of more complex narratives such as life narratives (van den Broek, 1997). An indication of the continuing development of narrative competence during adolescence is provided by a study that presented an only marginally more complex story, containing three distinct but related sub-episodes, each with its own goal. Adolescents (11 to 18 years), but not 8-year-olds, based their judgment of the importance of each sub-episode on the number of inter-episodic causal links (van den Broek, 1988).

#### *Social-cognitive development in adolescence*

Given the scarcity of evidence on the development of narrative competence in adolescence, we briefly turn to some studies that demonstrate that adolescents increasingly contextualize local events in a temporal or biographical context (for more details see Habermas & Bluck, 2000). Montangero (1996) has demonstrated a developmental shift between late childhood and early adolescence towards spontaneously referring to the past when trying to understand a given situation. Ten- to 11-year-olds, but not 8- to 9-year olds spontaneously refer to their personal past when asked whether their drawing skills have changed. When asked for the meaning of a cartoon showing an accident, adolescents increasingly refer spontaneously to causal antecedents of the situation, whereas 8- to 9-

year-olds only refer to the present situation (Montangero & Pons, 1995).

Feldman and colleagues tapped adolescents' understanding of a short story by repeatedly interrupting the oral presentation of the story and asking for explanations and predictions of the protagonist's actions (Feldman, Bruner, Kalmar & Renderer, 1993). Only mid- to late adolescents' interpretations of the protagonist's decisions made use of biographical information about his earlier life experiences by inferring how these may have shaped his present motivation. The developmental timing between the two sets of studies differs. The former studies concerned only the immediate past (cartoon study) or a biographical change in a specific ability (drawing study), whereas the biographical understanding of a character's present motivation is more complex, implying causal inferencing that relates past events to changes in personality and consciously selected goals. It is this latter, biographical understanding that is involved in constructing life stories. The emergence of biographical understanding in mid- to late adolescence is supported by research on the development of the person concept (Selman, 1980) and on the understanding of personal continuity (Chandler, Boyes, Ball, & Hala, 1987).

In addition, a growing understanding that the past is not simply there to be retrieved but requires interpretation contributes to the need to globally integrate the narration of one's life. This awareness of the inferential, interpretive nature of reconstructing the past evolves during mid- to late adolescence, as evidenced by the drastic increase in the use of hedges in oral narratives (Bamberg & Damrad-Frye, 1991), by studies on epistemological development (Kitchener, Lynch, Fischer & Wood, 1993), and by studies on the development of historical reasoning based on multiple evidence (Blanchard-Fields, 1986; Leadbeater & Kuhn, 1989).

We conducted a cross-sectional exploratory study by eliciting life narratives from adolescents of three different age-groups. These were analyzed in terms of elements that contribute to global coherence and in terms of how the narratives are contextualized by a setting that also contributes to global coherence.

#### *Method*

##### *Participants*

This sample of convenience consisted of four participants at each of the ages of 12, 15, and 18 years, comprising three, three, and one girl respectively. All participants came from a white, middle-class, and urban background. All attended the Gymnasium (qualifying for university) except for one 15- and one 18-year-old who attended Realschule (qualifying for professional training).

Participants were compensated with DM 20.-.

### *Procedure and Material*

Participants were interviewed at their homes by the second author. Written parental consent was obtained for those under age 18. The interviews were tape-recorded and transcribed. Two aspects of the procedure served to facilitate the narration of one's life and to maximize coherence (use of cards, detailed instructions). The resulting life narratives are expected to be more coherent both temporally and causally than life narratives that have not been pre-structured. Coming from a cognitive-developmental perspective, we aimed at optimal performance in order to test for narrative competence. This was done to counter possible arguments that might explain age-differences with differences in capacities that are extraneous to what is of interest here, such as differences in memory-span (cf. Shapiro & Hudson, 1997, for similar considerations regarding the measurement of narrative competence; see also Habermas & Bluck, 2000). We asked for exactly seven memories, because in pre-tests this number proved to be manageable by 12-year-olds and still not too restricted for 18-year-olds.

*Preparatory task facilitation.* Participants were asked "What kind of person are you? Please write down your five most important attributes on a card." They were then asked to "write the names of all the members of your family who were alive when you were born on one card. Write the names of your younger siblings in brackets." Finally they were asked to "think which have been the seven most important events in your life. They may have happened recently or many years ago. Please write on each of these seven cards one memory of an event that is important and significant to you. Please name only memories of specific events. If things come to your mind that are extended over time, such as a friendship or your time in kindergarten, please include a specific event from that time."

*Life narrative.* Participants ordered the memory cards chronologically and positioned the family card to the left and the self card to the right. Participants were asked to recount "how your life has evolved up to now. I am interested in how you have developed and what have been the important milestones in your life. I would like to know how you have become the person you are. Please tell me a coherent story of your life, and include the seven memories which you have written on the cards so that I can understand who you are and what your life has been like." Participants were told that there are no right or wrong answers, that they would not be interrupted, and that they had about fifteen minutes.

### *Scoring of Life Narratives*

Each statement (main or sub-clause) was defined as a unit. Agreement between two raters was 92.5% for three interviews, one from each age-group. Narratives ranged in length from 50 to 240 statements (median 140), except for one 18-year-old whose narratives included 655 statements. Since length of narratives increased with age, all frequency counts were divided by the total number of statements for each participant.

Coding aimed at identifying indicators of global coherence that tie the past to the present self. The coding manual was constructed on the basis of five prior interviews and a subset of three of the twelve interviews, one from each age-group. Three other interviews, again one from each age-group, were coded independently by both authors for calculating inter-rater reliability. The remaining nine interviews were coded by the second author. Inter-rater agreement as measured by Cohen's kappa was between .75 and .90 except for past-present comparisons and hedges (kappa > .50).

Six classes of codes were used. The first three codes are hierarchically ordered, the latter three are independent. The first three codes involve 1) identifying all causal links, 2) coding causally linked statements for temporal extension, and 3) identifying pairs of causally linked statements in which personality is linked to events. Additional elements that add to global coherence are 4) past-present comparisons and 5) four complex biographical elements, while 6) hedges concerning explanations signal the narrator's awareness of the interpretative distance from the past. Examples of the coding categories are provided in Table 1.

*Causal links.* Causal relations between statements were identified on the basis of a schema developed by Sanders, Spooren, and Noordman (1992, 1993). Since the proportion of conditional (if - then), instrumental (in order to), and contrastive (although) causal links was very low, these were collapsed with the far more frequent simple causal links (because). Just as the proportion of causal links in single narratives increases across adolescence (Labov, 1972, p. 393), also in our life narratives the proportion of causal links, relative to the number of statements, significantly increased with age (medians were 9%, 11%, and 16% for the 12-, 15-, and 18-year-olds respectively; see Table 2).

*Temporal extension of causally linked statements.* A mere count of causal links (e. g., Barclay, 1996), however, does not differentiate whether they contribute to local or to global coherence. Therefore we differentiate between causally linked statements that cover a short versus extended time period, thereby contributing to

global coherence in life narratives. All causally linked statements were coded for temporal extension.

Four categories were used. Two codes were used for states that last over a month, one regarding personal states or personality, the other regarding external states. A statement was coded as enduring personal states if it regarded trans-situational aspects of a person lasting more than a month. Statements regarded preferences and values, generalized attitudes and habits, abilities, ways of feeling and thinking, enduring emotional states, and psychological traits. The category also included biographical facts such as place of residence, cohabitants, relatives or friends, profession, important possessions, or enduring physical attributes. A statement was coded as long duration if an action or external state covered a time-period of more than a month. A statement was coded as brief duration if an action or state lasted no longer than a month. A statement was coded as recurrent event, comparable to Barsalou's (1988) generalized event, if a recurring action or event was named. Since the relative frequency of causal links was related to age, frequency of types of causally linked statements was divided by the total number of causally linked statements.

*Causal links between personality and events.* Since life narratives serve to describe what kind of person the narrator is by explaining how she or he has developed, causal links between statements about enduring aspects of a person and past events are central to global causal coherence (Linde, 1993). They also contribute inter-story continuity. Since the direction of the causal link does make a difference, we used two separate codes. One type is more static, explaining an action with personality (e.g., "I hit Bob because I am ill-tempered"). It relates a local event to an enduring trait that describes comparable events at other times. The other type is more temporally extensive and developmental, explaining change in personality with reference to events (e.g., "After age ten I became quite shy because the separation of my parents made me distrust others"). It relates the development of enduring aspects of the person to specific biographical experiences. The frequency of these two codes was divided by the total number of causal links.

*Past-present comparisons.* Three other classes of elements that may contribute to or correlate with global coherence in a life narrative were coded throughout the texts. Janet (1928) argued that knowledge of specific episodes was turned into actual memories of something in the past only through the process of présentification, that is by rendering a past event relevant for the present. Janet thinks that this is effected by integrating both past event and present into one life

narrative. A more direct way of presentifying the past is to compare it to the present. Such comparisons across wider time-ranges establish judgments of long term continuity or discontinuity (cf. Baumeister, Dori, & Hastings, 1998). Such comparisons were given one of three codes. Comparisons may state that something is still the same today, that something is at present different, or that ever since a specific time or event something has changed. These ever since-judgments create implicit causal coherence by relating an event to a subsequent change (e. g., "Ever since I met Sandra, I have become a more open person").

If the comparison concerned a judgment of the narrator, this was coded separately. This subclass of comparisons regards discontinuities in the interpretation of life events. If a change in judgment or opinion is related to an event with 'ever since', the narrator expresses that she or he has learned a lesson through a specific life experience (cf. McCabe, Capron, & Peterson, 1991; Pratt, Norris, Arnold, & Filyer, 1999). We suggest that belief in the possibility to learn from experience expresses an active, interpretative attitude towards life and motivates autobiographical reasoning, that is attempting to establish coherence in one's life.

*Complex biographical elements.* Four more specific arguments were coded that are likely to contribute to global coherence. References to the developmental status of a person (cf. McCabe, Capron, & Peterson, 1991) reflect and signal an awareness of developmental change that has taken place in the meantime (cf. Montangero, 1996). Explanations of an individual's way of experiencing by his or her autobiographical background (cf. Feldman et al., 1993) are essential devices for creating global causal coherence in a life narrative that attempts to explain a person's individuality. Illustrations exemplify a general statement through a specific episode (Schütze, 1984). In generalizations general rules or regularities in life are inferred from experience. Both illustrations and generalizations contribute to a global hierarchical organization of the life story in terms of linking specific events to general insights.

*Expressions of uncertainty.* Whenever uncertainty was expressed, for instance by hedges such as maybe or I don't know, the object of uncertainty was coded as explanation, evaluation or description, memory (cf. McCabe, Capron, & Peterson, 1991), or facts. Expressing uncertainty about the validity of statements reflects an awareness of the process of interpretation and construction involved in narrating a life (Bamberg & Damrad-Frye, 1991). This may be more true for uncertainty about the validity of explanations than

of factual statements. As such, hedges are not devices that create global coherence. Rather they express an interpretative stance that motivates the construction of coherence.

#### *Analysis of Beginnings*

Denzin (1989) observes that Western autobiographies usually start with the family as the point of origin. McCooley (1995) notes that by providing historical or family background, textual beginnings of autobiographies differ from personal beginnings. The time before one's life serves as the setting of the individual life. Since this is the setting to the whole life, it helps create global coherence by providing a unitary background to the details of a life. This background may then be used to help explain how the life has proceeded. Therefore the beginnings of all life narratives were analyzed individually to explore a possible developmental sequence in the emergence of the construction of a setting to one's life.

#### *Results*

##### *Frequencies of Indicators of Global Coherence in Three Age Groups*

Since each age-group consisted of only four participants, medians were used as descriptive statistics. Since the absolute number of some of the indicators is low, the number of participants who used an indicator at least once is provided for each age-group in the second row of Table 2. One-sided nonparametric Jonckheere-Terpstra-Tests for linear trends were calculated for exploring linear age differences.

Looking at the medians, most indicators that were expected to show linear trends across age-groups did so. Only some of these linear relationships were strong enough to deviate significantly from chance in spite of the small sample size. The proportion of the two temporally extended types of statements (enduring personal states, long duration) increased significantly, whereas statements of brief duration declined non-significantly with age. Also, the proportion of causal links between an action to a personal state increased significantly across age-groups, with events explaining change in personal state being mentioned only by three of the oldest participants.

The total of all comparisons between past and present showed a non-significant increase with age. The most integrative comparison, changed ever since, increased significantly. Present different comparisons increased non-significantly with age. The most simple comparison still the same peaked in the middle age group. The total of the subclass of comparisons between past and present

judgments was infrequent, but did increase significantly with age. Continuity of judgment (judgment still the same) was never expressed. Difference between past and present judgments (present judgment different) was absent in the youngest group and increased significantly. Only two 18-year-olds explicitly related changes in judgment to specific events (judgment changed ever since; not significant).

None of the complex biographical elements were used by the youngest participants. References to developmental status and generalizations were used by the two older age groups, and references to biographical background and illustrations showed only in the oldest group. Three of the four complex biographical elements increased linearly with age, but only references to biographical background did so significantly. Generalizations, however, peaked in the middle age group. Of the expressions of uncertainty, only those regarding explanations increased linearly with age as expected, although non-significantly.

#### *Settings*

For the analysis of the beginnings of the life narratives it must be kept in mind that the narratives are based on a family-card and a sequence of cards for the seven most important memories. Thus the instructions enhance the probability that the family-background is included in the narratives.

Some 12-year-olds mention that they do not remember their birth. They all list the family members present when they were born as requested, briefly state whether they had gone to kindergarten or not, and then proceed to recounting their first memory.

"Well, of course I can't remember how I was born. At that time there were my brother, my parents and Grandma and - oh yes, I forgot! I also have three half-sisters and half brothers from my mother. I didn't go to Kindergarten, because we didn't get in."  
(Robert, 12 years)

Three of the four 12-year-olds state continuities or discontinuities.

"First I stayed at home until I was about two or three years old. Then I went to Kindergarten. There I got to know my two best friends. They are still my best friends."  
(Lea, 12 years)

All 15-year-olds provide more details that anticipate later themes of the narratives. Silke describes not just the fact that she went to Kindergarten, but that she succeeded in getting into kindergarten earlier than usual. She thereby introduces herself as someone to whom it is of utmost importance to have friends. The three other 15-year-olds describe their families. Moritz and

Ulrike both describe their relationship with their family during the kindergarten years, again anticipating central themes of their narratives. Only Martha gives a description of her family that extends beyond herself, thus providing a real background to her own life.

"Well, I was born in this apartment, I lived here with my parents right from the beginning on. And I never really did have a good relationship with my relatives, because my father didn't get along with them. But he stayed really away from them, he simply didn't like them, because they are all so artificial. They're all teachers, you know. And that's why, well, I don't know, I did sometimes see my grandmothers. But I was never close enough to them to want to go to see them on my own, or stuff like that. And my parents have been quite important to me all the way long. I have always believed in them, well, until I was thirteen: Then my parents had extreme fights with each other [...]" (Martha, 15 years)

Just like Martha, also three of the 18-year-olds describe aspects of their family history that extend beyond their personal history. Jonathan, however, offers a different kind of setting. He introduces a prototypical childhood episode that serves to reveal a central and problematic trait of his, his provocativeness. The episode then serves as the background and explanation for later episodes and for his later conscious struggle to overcome this trait in adolescence.

"Well, I was born into this family. My sister was there already, my brother was born later. And I guess I was quite a strenuous child, also to my mother. It all started when at lunchtime I used to produce these strange sounds although I knew that my mother hated it. I continued nevertheless. I believe that this was the basis for what happened at the first day at school when I hit Klaus so hard on the nose that I almost broke it. Then came elementary school, and there I was always someone who had to attract attention by acting the clown or I don't know what [...]" (Jonathan, 18 years)

Thus individual analyses of the beginnings of these twelve short life narratives suggest that the framing of one's life only begins to emerge in mid-adolescence. Preadolescents apparently present early childhood as continuous or discontinuous, whereas the mid-adolescents in this study treat early childhood as a background or setting that anticipates important themes. Only the older adolescents elaborate family histories. One of the older adolescents used another form of creating coherence by reference to a unitary background to life, namely by starting out with an episode that

symbolizes a major problem, with the rest of the life being narrated as the attempt to solve it.

### *Discussion*

This study has proposed various linguistic indicators of global coherence in life narratives. Most of the proposed indicators showed a linear increase of frequency with age. Only some of these linear trends were significant. This may be due to the small sample size and to low frequency in the case of some of the indicators. The study provides preliminary, cross-sectional evidence of an increase in global coherence in life narratives across adolescence.

These trends of elementary indicators of global coherence are complemented by an informal analysis of more molar units of analysis, namely how adolescents begin and frame their life narratives. Whereas preadolescents provide no setting except for the minimal information explicitly requested by the researcher, adolescents do start to provide a pre-history as a unifying and explanatory background to the personal recollections.

A possible objection may concern the interpretation of the relative increase of causal links between temporally extended statements as indicating an increase in global causal coherence. This may be countered by the argument that the increase in temporal extension results from the increase in length of life that needs to be covered by the narratives. However, the categorization of brief versus long extension is a very rough one, the cut-off being one month. It is improbable that this indicator is strongly affected by the length of life to be looked back on. Furthermore, we believe that it is the absolute number of statements contributing to global causal coherence, rather than the proportion of such statements, that determines the overall degree of global causal coherence. Once statements that create global coherence are made, they may remain effective no matter how much other text is produced. Both of our arguments need to be tested in the future, possibly by relating the proposed devices for creating global coherence to expert ratings of global coherence.

Future studies will also need to test the proposed indicators of global coherence with larger samples and longitudinally. In this study, life narratives were pre-structured by first asking for seven memories, following an interest in the development of cognitive and narrative competence. In future research, this kind of facilitated production should be contrasted with free life narratives. From a cognitive-developmental perspective, age-comparison of the difference in levels of performance under the two differing tasks conditions would yield an indicator

of the difference between natural performance and ability under ideal conditions. From a discourse perspective, larger samples of free life narratives would lend themselves more easily to more systematic molar analyses of how life narratives are structured. The age-range needs to be extended. Testing the lower developmental boundary of the ability to narrate one's life would require testing children. Also, even the oldest age-group produced only few of the more complex ways of relating events of life with each other and the present self. Therefore global coherence of life narratives may continue to increase after adolescence, possibly into old age, as has been suggested by Butler (1963).

This study has ignored many probable influences on the ability to construct a life story other than age. Thus it seems likely that there are differences in this ability depending on cultural, social, educational and personality differences. Also it seems plausible that the experience of major life events may motivate individuals to elaborate the life story (Bluck & Habermas, 2000). For instance, in one study young adults who had ever experienced the death of a family member reasoned more frequently about their past life than those who had never had this experienced (Bluck, Habermas, & Rubin, 2001).

The development of the ability to create coherence in one's life may rest on more basic cognitive, linguistic, or personality development. However, we believe that it is an important developmental shift in its own right. Being able to coherently tell one's life, to conceive of oneself from a biographical perspective, allows one to actively contribute to who one was, is, and will be (Erikson, 1968). This ability is ever more necessary the more flexible, individualized, and self-determined the human life course becomes in modern societies.

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Table 1  
Examples of Devices for Creating Global Coherence

Code	Example
<u>1. Duration of time covered by causally linked statements:</u>	
enduring personal states	“I was a very shy person then.”
	“I suffered for months after she left me.”
long duration	“I would really like to have a real change in my life, because everything’s gotten so confused.”
brief duration	“It didn’t work, because the hole wasn’t deep enough.”
recurrent activities	“It all started when at lunchtime I used to produce these strange sounds although I knew that my mother hated it.”
<u>2. Causal links between personal states and events</u>	
personal state explains action	“We did a lot of boating, because my father likes rowing.”
	“I actually had problems with the teachers throughout school, because I am someone who doesn’t like to adapt himself.”
event explains personal state	“If I hadn’t joined the sports-club then, I wouldn’t have friends now and I would still be a shy person.”
<u>3. Comparisons past-present</u>	
still the same	“I had a good relationship with my cousins then - which, by the way, is still the case.”
present different	“My brother and I grew up together. I haven’t seen him for many years now.”
	“She came once a week for babysitting – she doesn’t do that anymore.”
present <u>judgment</u> different	“I expected my parents to take care of everything. And that has changed. Somehow I agree more that it is good not to be spoiled.”
changed ever since	“She taught me the art of spraying graffiti. I was in 10th grade then, and I have continued ever since.”
<u>judgment</u> changed ever since	“After my mother made me leave, I learned to deal with her better, because I learned that she is not a bad person after all.”
<u>4. Complex biographical elements</u>	
developmental status	“My parents’ divorce didn’t affect me much, because I wasn’t really aware of what was happening - I was still too little.”
biographical background	“All throughout childhood my parents helped me with everything, they took care of all paperwork, everything. And now I am 18 and I am still unable to organize my life.”
illustration	“I haven’t learned to do things on my own, although I am able to use the subway on my own and stuff like that, but, for example, I do not have the faintest idea how to go about anything bureaucratic.”
generalization	“I was really emotionally hooked up with him for a long time. Probably that’s what always happens when it’s the first kiss.”
<u>5. Uncertainty expressed regarding:</u>	
explanation	“Anna is a very complicated person, just like me. Maybe that’s why we make such a good fit.”
description, evaluation	“Now I am better able to control myself, I believe.”
memory	“That happened, I believe, in 3rd or 4th grade.”
facts	“As far as I know he lives on a farm nowadays.”

Table 2  
 Characteristics of Life Narratives by Age-Group (Medians)

	Age			Std J-T-Stat. <sup>a</sup>	
	12	15	18		
Number of statements	68	117	194	2.49	**
Percentage of causal links	9.0	11.3	16.1	1.91	*
<u>1. Causally linked statements<sup>b</sup></u>					
enduring personal states	17.1	23.2	33.7	1.98	*
	<u>4</u>	<u>4</u>	<u>4</u>		
long duration	0	8.3	11.8	2.33	**
	<u>1</u>	<u>3</u>	<u>4</u>		
brief duration	52.5	46.9	27.5	-1.46	
	<u>4</u>	<u>4</u>	<u>4</u>		
recurring events	8.3	9.5	3.8	-.52	
	<u>2</u>	<u>3</u>	<u>3</u>		
<u>2. Causal links between events and personal states<sup>c</sup></u>					
all	0	7.7	15.3	2.27	*
	<u>0</u>	<u>3</u>	<u>3</u>		
personal state explains action	0	7.7	4.8	1.47	
	<u>0</u>	<u>3</u>	<u>2</u>		
event explains change in personal state	0	0	10.1	2.31	*
	<u>0</u>	<u>0</u>	<u>3</u>		
<u>3. Comparisons past-present<sup>d</sup></u>					
all	2.5	3.7	4.1	1.1	
	<u>3</u>	<u>3</u>	<u>4</u>		
still the same	.3	1.1	.5	-.08	
	<u>2</u>	<u>3</u>	<u>3</u>		
different today	.3	.7	1.3	1.20	
	<u>2</u>	<u>3</u>	<u>3</u>		
changed ever since	.7	.9	2.3	2.17	*
	<u>2</u>	<u>2</u>	<u>4</u>		
all comparisons of judgments	0	.3	1.0	2.13	*
	<u>0</u>	<u>2</u>	<u>3</u>		
judgment different today	0	.3	.5	2.05	*
	<u>0</u>	<u>2</u>	<u>3</u>		
judgment changed ever since	0	0	.4	1.18	
	<u>0</u>	<u>0</u>	<u>2</u>		
<u>4. Complex biographical elements</u>					
developmental status	0	.3	.3	1.64	
	<u>0</u>	<u>2</u>	<u>3</u>		
biographical background	0	0	.8	2.31	*
	<u>0</u>	<u>0</u>	<u>3</u>		
illustration	0	0	.3	1.81	
	<u>0</u>	<u>0</u>	<u>2</u>		
generalization	0	1.4	.7	1.47	
	<u>0</u>	<u>3</u>	<u>2</u>		
<u>5. Expressions of uncertainty</u>					
explanation	.0	.3	.7	1.75	
	<u>0</u>	<u>2</u>	<u>2</u>		
description, evaluation	1.7	1.0	1.0	-.61	
	<u>2</u>	<u>3</u>	<u>2</u>		
memory	.8	.7	1.3	.37	
	<u>2</u>	<u>2</u>	<u>4</u>		
facts	.0	.0	.5	.74	
	<u>1</u>	<u>1</u>	<u>3</u>		

Note. For each age-group, first rows contain medians, second rows contain number of participants who use that indicator at least once.

<sup>a</sup>Standardized Jonckheere-Terpstra-Test-Statistic.

<sup>b</sup>Percentage of types of causally linked statements relative to the total number of causally linked statements.

<sup>c</sup>Percentage of links between personal states and events relative to the total number of causal links.

<sup>d</sup>All following codes are given as percentages of all statements.

\* $p < .05$ . \*\* $p < .01$ , one-tailed.