

Technical Report on the Mainlife Study (2002-2019)



**Provided for the life narratives deposited at Qualiservice Bremen
and for the quantitative MAINLIFE data deposited at GESIS**

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This report provided by **GESIS** is identical to the study report published by Qualiservice, but contains additional specifications regarding questionnaires (5.6).

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1. Technical data

1.1 Cohort-sequential design: Five waves, six measurement points, six cohorts

There were five waves of data collection, wave I with two measurements of life narratives two weeks apart. Waves are numbered with Roman numbers, measurement points with Arabic numbers.

Cohorts 1-4 were first collected in Wave I. Cohorts 5 and 6 were added in Wave 2, first designed as part of a different project in collaboration with Harald Welzer, but using the identical procedure as used in cohorts 1-4. The age range in cohorts 1-4 is narrow, but much wider in cohorts 5 and 6 (see Figure 1).

1.2 Staff

PI: Tilman Habermas. Doctoral students who led the project and collected data in each wave are listed in Table 1 together with research assistants who also collected data. In addition, in each Wave more research assistants helped transforming the narratives (transcription, dividing into segments and into propositions), entering data. In addition, starting in Wave III, students coded various aspects of life narratives for their Master theses in Psychology, supervised by the PI and some of the project leaders.

1.3 Data processing

Life narratives were transcribed in Word files; quantitative data (questionnaires and ratings/codings of life narratives) were processed in SPSS.

2. Concept of the study

This longitudinal study has evolved over the years, and so have the research questions.

Original study – Wave 1

The first wave was designed to study the development of the ability to construct and narrate coherent life narratives. From the observation that many cherished possessions are beloved objects because they serve as mnemonic devices (souvenirs), pointing to other people and past experiences (Habermas, 1996; Habermas & Paha, 2002) I came across the reminiscence bump of autobiographical memory, which is an oversampling of memories from adolescence and early adulthood in middle aged and older adults. This life phase is one of emergent psychosocial identity, which according to Erikson (1968), Cohler (1982), and McAdams (1985) takes on the form of the life story. The development of the life story first in adolescence seemed to be a good explanation for the reminiscence bump, because when the life story is first formed, these memories remain salient. However, the development of the life story in adolescence had never been studied systematically. Based on anecdotal evidence (e.g., Rosenthal, 1995) we expected the ability not only to narrate single events, but entire lives to develop between ages 12 and 18. In a pilot study with 12 participants aged 12, 15, and 18, Tilman Habermas and Christine Paha (2001) developed a taxonomy of autobiographical arguments that are used in life narratives to create global life narrative coherence. Tilman Habermas and Susan Bluck (2000) developed the theoretical rationale for this cognitive-developmental hypothesis. David C. Rubin and also Susan Bluck and Monisha Pasupathi consulted designing the study, when Paul Baltes together with Ursula Staudinger, and Ulman Lindenberger hosted me at the Max Planck Institute of Human Development, Berlin (1997-1999).

Because the ability to narrate life narratives hinges on the ability to connect narratives and chronicles of single events in the context of an entire life and to connect them with the development of personality, and because there were no prior attempts to operationalize these characteristics, we needed to develop a host of new measures of well-formedness of life narratives between 1998 and 2005, described below.

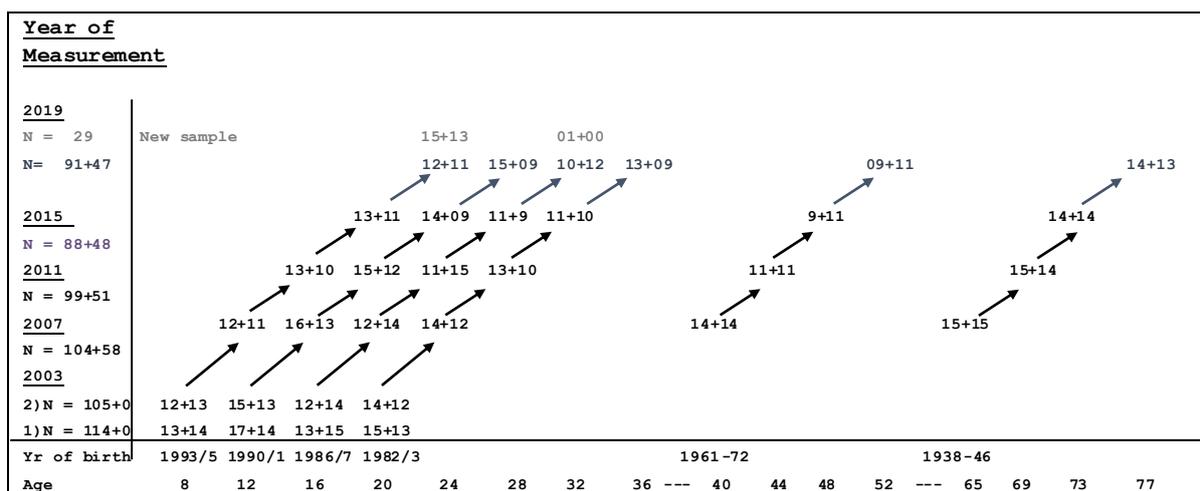


Figure 1 Number of participants (female + male) by measurement wave. In Wave I there were two measurement points, 2 weeks apart. One male and female participant in each cohort (#28, 29, 59, 60, 87, 88, 115, 116) plus by mistake one other participant (117) did not take part in the second measurement. In the quantitative data set deposited at GESIS, five id-numbers are missing: three were given to participants of measurement point 1 whose material could not be used for varying reasons and who did not participate in any of the later measurements, and another one to someone who never participated; one other participant asked that their data not be published. In waves IV and V the same female participant of cohort 2 (#31) only filled in questionnaires, but provided no life narrative.

Table 1 Overview over data collection waves and staff

Wave	Exact dates	Project leaders (PhD students) + undergrad data collectors	Funding agency	Cohorts
I	2003 2002/11-2003/08	Cybèle de Silveira + Verena Diel, Martha Havenith	DFG 5322086	1-4
II	2007 2006/12-2008/01	Alexa Negele (now: Grabhorn) +Jenny Schröder, Elisa Pasch Verena Diel +Carolin Elian, Anna Weber	----- Lotte Köhler Stiftung	1-4 5-6
III	2011 2011/04-2012/01	Christin Köber (now: Camia) Anda Constantinescu	DFG 187888417	1-6
IV	2015 2015/06-2016/06	Barbara Maier (now: Redlich) Isabel Peters	-----	1-6
V	2019 2019/06-2020/05	Nina Kemper Theresa Martin	DFG 421926219	1-6 + new sample 1

Thus, for Wave I we chose four equidistant age groups. The youngest group was only 8 years old, and we needed it to demonstrate that at this age children lack the ability to coherently narrate lives. We chose the oldest age group because we assumed that by then the ability to narrate lives had evolved. The developmental hypotheses regarding global coherence of life narratives were successfully demonstrated cross-sectionally (Habermas & de Silveira, 2008; Habermas et al., 2009).

In addition, we tested with two extra tasks participants' knowledge of age norms and of the biographical salience of different event types, which are two elements of the cultural concept of biography (Habermas & Bluck, 2000; cf. cultural life script, Rubin & Berntsen, 2004), to show that integrating normative age-graded life transitions in life narratives helped render them coherent (Habermas, 2007).

Wave II – adding cohorts 5 and 6

Harald Welzer, Johannes Schröder, and Tilman Habermas planned to bring together three datasets to compare age effects across samples: A Volkswagenstiftung-funded study of emotional memories from across life by Hans Jörg Markowitsch and Harald Welzer, the Heidelberg ILSE-study of life narratives of Johannes Schröder, and Wave 1 of the MainLife study. Because the VW-study had age groups 16, 20, 40 and 65, and the ILSE study included only older adults, we decided to collect a sample of 40 and 65-year-olds with the MainLife procedure to make samples more comparable. These are cohorts 5 and 6, first studied in Wave II. Also, to be able to compare the single memories of the VW-study with life narratives, we divided life narratives into thematic segments, roughly comparable to narratives of single memories. We then rated/coded these life narrative segments and memory narratives on a variety of measures to answer the question whether in older age adults start narrating memories less as episodic and more as semantic memories also in the context of life narratives, and whether this might be explained merely as an effect of older adults creating more meaning and interpreting memories more than younger adults (Habermas et al., 2013). For logistic reasons, a comparison with the ILSE-data did not succeed.

In parallel, we went back to cohorts 1 to 4 to collect life narratives again after four years, basically to substantiate the cross-sectional findings longitudinally, thereby demonstrating that the differences between age groups reflected individual developmental trajectories and not merely group differences. Because we failed to secure funding for this wave, we only succeeded in collecting and transcribing the narratives, but not in coding/rating them.

Wave III – the longitudinal development of the life story

For this wave we received funding for two positions, so that we were able to code and rate anew all narratives from the first three waves in order to secure consistency across waves. In addition, we coded whether life narrative segments were told again in all subsequent waves so as to measure the stability of life narratives across time. We also included a measure of explicit reasons for not telling specific events again, that had been told in an earlier wave. We were able for the first time to have only doctoral students as interviewers to secure more older interviewers and a more professional interviewing. Also, for the first time we added measures of well-being and several questionnaires for a variety of psychological symptoms.

Wave IV - the life story and motives

We did not secure any funding for this wave so that we were only able to collect the data without coding and rating them. The aim of this wave was to study in depth the motivational aspects of life narratives by coding the semantic content, by measuring implicit motives separately, and by asking for goals. In addition, in this wave we also asked for four different specific event narratives, namely regarding an event that had helped form or change a value, that had been a turning point in the life story, as well as one intergenerational narrative each from the father and the mother to explore relations between the two different methodologies, that is asking for entire life narratives and asking for specific event narratives. The quality of the additional tests (implicit motives) turned out not to be too

good, because we had overstretched participants endurance by potentially too long data collection sessions of up to three hours, with one break in between. Because these new additional tests were added after repeatedly used measures from earlier waves, the latter were not affected. We did code the implicit motives, but results made no sense whatsoever.

Wave V -the life story and well-being

Wave five aimed at testing how the life story is related to well-being including the impact of recent critical life events. Because relevant measures of well-being had only been added in waves III and IV, we needed another wave to study this relationship longitudinally. Because paper and pencil measures of critical life events in the earlier waves could not be coded satisfactorily, we included a brief interview regarding the number and timing of the experience of critical life events. In addition, we included an interview in which we asked participants to re-narrate two events they had narrated eight years earlier (see below). This was intended as a test of the quality of self-knowledge, which would be attainable by comparing the original narrative from wave three with the narrative from wave 5. However, to date we have not been able to code this part. We had applied for funding for collecting data on a new sample from the same birth cohorts in order to test the effects of repeated testing across 16 years. However, funding was not sufficient to do this, so that we only collected an additional sample from cohort 1. Luckily, most of the data collection could be done before the Corona pandemic broke out. Only few participants were still interviewed in June and July 2020.

3. Sampling

Sampling

Cohort 1 was sampled from the top of the three classes of an elementary school in Frankfurt am Main, since in Germany children are sent to different levels of school at age 10, Gymnasium being the top level. Children were recommended by the class teachers on the basis of their standing (however, it turned out that cohort 1 tended to be more intelligent than the three older ones, reflecting that the selection for higher-level schools in Germany is strongly based on social criteria, not only on achievement). Cohorts 2 and 3 were each sampled from three parallel classes of an average Frankfurt secondary school, Gymnasium, comparable in the mixed social composition of its students to the elementary school, with predominantly middle class, but also a substantial proportion of working class background. Individual parental education or SES were not ascertained. Cohort 4 was sampled from former students of the same Gymnasium.

The three younger groups were approached via their parents. We presented the study at the parents' reunions of each of the three classes in each age group, with each class comprising between 24 and 32 students. Parents willing to participate returned written informed consent by mail. The addresses of the oldest group were taken from published 'graduation journals' of the school, and former students were approached by mail. About 38% of participants had at least one parent with a migrant background, ranging from East Asia to the Americas, Southern and Eastern Europe and the Near East, distributed about equally between the four younger cohorts. All participants spoke German fluently.

Cohorts 5 and 6 were recruited via flyers in the area surrounding the university and among continuing education university students.

Age-ranges: Cohorts 1 to 4 each comprised roughly a range of birth dates of about 1.5 years, whereas cohorts 5 and 6 for pragmatic reasons comprised a larger range of 8 to 10 years.

Remuneration

Participants were paid € 20 in Wave 1, € 40 in Waves II and III, and € 60 in Waves IV and V.

Ethics

In all waves, participants and, if underaged, also their parents signed an informed consent. After the Fachbereich für Psychologie und Sportwissenschaften of the Goethe University Frankfurt had established an IRB (Ethikkommission) in 2008, waves III to V were approved by this IRB.

Selection of data deposited at Qualiservice and GESIS

The data set deposited at GESIS in 2022 contains numerical data based on questionnaires and, in a later follow-up deposition, also codings and ratings based on the narratives. It comprises almost all participants.

The data set deposited at Qualiservice contains seven most important memories with dates, life narratives, duration and number of words of life narratives, additional narratives from wave IV, age, gender, migration background (self or either parent), and level of highest educational degree obtained. Informed consent for the deposition of narratives at Qualiservice was obtained after wave V had finished, in 2022. Of the original $N = 172$ participants, we contacted $N = 142$ who had participated in Waves IV or V (because informed consent to recontact was only available for participants of these last two waves). Of these, $N = 123$ gave their informed consent for data deposition, 12 declined consent, and 7 did not reply.

4. Procedure

In follow-up waves, we **contacted participants** up to three times by letter, then via email, phone, and social media. In Wave I, participants of cohorts 1-3 were **tested individually in a quiet room** in their schools. Participants of cohort 4 were interviewed individually in a university office. In Waves II to V, participants were interviewed individually in an office room of the university. If elderly participants required this, we also tested at home, but this was an exception. In cases in which participants had moved to other cities or countries, we tried to wait until they came to Frankfurt visiting family, in a few cases the interviewer travelled within Germany to do the interview in a quiet space, and in one case of wave IV the interview with an individual living on a different continent was done via Skype as well as with five participants during the initial phase of the COVID-19 pandemic.

All interviewers were female. Never was a participant interviewed twice by the same person, nor did interviewers know earlier life narratives to ensure that participants always narrated their lives in its entirety and to someone with no prior knowledge of them. Narratives were audio-recorded.

5. Material

5.1 Life narratives (deposited at Qualiservice)

This task was always the first task in all waves.

Seven most important memories

Life narratives were elicited in two steps. To render the task easier for the younger participants as well as to invite participants to integrate specific events into the life narratives, we first asked for the seven most important specific memories.

English "First, I'd like to ask you to think about the seven most important events which happened in your life. These may be events that just happened or they may have happened a long time ago. Then please write your seven most important memories on these seven cards. Please name only memories of very specific events. (If no specific event is named, probe: "If events lasting longer than a day come to your mind, you can write them on the card, but in addition please think of a specific event in that time period and add it on the card") Please take an index card for each event and write the event on it. --- Now please arrange these cards in the order in which they have happened on the table in front of you."

German „Ich möchte Sie als erstes bitten, dass Sie sich die sieben für Sie wichtigsten Erlebnisse aus Ihrem Leben überlegen. Diese Erlebnisse können gerade erst passiert sein oder schon lang zurückliegen. Schreiben Sie dann bitte auf diese sieben

Karten Ihre wichtigsten Lebenserinnerungen auf. Bitte nennen Sie nur Erinnerungen an ganz bestimmte Erlebnisse aus einem spezifische Zeitraum heraus.“.

(Wenn eine Zeitperiode genannt wird, um ganz bestimmtes Erlebnis aus diesem längeren Zeitraum bitten: „Wenn Ihnen länger dauernde Erlebnisse einfallen, können Sie das auf die Karte schreiben, aber zusätzlich sollten Sie sich auch an ein ganz bestimmtes Erlebnis aus diesem längeren Zeitraum erinnern und dieses dazu schreiben“.)

„Nehmen Sie jetzt bitte für jedes Erlebnis eine eigene Karte und schreiben Sie es darauf“.

“Ordnen Sie jetzt die Erinnerungskarten in ihrer zeitlichen Reihenfolge (so wie sie passiert sind) und lege Sie sie vor sich auf den Tisch, und zwar so, dass Sie alle Karten gut sehen“.

Memories were dated on the cards after the life narratives had been told.

Short Life narratives (15-20 min)

While the seven cards lay on the table in front of participants, they were given the following life narrative instruction.

English: “Next, I’d like you to tell me a story involving your whole life. Please think about all the events that have happened in your life since you were born. Please integrate the seven events into your story. For example, you can tell me about the most important events in your life and the biggest changes. You can tell me things which someone like me, who doesn’t know you, might like to know about you. You can also tell me how what you have experienced is still important to you today and how it has influenced what kind of person you are today. Please take about 15 minutes time to tell your story. I will not interrupt you. After 10 minutes I will tell you that you still have another five minutes. There are no right or wrong answers. Just to be on the safe side, I would like you to tell me in your own words what I would like you to do.” --- “You can start now. I will listen to you and not interrupt you”

German: Als Nächstes möchte ich Sie bitten, mir eine Geschichte über Ihr ganzes Leben zu erzählen. Überlegen Sie bitte, was seit Ihrer Geburt in Ihrem Leben alles passiert ist. Bitte fügen Sie die sieben wichtigen Lebensereignisse von den Karten in Ihre Erzählung mit ein. Sie können mir zum Beispiel die wichtigsten Ereignisse und die größten Veränderungen in Ihrem Leben beschreiben. Sie können Dinge erzählen, die jemand, wie ich zum Beispiel, der sie nicht kennt, vielleicht über Sie wissen möchte. Sie können auch erzählen, wie das, was Sie erlebt haben, heute noch wichtig für Sie ist und wie es beeinflusst hat, was für eine Person (Mensch) Sie heute sind. Dies ist also Ihre Aufgabe. Ich bitte Sie, sich für Ihre Erzählung ungefähr 15 Min. Zeit zu nehmen. Ich werde Sie nicht unterbrechen. Nach 10 Minuten werde ich Ihnen sagen, dass Sie noch ungefähr 5 Minuten Zeit haben. Bei dieser Aufgabe gibt es keine richtige oder falsche Lösung. Nur um sicher zu sein, dass Sie die Aufgabe richtig verstanden haben, möchte ich, dass Sie in eigenen Worten wiederholen, was Sie jetzt machen sollen.“ ... [Notfalls erneut erklären] "Jetzt können Sie anfangen. Ich werde Ihnen zuhören und Sie nicht unterbrechen."

Participants were asked to repeat the instruction to make sure they had understood it. Interviewers did not intervene in the narrative but encouraged participants to continue whenever necessary.

Repeated life narratives after 2 weeks and intervention in wave I

Only in wave I we asked for life narratives twice, using a different interviewer at time 2 who had not heard the first life narrative. The aim had been to test whether an indirect training in autobiographical reasoning would boost life narrative coherence (which it did not). Half of each cohort participated in an interview regarding one additional memory which included a series of question regarding temporal, causal-motivational and thematic connections between the event and other parts of life. The other half of the sample participated in an interview regarding knowledge of water (non-temporal knowledge) of equal length and comparable difficulty. No effects were found.

We also added 8 participants equally distributed across cohorts and gender who were not asked for the seven most important memories and provided only one life narrative to explore potential effects of the requirement to include seven specific memories and of the second narrating in later waves. No effects were found.

5.2 Additional narratives in wave IV (deposited at Qualiservice)

In wave IV, following the life narrative, we next asked for four additional single-event narratives regarding an event that had shaped one’s values and one’s personality, respectively, as well as an intergenerational narrative (a story from the parent’s own life from before the narrator was born) from mother and from father. respectively. The order was: 1) value, 2) personality, 3+4: systematic variation of order of mother and father narrative. Due to time constraints, probing tended to be not systematic.

Value-formative experience

English: Please think about an experience in your life that influenced you the most in your goals and values. So this is about an experience that has influenced your beliefs about what is right and important for you in your life. – Have you already narrated the experience? [If yes, please select a different event] --- Please tell me everything that happened back then and how and why this influenced your values." Probes: [If necessary: "When did that happen?"] "What exactly about the experience changed your way of thinking? Why?"

German: Bitte überlegen Sie sich ein Erlebnis in Ihrem Leben, das Sie in Ihren Zielen und Werten am meisten beeinflusst hat. Es geht also um ein Erlebnis, das Sie beeinflusst hat in Ihren Überzeugungen, was für Sie richtig und wichtig ist in Ihrem Leben. – Haben Sie das Erlebnis bereits erzählt? [Falls ja: Wählen Sie bitte ein weiteres Ereignis] --- Bitte erzählen Sie, was damals alles passiert ist, und was Sie wie und warum beeinflusst hat in Ihren Werten." Nachfragen: [Ggfs.: „Wann ist das passiert?“] „Was genau an dem Erlebnis hat Sie zu einem Umdenken bewogen? Warum?“

Personality-formative experience

English: Please think about an experience that you have not yet narrated that influenced and changed your personality, what kind of person you are. --- Please tell me everything that happened back then and how and why this influenced your personality." Probes: [if necessary: "When did that happen?"] "What exactly about the experience influenced you? Why?"

German: „Bitte überlegen Sie sich ein Erlebnis, das Sie noch nicht erzählt haben, das Sie in Ihrer Persönlichkeit, in dem, was für ein Mensch Sie sind, beeinflusst und verändert hat. --- Bitte erzählen Sie, was damals alles passiert ist, und was Sie wie und warum beeinflusst hat in Ihrer Persönlichkeit.“ Nachfragen: [Ggfs.: „Wann ist das passiert?“] „Was genau an dem Erlebnis hat Sie beeinflusst? Warum?“

Intergenerational narratives of mother and father

English: Now please consider two stories that your parents told you about their own lives; a story from your mother's life that she told you and a story from your father's life that he told you. Please write down a key word for each story. --- Please tell me the story from your *mother's* life, everything that happened back then and how your mother told it and commented on it." Probes: [If necessary: "When in your mother's life did that happen? --- When did she tell you the story?"] "Why do you think your mother told you the story? Did she want to clarify or teach you something? --- What was it like for you that your mother told you the story? --- Did you and do you agree with the moral of the story? Why?" Please tell me the story from your father's life, everything that happened there and how your father told and commented on it." Questions: [possibly: "When did that happen in your father's life? --- When did he tell you the story?"] "Why do you think your father told you the story? Did he want to illustrate a point or teach you something? --- How was it for you that your mother told you the story? --- Did you then, and do you now agree with the moral of the story? Why?" [The same instruction is then given for the father's story]

German: Bitte überlegen Sie jetzt zwei Geschichten, die Ihnen Ihre Eltern aus ihrem eigenen Leben erzählt haben; also eine Geschichte aus dem Leben Ihrer Mutter, die sie Ihnen erzählt hat, und eine Geschichte aus dem Leben Ihres Vater, die er Ihnen erzählt hat. Bitte schreiben Sie sich kurz ein Stichwort zu jeder Geschichte auf. --- Bitte erzählen Sie mir nun die Geschichte aus dem Leben Ihrer Mutter, was da alles passiert ist und wie Ihre Mutter sie erzählt und kommentiert hat." Nachfragen: [Ggfs.: „Wann passierte das im Leben Ihrer Mutter? --- Wann hat sie Ihnen die Geschichte erzählt?“] „Was meinen Sie, warum Ihre Mutter Ihnen die Geschichte erzählt hat? Wollte sie Ihnen damit etwas verdeutlichen oder beibringen? --- Wie war das für Sie, dass ihre Mutter Ihnen die Geschichte erzählt hat? --- Waren und sind Sie mit der Moral der Geschichte einverstanden? Warum?“ [Im Anschluss wird dieselbe Instruktion für den Vater gegeben]

5.3 Additional interview regarding memory of earlier narratives in waves II, III and V (not deposited)

In three waves we tested the memory of past narrations. In **wave II**, cohorts 2, 3 and 4 were asked to remember which events they had remembered four years earlier, and then to briefly narrate two of these events anew. If they did not remember at least two events, interviewers cued them for up to five of the seven most important memories from the second testing in 2003 (excluding first and last memory to exclude primacy/recency effects). The problem with the task was that some participants named events they had just told anew in their life narratives, while others named events they had not yet told anew.

In **wave III** we repeated the test with all cohorts regarding life narratives from wave II and added that we specifically asked for events told four years earlier *but not included in the life narrative this time*. We also added a question regarding reasons for not including the event anymore in the present life narrative (results published in Camia & Habermas, 2020).

In **wave V**, we asked for re-narrations of two preselected events that had been nominated eight years earlier in wave III. We then asked participants whether they thought that earlier they had told things they had left out this time, and whether they thought they had told something this time that they had not told 8 years ago, how they had interpreted the event then and how they interpreted it today. Participants then rated positivity, negativity, agency, and biographical consequentiality from their perspectives in 2011 and in 2019. The task was inserted in-between questionnaires after about 2/3 of the entire data collection session.

5.4 Implicit motives in wave IV (not deposited)

The Picture Story Exercise (Schultheiss & Pang, 2007) was used with four pictures to measure implicit motives. Motives were coded using Winter (1991).

5.5 Fluid and crystalline intelligence in waves I, II, and III (deposited at GESIS)

In the first three waves, we used the WAISC-subtests vocabulary and number-symbol tests as measures for crystalline and fluid memory.

5.6 Questionnaires (deposited at GESIS)

Table 3 provides an overview over which tasks and which questionnaires were used in which wave.

Table 3 MainLife Questionnaires**Variable names:**

Suffix at the end of a variable name means measurement point, suffix means measurement point 2 in 2003 after two weeks. No suffix means that this is the mean value for measurement points 1 and 2. Suffix : measurement point _3 in Wave II 2007, _5 in Wave IV in 2015, _6 in Wave V in 2019.

Prefix sg means that the codes were coded at the level of segments of life narratives. In data files containing life stories and individuals these variables carry the relative percentage off this code in the entire life narrative.

Prefix: Variables starting with **n** are corrected for outliers (cut to whiskers of boxplot by age group for each wave).

Instruments	Root variable-names (see codebook for details)	1 - 2003	2 - 2003	3 - 2007	4 - 2011	5 - 2015	6 - 2019
Biographical Frequencies of biographical practices (constructed on basis of: Zinnecker, J. (1985). Literarische und ästhetische Praxen in Jugendkultur und Jugendbiographie [Literary and aesthetic practices in youth culture and youth biography]. In A. Fischer, W. Fuchs & J. Zinnecker (Hg.), <i>Jugendliche und Erwachsene 1985, Bd. 2</i> (pp. 143 - 348). Opladen, GE: Leske & Budrich. Starting wave IV we added items regarding internet – variable BIO1plus	BIO1, BIO1plus	X		X	X	X	X
Biographical knowledge: Age norms (negative values) (Habermas, 2007) The items and norms can be retrieved from Tilman Habermas	altnabxa .	X		X	X	---	---
Biographical knowledge. Biogr. Saliency (negative values) (Habermas, 2007) The items and norms can be retrieved from Tilman Habermas	kbkabw.	X		X	X	---	---
Personal change in past 4 years (constructed by MainLife in 2010) Change in personal life circumstances, 7 items Change in personality, 4 items Feeling of self-discontinuity, 4 items Satisfaction with personal development, 4 items Attempts to change personality and life, 4 items	veränd1 veränd2 veränd3 veränd4 veränd5	-		-	X	X	X
Confiding in father, mother, male and female friend (BIO2, from wave III onward also partner BIOplus)	BIO2 BIO2plus	X		X	X	?	X
Self continuity (Sedikides et al., 2015)	Selfcontinuitysedikides						X
TALE - Functions of autobiographical remembering (Bluck & Alea, 2011; German version Demiray & Habermas, unpublished)	Talefreq taleself talesocial taledirective						X

IQ + Personality		X		X	X?	----	---
WAICS / HAWIE vocabulary (z-standardized per age and measurement point)	zzlQWO						
WAICS / HAWIE number symbol test (z-standardized per age + measurm. point) Waves I and II Ages 8 and 12: HAWIK-R (Tewes, 1983); above 14 yrs: HAWIE-R (Tewes, 1991). Wave III HAWIE III: von Aster et al., 2006)	zzlQZS	X		X	X	---	---
NEO Short Form, 60 items (Borkenau & Ostendorf, 1993)	NFFI_conscientiousness NFFI_Extraversion NFFI_Openness NFFI_Neuroticism NFFI_Agreeableness	-		-	X	X	X
Identity status – UMICS Friends (BF) and College/Job (VOC) (Crocetti et al, 2008 – German back- and forth translation by MainLife)	UMICBF_c UMICBF_de UMICBF_rec UMICVOC_c UMICVOC_de UMICVOC_rec	-		-	-	X	---
Self clarity (Stucke, 2002)	Selfclarity	-		-	-	X	X
Loyola Generativity scale, 20 items (Hofer et al., 2008)	generativity	-		-	-	X	
ERQ Emotion regulation Questionnaire Gross, 10 items (Abler & Kessler, 2009)	ERQsuppression ERQreappraisal						X
Resilience rs-13, 13 items (Leppert et al., 2008)	resilience						X
Self-efficacy 10 items (Schwarzer & Jerusalem, 1990)	selfefficacy	-		-	-	X	X
Webster Time Perspective Scale (Webster et al, 2011)	BTPSfuture BTPSpast						
Symptoms							
Brief Symptom Inventory Derogatis, 53 items (Franke, 1990)	bsi_gsi bsi_pst bsi_psd	-		-	X	X	X
Depression BDI-II (Hautzinger et al., 2007): Wave: II: only cohorts 3-6	bdisum	-		X	X	X	X
Depressions Inventar für Kinder iund jugendliche DIKJ (Stiensmeier-Pelster et al., 2000); Wave II: only cohorts 1-2	DIKJ			X	---	---	---
Trait depression and anxiety STADI 20 items (Laux et al., 2013)	Stadiangst, stadidepression	-			X	X	
Response Style Questionnaire, subscales Rumination + self-reflection, Treynor, 10 items RSQ (Huffziger & Kühner, 2012) Perseverative Thinking Questionnaire PTQ, 15 Items (Ehring et al., 2011) Subscale Reflection of Rumination-Reflection Questionnaire Campbell, 12 items (Post, 2004)	rsq_brooding rsq_reflection ptq rrq	-		-	-	X	X

Well-being Well-being Ryff scales (Ryff & Keys, 1995); Wave III 18 items (Fleck, 2007), Waves IV+V: 54 items (Risch et al., 2005); Between the two versions the translation differed for two items; we added these 2 items from the short form in waves IV and V to be able to also construct identical short form scores in these waves: RYFF18_XXX)	ryff_selfacc ryff_posrel ryff_autonomy ryff_masterenv ryff_lifegoals ryff_growth ryff18_selfacc ryff18_posrel ryff18_autonomy ryff18_masterenv ryff18_lifegoals ryff18_growth				X	X	X
Satisfaction with Life Scales (SWLS) Diener et al., 1985, 15 items (Trautwein, 2004)	wellbeingpast wellbeingpresent wellbeingfuture					X	X
Scale of Positive and Negative Affectivity (SPANE), 12 items (Diener et al., 2009)	Spaneneg spanepos spanebalance						X
Well-being (Bernier Fragebogen zum Wohlbefinden; Grob et al.; 1991) only cohorts 1-4	befind			X	---	---	---

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6. Data processing

Preparation of narrative transcripts

Narratives were **transcribed** verbatim following the GAT2-basic procedure (Gesprächsanalytisches Transkriptionssystem; Selting et al. 2009); audiotapes were then destroyed for data protection.

Narratives were then **divided into propositions**, or main and subclauses following a manual detailing how to deal with specific linguistic cases and with incompleteness and oral variations of syntax.

Propositions were numbered, so that each proposition could be used as a unit for coding. Then life narratives were **divided into thematic segments**, again following a manual. Basically, segments cohere thematically and prototypically correspond to a memory of a specific event. The maximum length was two pages. Transitions between segments are typically marked by pauses and by concluding, transitional, or opening statements. We invented a heading for each segment pointing to the central theme. Segments also served as units to be coded/rated. This originated in the study in which life narratives were compared with single event narratives (Habermas, Diel & Welzer, 2013).

Anonymization – Using pseudonyms in narratives

The person who transcribed from the audiotapes also, in a second step, replaced all names of people and places as well as nationalities and professions and any other details that might allow identifying the narrator with pseudonyms. We tried to choose pseudonyms such that they would not grossly distort the narrative. In each wave, the pseudonyms used were marked in a table so as to use the same pseudonyms in the next wave. Because across 16 years this is a highly instable procedure, we again checked all pseudonyms in all narratives of participants from waves IV and V for consistency in preparation for handing them over to Qualiservice. Also, we offered participants of the last two waves to send them all of their life narratives (in the pseudonymized form, originals had been destroyed). The same pseudonyms were used for the seven most important memories.

Life narratives were stored with only a number, which was related to a participant number in a data file only, so that coders/raters could use transcripts unaware of participants age and gender and unrelated to other life narratives. The information identifying participants will be destroyed by the end of 2022.

Coding/Rating of narratives

Narratives were coded and rated in multiple ways. More detailed information will be provided once data regarding codings and ratings are deposited at GESIS in a second step (ca, 2025). Basically, we wrote manuals defining rating scales and the points of the scale or defining Codes. These were applied, depending on the construct, to proposition, or segments, or entire life narratives. Coders/raters were trained (and manuals refined) by this author or a PhD student in an iterative process. Once the manual was no longer changed, we calculated interrater reliabilities on the basis of 15-25% of the transcripts. Once satisfactory reliability was reached, all transcripts not used for calculating the reliability were divided between the two coders/raters. To avoid/document coder/rater drift, we also calculated a follow-up reliability based on transcripts interspersed among the transcripts to be coded/rated by each unbeknownst to the coders/raters. A problem in coding longitudinal data is that we could not wait with coding for the last wave to be finished. Therefore, some codings/ratings were done by three different sets of raters at three different points in time, potentially leading to differences between the pairs of coders. We tried to minimize these by training coders with transcripts already coded by earlier coders.

Numerical/questionnaire data

Data were entered into spss, and data entry was controlled by one person reading aloud and the other checking. All sum and other scores were calculated, and outliers corrected by this author throughout the entire project. Data errors discovered later were corrected by comparison with the original paper versions. The main data set was always administered by the present author.

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Appendix 1

Questionnaire *Personal change in past 4 years*

© Tilmann Habermas, Goethe University Frankfurt, 2010.

The scales are based on a pre-study run with a few more items in 2010 in a student population.

Inhalt

Five scales with Cronbach's alpha in Waves III, IV, V and items:.....	1
Composition of scales (SPSS syntax):.....	2
Questionnaire – German original	3

Five scales with Cronbach's alpha in Waves III, IV, V and items:

	<i>Three alpha values</i>	<i>Items that make up scale</i>
1 Change in life circumstances	.58, .61, .58	19, 20, 21, 22, 23, 24, 25
2 Change in personality	.78, .76, .80	4, 5, 7, 13
3 Attempt to change personality and life	.79, .82, .77	16, 17, 18
4 Sense of self-discontinuity	.71, .65, .65	3 (reverse), 6, 9, 12 (reverse)
5 Satisfaction with personal development	.62, .70, .68	8, 10, 11, 15,

Single items 1 (global change of life), 2 (change in financial circumstances), 14 (change in health) were retained because of the specific information they contain.

Detailed description of scales 1 and 4

The following description of scales 1 *Change of life circumstances* and 4 *Sense of self-discontinuity* is taken from: Habermas, T., & Köber, C. (2015). Autobiographical reasoning in life narratives buffers the effect of biographical disruptions on the sense of self-continuity. *Memory*, 23(5), 664-674.

“Objective change in life. We constructed a scale to measure how much objective life circumstances had changed in the past four years. This scale asks for absolute frequencies of typical disruptive life events: loss of or separation from partner, beginning of new love relationship, loss or gain of friends, severe illness or death in close persons, moving to another apartment, moving to a different town and change of occupation. The scale ranged from 1 (not once) and 2 (once) to 5 (four times) and 6 (more than four times). Because events differed in severity and frequency, we z-standardised each item before averaging them. Due to the expectable heterogeneity of items, Internal consistency was relatively low, $\alpha = .57$.

Sense of self-discontinuity. We measured the negative of the sense of self-continuity, that of self-discontinuity, to parallel it to change in life. We constructed a four item scale of sense of self-discontinuity, aiming at the pre-reflective feeling of familiarity with oneself in the past.

The items were “I can still pretty well put myself in my own shoes from how I was ten years ago” (inverted), “When I think back to how I was four years ago, it feels a little unfamiliar” [German “fremd”, literally meaning strange as in estrangement], “When I look at pictures of myself four years back, it feels a little unfamiliar” and “I have the feeling that at the core I am the same person I was four years ago” (inverted). Internal consistency was good ($\alpha = .71$; responses were scaled from 1 “not true at all” to 6 “absolutely true”).”

Composition of scales (SPSS syntax):

The number after the variable stem “persän” is the number of the item in the questionnaire below.

Three items are reversed (1, 3, 12):

```
RECODE persän12_6 persän3_6 persän1_6 (1=6) (2=5) (3=4) (4=3) (5=2) (6=1) INTO
rpersän12_6 rpersän3_6 rpersän1_6.
VARIABLE LABELS rpersän12_6 'Item rekodiert' /rpersän3_6 'Item rekodiert'.
```

The variables are combined to form five scales in the following way:

```
compute Veränd1_6 = mean (persän19_6, persän20_6, persän21_6, persän22_6,
persän23_6, persän24_6, persän25_6).
compute Veränd2_6 = mean (persän4_6, persän5_6, persän7_6, persän13_6).
compute veränd3_6 = mean (persän16_6, persän17_6, persän18_6).
compute veränd4_6 = mean (rpersän3_6, persän6_6, persän9_6, rpersän12_6).
compute Veränd5_6 = mean (persän8_6, persän10_6, persän15_6, persän11_6).
variable label veränd1_6 'Change in life circumstances'
/veränd2_6 'Change in personality'
/veränd3_6 'attempt to change personality+life'.
/veränd4_6 'feeling of self-discontinuity!'
/veränd5_6 'Satisfaction w personal development'.
```


Appendix 2

Scales Autobiographical Practices and Confiding in others **(Autobiographische Praktiken und Sich-Anvertrauen)**

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Variables – original version and expanded version

These items were used to measure the frequency of engaging in various biographical practices which were taken from the literature, specifically from Zinnecker (1985). We also added four items measuring frequency of self-disclosure to male and female parent and friend, later adding a partner.

In Wave IV several items regarding autobiographical uses of the internet were added, changing the numbering of items (cf. p. 2).

Variable BIO1: Frequency of engaging in autobiographical practices

is the average value of items 1, 2, 6, 7, 8: writing poems about feelings, writing diary, .reading old letters, looking at old photographs, reading a biography.

Items 3, 4, and 5 were not included in the scale to maximize internal consistency.

Variable BIO1plus: items on social media added

is the mean of these items plus items 9 and 10 = preparing a personal homepage or profile, posting personal pictures on the internet.

Items 11 and 12 were not included in the scale to maximize internal consistency.

Variable BIO2: Frequency of confiding in close others

is the average of twice item 13 (talking with a male or female friend about problems) and items 14 and 15, (mother, father).

Variable BIO2plus: item 16 (partner) added.

Reference

Zinnecker, J. (1985). Literarische und ästhetische Praxen in Jugendkultur und Jugendbiographie [Literary and aesthetic practices in youth culture and youth biography]. In A. Fischer, W. Fuchs & J. Zinnecker (Hg.), *Jugendliche und Erwachsene 1985, Bd. 2* (pp. 143 - 348). Opladen, GE: Leske & Budrich.

Combined Scales Autobiographical Practices and Confiding in others

Lead question: How frequently do you engage in the following activities?

Answer format: 0 (never, 2 rarely) 4 (sometimes) 6 (often) 8 (always)

Expanded version used in waves III, IV, and V. In Waves I and II items correspond to:

Item # waves I+II	=	item # waves III+IV+V	Translation of item
1	=	1	Writing poems about one's feelings
2	=	2	Writing diary
3	=	3	Writing small essays
4	=	5	Painting or drawing pictures
5	=	6	Reading old letters
6	=	7	Looking at old photographs
7	=	8	Reading a biography
8	=	(13)	Talking with a female friend about problems
9	=	(13)	Talking with a male friend about problems
10	=	14	Talking with my father about problems
11	=	15	Talking with my mother about problems
		4	Writing a web-blog
		9	Maintaining personal homepage or internet profile
		10	Posting personal photographs on the net
		11	Updating others about own well-being on social media
		12	Exchanging ideas with friends or others about shared interests or problems
		13	Talking about problems with a friend
		16	Talking with my partner about problems
		17	Talking with my child about problems
		18	I have no children

SPSS-Syntax for creating scales:

```
COMPUTE BIO1= MEAN(autpra1,autpra2,autpra5,autpra6,autpra7).
```

```
compute BIO2 = MEAN(autpra8, autpra9, autpra10, autpra11)
```

```
variable label Bio1 '5 biographical practices' /Bio2 'self-disclosure'..
```

```
COMPUTE BIO1_3= MEAN(autpra1_3,autpra2_3,autpra5_3,autpra6_3,autpra7_3).
```

```
compute BIO2_3 = MEAN(autpra8_3, autpra9_3, autpra10_3, autpra11_3)
```

```
variable label Bio1_3 '5 biographical practices' /Bio2_3 'self-disclosure'..
```

```
COMPUTE BIO1_4 = MEAN(autpra1_4,autpra2_4,autpra6_4,autpra7_4,autpra8_4).
```

```
compute BIO1plus_4 =
```

```
MEAN(autpra1_4,autpra2_4,autpra6_4,autpra7_4,autpra8_4,autpra9_4,autpra10_4).
```

```
compute BIO2_4 = MEAN(autpra13_4, autpra11_4, autpra13_4, autpra15_4, autpra16_4).
```

```
compute BIO2plus_4 = MEAN(autpra13_4, autpra11_4, autpra13_4, autpra15_4,
autpra16_4,autpra17_4).
```

```
variable labels BIO1_4 'biographical practices' /BIO1plus_4 'biographical practices including
internet' /BIO2_4 'self-disclosure' /BIO2plus_4 'self-disclosure including partnerr'.
```

```
COMPUTE BIO1_5 = MEAN(autpra1_5,autpra2_5,autpra6_5,autpra7_5,autpra8_5).
```

```
compute BIO1plus_5 =
```

```
MEAN(autpra1_5,autpra2_5,autpra6_5,autpra7_5,autpra8_5,autpra9_5,autpra10_5).
```

```
compute BIO2_5 = MEAN(autpra13_5, autpra11_5, autpra13_5, autpra15_5, autpra16_5).
```

```
compute BIO2plus_5 = MEAN(autpra13_5, autpra11_5, autpra13_5, autpra15_5,
autpra16_5,autpra17_5).
```

```
variable labels BIO1_5 'biographical practices' /BIO1plus_5 'biographical practices including
internet' /BIO2_5 'self-disclosure' /BIO2plus_5 'self-disclosure including partnerr'.
```

```
COMPUTE BIO1_6 = MEAN(autpra1_6,autpra2_6,autpra6_6,autpra7_6,autpra8_6).
```

```
compute BIO1plus_6 =
```

```
MEAN(autpra1_6,autpra2_6,autpra6_6,autpra7_6,autpra8_6,autpra9_6,autpra10_6).
```

```
compute BIO2_6 = MEAN(autpra13_6, autpra11_6, autpra13_6, autpra15_6, autpra16_6).
```

```
compute BIO2plus_6 = MEAN(autpra13_6, autpra11_6, autpra13_6, autpra15_6,
autpra16_6,autpra17_6).
```

```
variable labels BIO1_6 'biographical practices' /BIO1plus_6 'biographical practices including
internet' /BIO2_6 'self-disclosure' /BIO2plus_6 'self-disclosure including partnerr'.
```

Wie häufig üben Sie folgende Tätigkeiten aus?

1. Gedichte über eigene Gefühle schreiben

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

2. Tagebuch führen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

3. Kleinere Aufsätze schreiben

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

4. Einen Web-Blog führen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

5. Bilder malen oder zeichnen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

6. Briefe von früher lesen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

7. Alte Fotos anschauen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

8. Eine Biographie lesen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

9. Eine persönliche Homepage oder Internetprofil pflegen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

10. Persönliche Fotos im Internet zeigen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

11. Per Internet (z.B. Facebook, Twitter, MSN, MySpace, StudiVz, Skype, Chat-Rooms) durch Kommentare, Fotos, Status-Updates über mein aktuelles Befinden informieren

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

12. Mich mit Freunden oder anderen Personen (Gleichbetroffenen?) im Internet über Interessen und/oder Probleme austauschen

nie	selten	gelegentlich	oft	immer				
0	1	2	3	4	5	6	7	8

