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Identität zwischen Gleichheit und Wandel: Kohärenz und Selbst-Kontinuität über die Lebensspanne in und mittels autobiographischer Lebenserzählungen

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der Johann Wolfgang Goethe-Universität Frankfurt am Main

von Dipl. Psych. Christin Köber

vom Fachbereich Psychologie und Sportwissenschaften

der Johann Wolfgang Goethe-Universität Frankfurt am Main als Dissertation angenommen.

Dekan:

Prof. Dr. Rolf van Dick

Gutachter:

1. Prof. Dr. Tilmann Habermas

2. Prof. Dr. Sonja Rohrmann

Prüfungskommission:

Prof. Dr. Rolf van Dick (Vorsitz)

Prof. Dr. Tilmann Habermas

Prof. Dr. Sonja Rohrmann

Prof. Dr. Florian Schmiedek

Prof. Dr. Regina Vollmeyer

Disputation:

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„[Das] Subjekt erkennt sich wieder

in der Geschichte, die es sich selbst über sich selbst erzählt“

(Ricœur 1991a, S. 397)

ZUSAMMENFASSUNG

Die Lebensgeschichte ist die umfassendste und individuellste Form des Selbstkonzepts und der psychosozialen Identität. Erikson (1959) und Ricœur (1991a) argumentieren, dass Lebenserzählungen, im Unterschied zu atemporalen Fassungen von Identität, es erlauben, Gleichheit und Wandel so zu überbrücken, dass über Zeit und Veränderung hinweg persönliche Kontinuität konstruiert werden kann. Diese diachrone Darstellung der eigenen Identität gelingt allerdings nur, wenn Lebenserzählungen global kohärent sind. Frühere Befunde zeigen querschnittlich, dass globale Kohärenz in Lebenserzählungen in der Adoleszenz entsteht (Habermas & de Silveira, 2008), sagen jedoch nichts über die lebenslange Entwicklung noch über ihren Beitrag zur persönlichen Kontinuität aus. Die vorliegende Dissertation widmete sich daher zwei Fragestellungen:

1a) Kann längsschnittlich bestätigt werden, dass die globale Kohärenz in der Adoleszenz entsteht und 1b) wie entwickelt sich diese über die Lebensspanne?

2) Hilft eine global kohärente Lebenserzählung bzw. ihre partielle Nutzung in Form autobiographischen Urteilens beim Erhalt der Selbstkontinuität?

Zur Beantwortung dieser Fragen wurden insgesamt 531 Lebenserzählungen von Personen im Alter von 8 bis 69 Jahren untersucht, die im Rahmen der Langzeitstudie „MainLife“ erhoben wurden. Die globale Kohärenz wurden mittels Ratingskalen und die entsprechenden Textindikatoren anhand von Manualen gemessen. Anhand von Mehrebenenmodellen wurden die entwicklungspsychologischen Altersverläufe erfasst sowie die zusätzliche Vorhersage der globalen Kohärenz durch die Textindikatoren.

Die Ergebnisse bestätigen längsschnittlich die Entstehung globaler Kohärenz in der Adoleszenz und zeigen darüber hinaus eine Weiterentwicklung im Erwachsenenalter. Außerdem konnte gezeigt werden, dass die partielle Nutzung der

Lebensgeschichte in Form autobiographischen Urteilens in Zeiten tiefgreifender Lebensveränderungen zum Erhalt der Selbst-Kontinuität beiträgt.

Die vorliegende Dissertation zeigt die Bedeutung der Lebensgeschichte für die lebenslange Identitätsentwicklung sowie das individuelle Identitätserleben auf. Es werden weiterführende Überlegungen diskutiert, die die Bedeutung der globalen Kohärenz und des autobiographischen Urteilens für mögliche Anwendungsfelder in der klinischen Psychologie und Sozialpsychologie aufzeigen.

INHALTSVERZEICHNIS

ABBILDUNGS- & TABELLENVERZEICHNIS

1. Theoretische Einleitung

1.1 Identität

1.1.1 Definition von Identität

Die alltägliche Frage „Erzähl mal, wie geht's dir?" löst aus, dass Menschen normalerweise kurz innehalten, um über sich selbst nachdenken und schließlich dem interessierten Zuhörer von sich zu erzählen. Egal wie umfangreich, tiefschürfend oder ausweichend die Antwort auf diese Frage ausfällt, sie könnte nicht gegeben werden, wenn Menschen sich selbst nicht kennen würden. Allgemeinhin wird vorausgesetzt, dass Menschen wissen, wer sie sind und darüber Auskunft geben können, was ihnen persönliche Identität verleiht.

Aus psychologischer Perspektive bezeichnet der Begriff Identität die Wesensmerkmale einer Gruppe oder eines Individuums. Aus dem Blickwinkel der Persönlichkeitspsychologie wohnt der Identität einer Person, der persönlichen Identität, zugleich ihre Individualität inne. Entsprechend wird sie als intrapersonale Einheit in differentieller Abgrenzung zu anderen Personen untersucht (Amelang, Bartussek, Stemmler & Hagemann, 2006). Diesen Fokus erweitert die Sozialpsychologie um die soziale Identität, die aus sozialer Zugehörigkeit zu verschiedenen Gruppen resultiert (Tajfel, 1974) und über die Identifikation mit der Gruppe zur persönlichen Identität beiträgt. Menschen wissen also nicht nur, wer sie sind, sondern auch, wer die anderen Personen und Gruppen sind und in welche Gruppen sie gehören. Dieses gegenseitige Wissen strukturiert individuelles Denken über sich selbst und andere und reguliert menschliche Interaktion.

Neben dem Wissen um die eigene Identität wird weiterhin vorausgesetzt, dass Menschen „sie selbst sind" und es auch bleiben. Wie aber behalten Kinder ihre

Identität, wenn aus ihnen hochbetagte Erwachsene werden? Wie ist es möglich, dass Erwachsene eine Vielzahl von Rollen und Gruppenzugehörigkeiten ausfüllen und ihr individueller Wesenskern dennoch erhalten bleibt?

Diese Fragen zielen auf die beiden Pole Gleichheit und Kontinuität, in deren Spannungsfeld sich lebenslange Identitätsentwicklung und individuelles Identitätserleben abspielen. Bereits in den Anfängen psychologischer Identitätsforschung, stellte James (1890) Gleichheit und Kontinuität als die Facetten des Selbst heraus, die der Mensch wahrnehmen müsse, um ein Identitätsgefühl erleben zu können (vgl. Hammack, 2015). Auch Erikson (1966) sah in der gleichzeitigen Beobachtung der eigenen Gleichheit und Kontinuität die unbedingte Voraussetzung für das bewusste Gefühl einer persönlichen Identität. Psychisch gesunde Menschen sollten in der Lage sein, trotz aller zwischenzeitlichen Entwicklungen und Veränderungen eine Verbindung zu ihrem Selbst aus der Vergangenheit herzustellen.

Gewährleistet wird die persönliche Identität durch das Bewusstsein, dass auch andere Menschen diese Gleichheit und Kontinuität wahrnehmen, was wiederum die eigene Selbst-Wahrnehmung stärkt. Gleichheit, Kontinuität sowie deren Wahrnehmung durch andere sind die drei Dimensionen, die Eriksons Konstrukt der psychosozialen Identität konstituieren (Conzen, 2010; Kastersztein, 1981). Der Begriff psychosozial dient der Verbindung von Individualität mit der sozialen Identität und verdeutlicht, dass Identität beides umfasst, „sowohl ein dauerndes inneres Sich-Selbst-Gleichsein wie ein dauerndes Teilhaben an bestimmten gruppenspezifischen Charakterzügen“ (Erikson, 1966, S. 124). Ungeachtet emotionaler Schwankungen, empfindet sich der Mensch in seinem Denken, Handeln und Fühlen als eine sich-selbst-gleiche Einheit, die dauerhaft einer sozialen Realität angehört. Ungeachtet sich ändernder Eigenschaften, Einstellungen, Pläne und Rollen erfährt der Mensch sich aufgrund seiner Erinnerungen

und Zukunftspläne als kontinuierliches Wesen, das ohne sein soziales Umfeld seine Identität gar nicht spüren könnte.

1.1.2 Präsentation von Identität

Nichtsdestotrotz wird für Erikson das Identitätsgefühl meist vorbewusst erlebt als ein „psychosoziales Wohlbefinden“, „Herr seines Körpers zu sein, zu wissen, dass man auf dem rechten Weg ist und eine innere Gewissheit, der Anerkennung derer, auf die es ankommt, sicher sein zu dürfen“ (Erikson, 1966, S. 147). Im Prozess der Identitätsbildung, z.B. während der Adoleszenz, in Zeiten großer Veränderungen oder Krisen wird das eigene Selbst zum Bewusstseinsgegenstand, der reflektiert werden kann. Im Zuge dessen bezeichnet der Begriff Identität den Austausch des inneren Erlebens der Person mit der sie umgebenden sozialen Welt. Der Begriff des Selbst meint das innere Erleben der Person und die von ihr nach innen gerichtete Aufmerksamkeit, um das Selbst bewusst zu reflektieren (Hammack, 2015).

Den Teil des Selbst, der sich selbst bewusst reflektieren kann, benannten James (1890) und später auch Erikson (1966) als das Ich (*I*), das wiederum über das Mich (*Me)* nachdenkt. Das Ich als regulierende und wahrnehmende Instanz reflektiert über das Mich, rekonstruiert und präsentiert es. Wie aber präsentiert das Ich sein Mich? Eriksons Antwort darauf lautet: „...Autobiographien ... sind reiche Quellen für die Erschließung der Wege zur Identitätsbildung. ... [man] müsste die Identitätsentwicklung an der Lebensgeschichte ... verfolgen“ (1966, S. 134).

Damit postuliert Erikson, dass Identität kein feststehender Wesenskern ist, sondern sich entwickelt. Im Zuge dieser Entwicklung gibt es Identitätsaspekte, die gleich bleiben und dem Individuum das Gefühl des Sich-Selbst-Gleichseins vermitteln. Jedoch findet ebenso Entwicklung über die Zeit statt, weshalb das Individuum sich

gleichzeitig als kontinuierlich wahrnimmt. Da Identität ausgehend von diesen Prämissen etwas sich Entwickelndes ist, kann ihre Darstellung am besten in Form von Erzählungen erfolgen. In dem Moment, in dem Menschen ihre Geschichte erzählen, können sie Erlebtes, Gewünschtes, Erhofftes, Entschiedenes, Befürchtetes, Vergangenes und Zukünftiges bewusst reflektieren, neu anordnen und schließlich in Form einer vollständigen Erzählung ihr Selbst und ihr Gewordensein präsentieren. Es formt sich die narrative Identität der Erzähler (Ricœur, 1991b). Einzelne Lebensereignisse sowie verschiedene Aspekte des Selbst wie z.B. Persönlichkeitseigenschaften, Gruppenzugehörigkeiten und Rollen werden vom Ich zu einer kontinuierlichen Entwicklungsgeschichte des Mich zusammengesetzt, was der Identität retrospektiv Zielgerichtetheit und Bedeutung verleiht (vgl. Bruner, 2004; Cohler, 1982; Polkinghorne, 1991).

Nun kann allerdings eingewandt werden, dass Menschen sich selbst präsentieren können, ohne gleich ihre gesamte Lebensgeschichte erzählen zu müssen. Ihr synchrones Selbst-Konzept bestehend aus Persönlichkeitszügen, Einstellungen, sozialen Rollen und Beziehungen, abgespeichert in Form von situationsabhängigen Selbst-Schemata (Breckler, Pratkanis & McCann, 1991; Higgins, Van Hook & Dorfman, 1988), befähigt sie dazu, über sich selbst Auskunft zu geben und sich auch selbst hinsichtlich verschiedener Aspekte und sozialer Situationen einzuschätzen. Das Selbst-Konzept ist insofern synchron, als dass es keine zeitlich-kontinuierliche Dimension hat. Persönlichkeitseigenschaften, Einstellungen und sozialen Rollen sind als abstraktes Wissen gespeichert, so dass Menschen Selbsteinschätzungen geben können, ohne zwangsläufig passende autobiographische Erinnerungen abzurufen (Klein & Loftus, 1993). Menschen wissen aufgrund ihres Selbst-Konzepts, wer sie sind und was sie selbst und andere von sich in bestimmten Situationen erwarten können. Häufig wissen sie jedoch nicht, wie sie an dieses Wissen gelangten (Nisbett & Wilson, 1977) noch

genügen die Informationen des Selbst-Konzeptes, um Kausalität im Leben zu erklären (Greenwood, 1990). Sobald Menschen nach ihren Motiven („Wieso willst du Medizin studieren?“), Entscheidungen („Bist du dir sicher, dass du ihn verlassen willst?“) oder Gründen („Warum bist du umgezogen?“) gefragt werden oder sich selbst ihren Werdegang erklären wollen („Wie konnte es soweit kommen?“), brauchen sie die bilanzierende Retrospektive auf ihre Lebensgeschichte oder zumindest auf einzelne autobiographische Erlebnisse. Dies wiederum grenzt Identität deutlich vom synchronen Selbst-Konzept ab und erweitert sie um ein diachrones Selbst mit einer zeitlich-kontinuierlichen Dimension, weshalb ihre umfassendste Darstellung eine narrative Form einnimmt.

1.1.3 Entwicklung von Identität

Um seine narrative Identität präsentieren, seine Lebensgeschichte erzählen zu können, braucht es das Bewusstsein über das synchrone und diachrone Selbst. Entwicklungs- und persönlichkeitspsychologische Studien zeigen, dass sich beides über die Lebenszeit entwickelt, was Eriksons Auffassung einer sich entwickelnden Identität bestätigt. Den Verlauf dieser Entwicklung fasst McAdams (2013) in seinem Modell zur Identitäts- und Selbstentwicklung zusammen. Die drei Ebenen des Modells sind in nachfolgender Darstellung veranschaulicht:

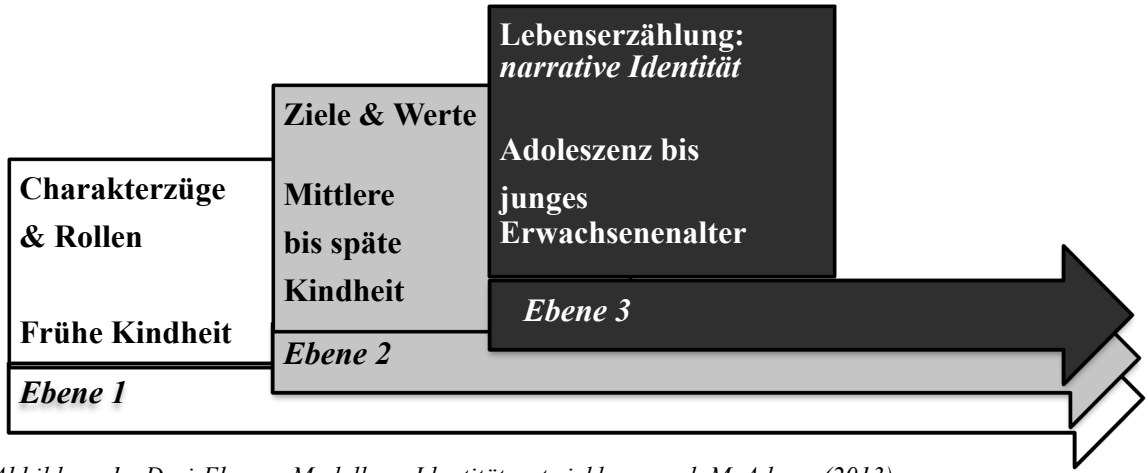

Abbildung 1: Drei-Ebenen-Modell zur Identitätsentwicklung nach McAdams (2013)

Alle drei Ebenen entwickeln sich nacheinander bis zum jungen Erwachsenenalter, bleiben über die gesamte Lebensspanne erhalten und ergänzen sich gegenseitig. Im frühen Kindesalter präsentieren Kinder, um sich selbst zu beschreiben, ihre Fähigkeiten, Persönlichkeitszüge, Vorlieben und sozialen Rollen, was McAdams auf erster Ebene ansiedelt. Das Ich präsentiert nur Teile des synchronen Mich.

Im mittleren bis späten Kindesalter wird dieses um den zeitlichen Aspekt der Zukunft erweitert. Selbst-Schemata bestehen nicht länger nur aus synchronen Eigenschaften. Ziele, Pläne, Werte, Hoffnungen und Ängste, welche die zweite Ebene darstellen, kommen hinzu, stehen mit den bereits bekannten synchronen Eigenschaften in Einklang stehen und leiten Motivation (Markus & Nurius, 1986). Kinder in diesem Alter können sich selbst in der Zukunft antizipieren, treffen erste selbstbestimmte Entscheidungen und verfolgen Ziele.

In der Adoleszenz und im frühen Erwachsenenalter schließlich gewinnt die persönliche Vergangenheit, dargestellt auf dritter Ebene, an Bedeutung und vervollständigt die Zeitebenen des Selbst. Angesichts der von der Pubertät ausgelösten Identitätskrise sehen Jugendliche ihre vormals empfundene Gleichheit und bisher lediglich zukunftsorientierte Kontinuität in Frage gestellt. Die Kindheitsidentifikationen der Vergangenheit reichen für ein bewusstes Identitätsgefühl nicht mehr aus. Deshalb werden alle vergangenen Erfahrungen und Informationen über die eigene Identität, die aufkommende Libido, neue sich entwickelnde Fähigkeiten sowie die Möglichkeiten zukünftiger sozialer Rollen neu exploriert, um schließlich in eine sich-gleiche und kontinuierliche Identität mit Vergangenheit, Gegenwart und Zukunft integriert zu werden (Erikson, 1984). Es entsteht das Bewusstsein, eine eigene Lebensgeschichte zu haben, mit der das jugendliche Ich nun auch sein diachrones Mich präsentieren kann.

1.2. Lebenserzählungen als Forschungsgegenstand

1.2.1 Kohärenz und Autobiographisches Urteilen

Wie bereits beschrieben ist die Lebensgeschichte die umfassendste Form, die Identität eines Individuums zu erfassen und darzustellen. Der Terminus Lebens*geschichte* bezeichnet an dieser Stelle den objektiv beschreibbaren Lebensverlauf. Sprachlich manifestiert sich die Lebensgeschichte entweder in Form von ganzen Lebens*erzählungen* oder, partiell mittels *autobiographischen Urteilens*. Letzteres beschreibt die Fähigkeit, zwischen zeitlich weit auseinanderliegenden Lebensereignissen und der Persönlichkeit bzw. deren Entwicklung Zusammenhänge herzustellen und zu reflektieren (Habermas & Bluck, 2000). Im Alltag tritt autobiographisches Urteilen auf, wenn Personen spontan einzelne vergangene Lebensereignisse berichten, diese biographisch einbetten und interpretieren. Lebenserzählungen und autobiographisches Urteilen ermöglichen die Beschreibung von Gleichheit und Kontinuität der Identität.

Gleichheit und Kontinuität der Identität werden allerdings nur dann deutlich, wenn die präsentierte Lebenserzählung für Erzähler und Zuhörer verständlich ist. Gleich jeder anderen Erzählung bedarf eine Lebenserzählung einer normativen linguistischen Struktur, anhand derer sie als Lebenserzählung erkannt und verstanden wird. Das grundlegende Kriterium zum Verständnis jeder Erzählung ist ihr inhaltlicher Zusammenhang, ihre Kohärenz. Nur in einer kohärenten Erzählung ist es für Erzähler und Zuhörer möglich, sinnvolle Verbindungen zwischen den einzelnen Informationen herzustellen und den Inhalt als Gesamtes zu erfassen (Trabasso, Suh & Payton, 1995). Dies ist insbesondere bei Lebenserzählungen wichtig, denn ohne Kohärenz entsteht keine sinnhafte Lebenserzählung und auch keine gerichtete Darstellung der Identitätsentwicklung. Die erzählende Person steht daher vor der Herausforderung, ihre

Vergangenheit, Gegenwart und Zukunft, eine Vielzahl von einzelnen Erlebnissen sowie ihre Persönlichkeitszüge, Rollen und Selbstkonzepte in ein kohärentes Narrativ zu bringen. Aufgrund dieser Vielfalt sowie des großes Zeitrahmens eines gesamten Lebens brauchen Lebenserzählungen globale Kohärenz, die den Zusammenhang des gesamten Textes und Inhaltes definiert.

Globale Kohärenz besteht aus den drei Arten der temporalen, kausal-motivationalen und thematischen Kohärenz (Habermas & Bluck, 2000). Temporale Kohärenz meint die chronologische Ordnung und die zeitliche Orientierung des Rezipienten in der Erzählung. Diese wird unterstützt durch die temporale Makrostruktur, definiert als temporale lineare Ordnung sowie die Ausarbeitung der Anfänge und Enden (Habermas, Ehlert-Lerche & de Silveira, 2009), welche hilft, die diversen Lebensereignisse in eine zeitlich-kohärente Lebenserzählung zu organisieren. Kausal-motivationale Kohärenz betrifft die Darstellung der Entwicklung und Veränderung der Persönlichkeit veranlasst durch verschiedene Motive und Ursachen. Thematische Kohärenz beschreibt die Ähnlichkeit disparater Teile des Lebens und das daraus folgende Herauskristallisieren von Lebensthemen.

Bisher wurde lediglich theoretisch angenommen (vgl. McLean, 2008), dass autobiographisches Urteilen zur globalen Kohärenz einer Lebenserzählung beiträgt. Beim autobiographischen Urteilen werden *autobiographische Argumente* verwendet, die vergangene Lebensereignisse mit der Entwicklung der Persönlichkeit verknüpfen, wodurch das Verständnis der eigenen Identität zusehends biografisch und die Lebenserzählung zunehmend kohärenter wird.

Bisherige Studien zeigten querschnittlich, dass sowohl globale Kohärenz als auch autobiographisches Urteilen sich in der Adoleszenz entwickeln (vgl. Grysman & Hudson, 2010; Habermas & de Silveira, 2008; McLean, Breen & Fournier, 2010). Andere wenige Studien zeigten, dass Erwachsene in Erzählungen einzelner

Lebensereignisse häufiger autobiographisch urteilen (Singer & Rexhaj, 2006), die autobiographischen Argumente mit zunehmendem Alter unterschiedlich gebrauchen (McLean, 2008) oder autobiographisches Urteilen im späten Erwachsenenalter möglicherweise insgesamt zurück geht (Pasupathi & Mansour, 2006). Allerdings betrachten diese Studien weder die längsschnittliche noch die lebenslange Entwicklung globaler Kohärenz in Lebenserzählungen. Ebenso wenig vermitteln sie ein einheitliches Bild zum lebenslangen Gebrauch autobiographischer Argumente. In Schriften I und II vorliegender Dissertation wurde daher längsschnittlich die lebenslange Entwicklung der drei Arten globaler Kohärenz sowie autobiographischen Urteilens untersucht.

1.2.2 Der Zusammenhang zwischen globaler Kohärenz und Selbst-Kontinuität

Während globale Kohärenz eine Textqualität beschreibt, meint Selbst-Kontinuität ein subjektives Empfinden. Personen sind ein Leben lang herausgefordert, Gleichheit und Veränderung ihrer Identität auszubalancieren, um das Gefühl der Selbst-Kontinuität über die Lebenszeit hinweg aufrecht zu erhalten.

Für Identitätsgleichheit braucht es keine autobiographischen Erzählungen. Schrift III (Habermas & Köber, 2015) erläutert, inwieweit das autobiographische Gedächtnis, das persönliche Selbstkonzept, stabile Beziehungen und ein stabiles Umfeld zu Identitätsgleichheit beitragen. Diese Mechanismen genügen jedoch nicht für lebenslange Selbst-Kontinuität, weil Leben fortwährend Veränderungen mit sich bringt. Insbesondere in Zeiten großer Veränderungen aufgrund entwicklungsbezogener bzw. körperlicher Wandlungen (z.B. Pubertät, spätes Erwachsenenalter), normativer sozialer Übergänge und Rollenwechsel (z.B. Elternwerden, Pensionierung), ökonomischer und umfeldbezogener Wechsel (z.B. Arbeitslosigkeit, Umzug) oder aufgrund kritischer

Lebensereignisse (z.B. Krankheit, Verlust geliebter Personen) wird das subjektive Kontinuitätsgefühl herausgefordert. In diesen Lebenssituationen braucht es autobiographisches Erzählen, das, sofern es kohärent erfolgt, die persönliche Vergangenheit, die möglicherweise wechselhafte Gegenwart und erstrebte Zukunft aufeinander abstimmt und somit Sinn stiftet. Dies kann, so wird in Schrift III argumentiert, lediglich in narrativer Form gelingen, weil damit zeitstabile Ähnlichkeiten zwischen Lebensereignissen beschrieben sowie Lebens- und Persönlichkeitsveränderungen erklärt werden können. Selbst-Kontinuität ist das Ergebnis der Kohärenz in Lebenserzählungen (Tengelyi, 1998). Diese theoretische Annahme wurde in Schrift IV dahingehend empirisch überprüft, ob die autobiographischen Argumente, die Veränderungen bzw. Motive bestimmter Lebensumstände erklären und zur kausal-motivationalen Kohärenz beitragen, das subjektive Kontinuitätsgefühl stützen.

1.2.3 Zusammenfassung der empirischen Fragestellungen

In vorliegender Dissertation wurden die Vorhersage und lebenslange Entwicklung globaler Kohärenz in ganzen Lebenserzählungen sowie der Beitrag autobiographischen Urteilens auf das Kontinuitätsgefühl untersucht. Insgesamt liegen ihr folgende Publikationen zugrunde:

I. Köber, C., Schmiedek, F., & Habermas, T. (2015). Characterizing Lifespan Development of Three Aspects of Coherence in Life Narratives : A Cohort-Sequential Study. *Developmental Psychology*, *51*, 260–275. doi:10.1037/a0038668

II. Köber, C., & Habermas, T. (zur Veröffentlichung eingereicht). Temporal macrostructure of entire life narratives and its development across the lifespan.

III. Habermas, T., & **Köber, C**. (2015). Autobiographical reasoning is constitutive for narrative identity. In K. C. McLean & M. Syed (Eds.), *Oxford handbook of identity development* (pp. 149-165). Oxford, UK: Oxford University Press. doi:10.1093/oxfordhb/9780199936564.013.010

IV. Habermas, T., & **Köber, C**. (2014). Autobiographical reasoning in life narratives buffers the effect of biographical disruptions on the sense of self-continuity. *Memory*. Advance online publication. doi:10.1080/09658211.2014.920885

In den Schriften I und II nahmen die Autoren an, dass die drei Aspekte globaler Kohärenz sich erst in der Adoleszenz und zudem nacheinander entwickeln. Die maßgeblichen Entwicklungen temporaler Kohärenz und temporaler Makrostruktur sollten in der Adoleszenz stattfinden (Schrift I und II), die Entwicklung der kausal-motivationalen Kohärenz sich bis ins junge Erwachsenenalter fortsetzen (Schrift I) und thematische Kohärenz sich noch im mittleren Erwachsenenalter entwickeln (Schrift I).

In Schrift III wurde die Bedeutung autobiographischen Urteilens für das Kontinuitätsgefühl zunächst theoretisch hergeleitet (Schrift III). Anschließend wurde die Annahme, dass Selbst-Kontinuität trotz tiefgreifender Lebensveränderungen mittels autobiographischen Urteilens erhalten werden kann, empirisch geprüft (Schrift IV).

Da alle Schriften im Rahmen einer Langzeitstudie angefertigt wurden und sich auf gemeinsame Daten stützen, werden diese kurz vorgestellt, bevor die Ergebnisse skizziert werden.

2. Die Daten der Langzeitstudie „MainLife“

Die vorliegende publikationsbasierte Promotion wurde im Rahmen der DFG-geförderten Langzeitstudie „MainLife“ angefertigt, deren Forschungsgegenstand die

Entwicklung autobiographischen Erzählens und der Lebensgeschichte ist. Bisher fanden drei Messzeitpunkte statt, die im Folgenden näher beleuchtet werden.

2.1 Rekrutierung und Beschreibung der Teilnehmer

Im Zeitraum von Herbst 2002 bis Sommer 2003 wurden erstmals 114 Teilnehmer interviewt, die entsprechend ihres Alters in die vier Kohorten der 8-, 12-, 16- und 20jährigen aufgeteilt wurden. Rekrutiert wurden diese vier Kohorten an der Comenius-Grundschule und dem Bettina-Gymnasium in Frankfurt am Main. Um die Teilnehmenden hinsichtlich ihres Bildungsstandes zu homogenisieren, wurden lediglich die 8jährigen mit einer Gymnasialempfehlung ausgewählt. Die Eltern der Minderjährigen wurden auf Elternabenden über die Studie informiert und gaben ihre Zustimmung zur Studienteilnahme. Die 20jährigen sind ehemalige SchülerInnen des Bettina-Gymnasiums und wurden per Post rekrutiert.

Im Zuge dieser ersten Erhebungswelle fanden im Abstand von 14 Tagen zwei Interviews statt, bei denen insgesamt 105 Teilnehmende ihre Lebensgeschichte jeweils unbekannten Interviewerinnen erzählten. Für diese Teilnehmenden wurden alle hier nachfolgend dargestellten Daten gemittelt und demzufolge beide Interviews aus dem Jahre 2003 als ein einziger Messzeitpunkt behandelt.

Vier Jahre später, im Jahr 2007, nahmen erneut 104 Personen und im Jahre 2011 wiederum 94 Personen aus den vier jüngeren Kohorten teil. Die Ausfallraten liegen demnach bei 8,9% und 9,6%. Alle Teilnehmenden erhielten im Jahr 2003 eine Aufwandsentschädigung von 20€ und in 2007 und 2011 jeweils 40€.

Zuzüglich zu den vier jüngeren Kohorten wurden im Jahr 2007 zwei erwachsene Altersgruppen ergänzt. Insgesamt 28 Personen mit dem Durchschnittsalter von 40 Jahren und 30 Personen mit dem Durchschnittsalter von 65 Jahren konnten mittels Aushängen an stark frequentierten Orten und über die Universität des dritten

Lebensalters der Goethe-Universität gewonnen werden. Von diesen 58 Erwachsenen nahmen 51 Personen erneut an der Erhebung im Jahr 2011 teil (Ausfallrate 12,1%) und wurden ebenfalls zu beiden Messzeitpunkten mit jeweils 40€ für ihren Aufwand entschädigt.

Querschnittlich umspannte „MainLife“ im Jahre 2011 in Form der insgesamt sechs Kohorten eine Altersspanne von 8 bis 69 Jahren. Trotz Ausfallraten konnte die gleiche Verteilung der Geschlechter pro Kohorte ungefähr aufrecht erhalten werden. Die nachfolgende Tabelle verdeutlicht die Alterskennwerte pro Kohorte und Messzeitpunkt sowie die Geschlechterverteilung in 2003 bzw. 2007:

Tabelle 1: Teilnehmeranzahl und Alterskennwerte (Mittelwert und Standardabweichung) pro Kohorte und Messzeitpunkt sowie anfängliche Geschlechterverteilung

Jahr	Kohorte 1	Kohorte 2	Kohorte 3	Kohorte 4	Kohorte 5	Kohorte 6	N
2003	8.63 *(0.23)*	12.45 *(0.34)*	16.56 *(0.41)*	20.51 *(0.53)*			114
2007	12.90 *(0.52)*	16.57 *(0.41)*	20.70 *(0.51)*	24.93 *(0.73)*	41.39 *(2.86)*	64.38 *(2.73)*	162
2011	17.03 *(0.48)*	20.58 *(0.39)*	24.61 *(0.41)*	28.90 *(0.67)*	45.08 *(3.02)*	68.73 *(2.65)*	150
N	in 2003				in 2007		
Weiblich	13	17	13	15	14	15	87
Männlich	14	14	15	13	14	15	85
Gesamt	27	31	28	28	28	30	172

2.2 Das Interview zur Lebensgeschichte

Zu jedem Messzeitpunkt erzählten die Teilnehmenden ihre Lebensgeschichte ihnen unbekannten Interviewerinnen. Die Zuteilung der Probanden erfolgte dabei hinsichtlich Alter und Geschlecht randomisiert. Alle Lebensgeschichten wurden mithilfe standardisierter Instruktionen erfasst. Zunächst wurden alle Probanden gebeten, die sieben wichtigsten Ereignisse ihres Lebens stichwortartig auf Karteikarten zu notieren und diese entsprechend ihrer chronologischen Reihenfolge anzuordnen. Die Karteikarten sollten gewährleisten, dass die Teilnehmenden konkrete Lebensereignisse

berichten und insbesondere den Jüngeren als Gerüst dienen. Anschließend wurden die Teilnehmenden gebeten, ihre Lebensgeschichte innerhalb von 15 Minuten zu erzählen und dabei die zuvor notierten sieben wichtigen Ereignisse zu integrieren.[1]

Die auf Tonband aufgenommenen Lebenserzählungen wurden anschließend transkribiert und in Propositionen, d.h. Aussageeinheiten, eingeteilt. Zu jedem Messzeitpunkt nahmen zwei Personen unabhängig voneinander die Propositionseinteilung bei 40 Lebensgeschichten vor, stimmten bei 96,2% bis 98,6% der Propositionen überein und kodierten schließlich jeweils die Hälfte der Lebensgeschichten.

[1]Die genauen Instruktionen zur Benennung der sieben wichtigsten Lebensereignisse sowie zum Erzählen der Lebensgeschichte lauteten:

a) *Ich möchte Sie als erstes bitten, dass Sie sich die 7 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 spezifischen Zeitraum. Wenn Ihnen länger andauernde 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 legen Sie sie vor sich auf den Tisch, und zwar so, dass Sie alle Karten gut sehen.*

b) *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 Sie beeinflusst hat, was für eine Person 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.*

2.3 Die Messung von globaler Kohärenz

Globale Kohärenz wurde auf zwei Arten erfasst. Zuerst wurden alle Lebenserzählungen mittels drei Ratingskalen zwischen Werten von 1 bis 7 hinsichtlich der drei Kohärenzarten bewertet. Zweitens wurden verschiedene Textindikatoren an der Sprachoberfläche mittels weiterer Manuale kodiert. Für jede Kohärenzart wurden verschiedene lokale Indikatoren in jeder Proposition erfasst und anschließend an der Gesamtanzahl der Propositionen der Lebenserzählung relativiert, um deren relative Häufigkeit festzustellen.

Für alle erhobenen Maße wurden auf der Basis von 32 unabhängig voneinander kodierten oder per Ratingskala bewerteten Lebensgeschichten (ausbalanciert für Alter, Geschlecht und Messzeitpunkt) Interrater-Reliabilitäten errechnet. Sobald eine Übereistimmung von mindestens Cohens' $\kappa = .80$ oder Intraklassenkorrelation von $r_{IC} = .80$ erreicht war, kodierte eine Person alle übrigen Lebensgeschichten. Um sicher zu stellen, dass im Verlauf des Kodierens die jeweiligen Manuale korrekt eingehalten wurden, wurde für jedes Maß zusätzlich eine zweite Interrater-Reliabilität auf der Basis von 16 weiteren Lebensgeschichten errechnet. Zur besseren Übersichtlichkeit sind alle Textindikatoren mit beiden Interrater-Reliabilitäten in nachfolgender Tabelle pro Kohärenzart dargestellt und anhand von Beispielen illustriert:

Tabelle 2: Übersicht der lokalen Indikatoren für globale Kohärenz

Art der Kohärenz	Kodes und Beispiele
Temporal	1) Temporale Indikatoren: % der Propositionen (r_{IC1} =.804, r_{IC2}=.954) - Angaben relativ zur Gegenwart: „Letztes Jahr ...“; „vor 2 Jahren“ - Lebensphase: „In der vierten Klasse ...“; „Als ich klein war“ - Alter: “Als ich 9 war” - Datumsangaben: “In 2002”; “Am 6. Mai 2006” - Datumsangaben ohne Jahr: “Wir heirateten am 13. August.“ [Gehört zur Variable „Temporale Desorientierung“]
Kausal-Motivational	2) Veränderungserklärende autobiographische Argumente: % der Propositionen (r_{IC1} =.742, r_{IC2}=.590) - Veränderung in Persönlichkeit: „ die Reise hat sich ganz viel für mich verändert, hat mich einfach auch selbstbewusster gemacht“ - Entdecken neuer Persönlichkeitsaspekte: „da habe ich dann festgestellt, dass ich mittlerweile, nach so vielen Jahren in Deutschland, von meiner Heimat und Kultur entfremdet war“

	3) Andere autobiographische Argumente: % der Propositionen (r_{IC1} =.933, r_{IC2}=.915) - Bezugnahme auf Entwicklungsstand: „Ich habe damals davon nichts mitbekommen, ich war auch noch zu jung dafür." - Bezugnahme auf biografischen Hintergrund: „ich hatte wirklich Probleme mit meiner Lehrerin hatte, das war meine Physik-Lehrerin und aus Trotz studier ich heute Physik" - Biografische Prägungen: „Mein Burn-out hat mich vielleicht dahingehend geprägt, dass ich heute auf Geld keinen so großen Wert mehr lege" - Gezogene Lehre: „Danach hab ich mir gesagt, wenn ich mich verliebe, dann muss ich das nächste Mal, wenn ich mich verliebe, aufpassen, dass die Schule nicht drunter leidet." - Allgemeine Erkenntnis: „Und also ich hatte davor auch noch andere Freundinnen, mit denen ich halt nicht mehr so gut befreundet bin...die haben sich total verändert immer wegen den Jungs auch und das ist halt ganz klar, also typisch irgendwie und dann wurden die halt immer zickiger und so" - Wendepunkte: „Dass das Kind da ist, das hat also das Leben total umgekrempelt."
Thematisch	4) Stabilitätsstützende autobiographische Argumente: % der Propositionen (r_{IC1} =.742, r_{IC2}=.590) - Persönlichkeit erklärt Lebensereignis als typisch: „in der Pubertät war ich immer so ganz schüchtern und ruhig und brav, also hab ich auch nie rebelliert, und von daher war es auch da eher sehr sehr eingeengt und eingeschränkt, ich war ein Spätentwickler in allen Bereichen, also ich hatte auch nie 'nen Freund" - Persönlichkeit erklärt Lebensereignisse als untypisch: „normalerweise sind wir in meiner Klasse alle, na ja ich würd mal sagen, Spießer, aber bei der Klassenfahrt sind wir alle richtig abgegangen, haben viel gefeiert

Als weiterer Indikator für temporale Kohärenz wurde die temporale Makrostruktur erhoben. Diese wird definiert als temporale lineare Ordnung sowie die Gestaltung der Anfänge und Enden (Habermas et al., 2009) und hilft, den weiten Zeitrahmes eines ganzen Lebens in eine zeitlich-kohärente Lebenserzählung zu organisieren (vgl. 1.2.1.). Zuzüglich zur Gestaltung der Anfänge wurde kodiert, inwieweit Personen den Beginn ihrer Lebensgeschichte in Bezug auf ihre Familienkonstellation, Familiengeschichte und ihren sozioökonomischen Hintergrund kontextualisieren, um den Zuhörer am Anfang der Erzählung zu orientieren. Mögliche Abweichungen von der zeitlichen linearen Anordnung, von Genette (1998) Anachronien genannt, wurden unterschieden in markierte und unmarkierte Anachronien. Markierte Anachronien orientieren den Rezipienten, weil sie Hinweise darüber enthalten, wann welches Ereignis im Leben stattfand und wie es zum zuvor Berichteten zeitlich in Beziehung steht. Unmarkierte

Anachronien hingegen weichen von der temporalen Linearität ab, ohne den Zuhörer zu orientieren, was zu Verwirrung führt. Nachfolgende Tabelle gibt eine Übersicht über die Kodes der temporalen Makrostruktur, illustriert durch Beispiele, und ihre beiden Interrater-Reliabilitäten:

Tabelle 3: Übersicht der Kodierung zur temporalen Makrostruktur

Kodes mit Beispielen
Beginn der Lebensgeschichte (κ_1 =.988, κ_2=.972)
0 – Unklar: "Also als erstes hat es so angefangen, dass ich mit meiner Mutter (-) und meinem Vater nach Oslo geflogen bin."
1 – Nach Geburt: "also als ich halt noch ganz ganz klein war, bin ich mit einem Jahr oder so in Kindergarten gekommen"
2 – Mit Geburt: „Also, ich bin geboren, da kann ich mich natürlich nicht mehr dran erinnern, wer kann das schon"
3 – Geburt mit objektiven Details: „Also ich bin in Frankfurt geboren"
4 – Geburt mit objektiven Details und Geschichte: „Also ich hab eine Zwillingsschwester und ähm ich bin ähm am 13. Dezember auf die Welt gekommen 1990, in Kroatien, ähm ja per Kaiserschnitt. Okay, also wir sind mit sieben Monaten zur Welt gekommen und waren, meine Schwester und ich, waren zu leicht und ähm zu klein"
Ende der Lebensgeschichte (κ_1 =.882, κ_2=.875)
0 – Beliebig: "und dann wurde auch noch so 'ne Kamera geklaut, die uns gar nicht gehörte, die gehörte an die anderer Familie hat so ne Kameraden mitgenommen, die gehörte (-) dem Bruder von der Mutter, und da hat sich halt der Vater ganz doll aufgeregt, und hatte den Rest dann einfach nur schlechte Laune. Das war blöd, und dann haben wir auch Lasagne gemacht, (-) ja, und dann sind wir wieder zurückgeflogen. (--) Fertig."
1 – In Gegenwart: " und heute wollen wir noch mal Plätzchen backen und auf'en Weihnachtsmarkt gehen."
2 – Mit Rückblick: "Ich hab halt viele Freunde, die mir schon seit halt ganz, die ich schon ganz lange kenne, und das gibt dann mir halt auch mehr Vertrauen, also dass ich mit Leuten reden kann,"
2 – Mit Ausblick: "Dann möchte ich, also Sport, studieren. Ja."
3 – Mit Rück- und Ausblick: " Ich werde in die Schweiz zum Skifahren gehen, 'ne schöne Zeit machen ein Monat lang, dann wieder kommen. Dann fängt wieder das Semester an und ja ansonsten das Leben hier ist immer noch monoton, wie es am Anfang war man hat halt jetzt Freunde, aber trotzdem ich war an was ganz anderes gewöhnt. Ich bin ein Sommermensch, ich brauch viel schönes Wetter, Sonne, Strand, Lachen, einfach viel Leben und für mich ist das hier kein Leben. Ich hab mir vorgenommen, mein Diplom so schnell wie möglich zu machen und dann von hier abzuhauen. Meine Eltern werden hier bleiben"
Kontextualisierung (Alle drei Arten: κ_1 =1.000, κ_2=1.000)
Sozio-ökonomischer Kontext: „Ja also ich bin geboren äh vor 41 Jahren im Bayrischen Land (-) äh als Kind von richtig reichen Eltern"
Familienkonstellation: „Ich bin am 16. März 1942 geboren, also noch im Krieg, als viertes Kind meiner Eltern, in Frankfurt. "
Familiengeschichte: „Ich bin in London in England geboren. Das liegt daran, dass mein Vater dort ähm gearbeitet hat an der Uni und meine Mutter mitgekommen ist zum Studieren.
Anachronien: Relative Häufigkeiten (Themenwechsel κ_1 =.859, κ_2=.940; Einschübe κ_1 =.770, κ_2=.872; unmarkierte Anachronien κ_1 =.859, κ_2=.938)
Themenwechsel: Ja und 1994 hatte ich dann meinen ersten Freund, /ja und was ich jetzt noch vergessen hab, / 1989 hat mein Vater meine Mutter verlassen, da war ich sehr traurig/ und habe sehr viel geweint.

Einschübe: “ Und dann so in der 8. Klasse ist sie meine beste Freundin geworden, /aber so in der Grundschule waren wir richtige Feinde, / haben so richtig die Klasse in zwei Hälften geteilt, / aber in der 8. waren wir auf Klassenfahrt / und sind dann irgendwie beste Freundinnen geworden.”
Unmarkierte Anachronie: “ Das war irgendwann im Kindergarten, / Da bin ich von der Treppe gefallen. / Und schon mal da war ich mit meiner Mama zu Hause, / war ich auf nem Stuhl, / bin ich mit dem Kopf auf den Tisch gefallen, / bin ich in Ohnmacht gefallen.“ [Gehört zur Variable „Temporale Desorientierung“]

Der temporale Indikator „Datumsangabe ohne Jahr“ (s. Tabelle 2) und die relative Häufigkeit der unmarkierten Anachronien (s. Tabelle 3) wurden z-standardisiert und zu einem negativen Indikator für temporale Kohärenz namens „temporale Desorientierung“ gemittelt.

2.4 Zusätzliche Maße

Im Anschluss ans Erzählen der Lebensgeschichte, wurden die Teilnehmenden gebeten, verschiedene Fragebögen auszufüllen. Aus ökonomischen Gründen werden an dieser Stelle lediglich die für die vorliegende Dissertation relevanten Fragebögen erläutert. Diese wurden für die in Schrift IV (Habermas & Köber, 2014) durchgeführte Studie verwendet.

2.4.1 Lebensveränderungen der letzten vier Jahre

Da in den ganzen Lebenserzählungen nicht zwangsläufig alle passierten wichtigen Lebensereignisse erwähnt werden, wurden die Teilnehmenden mittels einer selbstkonstruierten Skala zu einer Auswahl lebensverändernder Ereignisse befragt. Die Testpersonen sollten angeben, wie häufig in den letzten vier Jahren sich relevante Lebensumstände durch Ereignisse wie Verlust oder Trennung vom Partner, neue Liebesbeziehungen, Umzug oder Berufswechsel verändert hatten. Die Antwortskala reichte 6fach abgestuft von „gar nicht“ bis zu „mehr als vier Mal“. Da Häufigkeit als

auch Belastungsgrad der Ereignisse variieren, wurden alle Items vor Bildung der Mittelwerte z-standardisiert. Entsprechend der Heterogenität der Items lag die interne Konsistenz erwartungsgemäß eher niedrig bei α =.57.

2.4.1 Empfinden der persönlichen Selbst-Kontinuität

Das Gefühl der Selbst-Kontinuität wurde invertiert über die Messung von Selbst-Diskontinuität mittels eines selbstkonstruierten Fragebogens erfasst. Die vier Items, die mittels sechs Antwortmöglichkeiten von „ist völlig falsch“ bis zu „ist völlig richtig“ eingeschätzt werden sollten, lauteten:

1. *Ich kann mich noch gut in mich selbst, wie ich vor zehn Jahren war, hineinversetzen. (invertiert)*
2. *Wenn ich an mich selbst vor vier Jahren zurückdenke, komme ich mir ein wenig fremd vor.*
3. *Wenn ich mich auf Fotos von vor vier Jahren sehe, komme ich mir ein wenig fremd vor.*
4. *Ich habe das Gefühl, in meinem Kern die/derselbe wie vor vier Jahren zu sein.*

Die interne Konsistenz der Skala erwies sich mit α =.71 als gut.

3. Ergebnisse und Reflexion

3.1. Globale Kohärenz in Lebenserzählungen

3.1.1 Die Entwicklung und Vorhersage von globaler Kohärenz

Globale temporale Kohärenz entwickelte sich maßgeblich im Alter von 8 bis 12 und konsolidierte sich ab ca. 16 Jahren ohne weiteres Wachstum im mittleren und späten Erwachsenenalter. Auf Textebene wurde temporale Kohärenz vorhergesagt durch

möglichst geringe temporale Desorientierung, orientierende Anfänge und den Gebrauch temporaler Indikatoren. In Schrift II konnte ergänzend gezeigt werden, dass es den Teilnehmern ab dem Alter von 12 Jahren gelang, ihre Lebenserzählung zeitlich verständlich zu organisieren, indem Abweichungen von der zeitlichen Linearität sprachlich eindeutig markiert wurden. Ebenso entwickelte sich die Fähigkeit, die Lebenserzählung mit informativen und orientierenden Anfängen zu beginnen, bis zum Alter von 16 Jahren. Zusätzliche Informationen zum Lebensanfang der Erzähler in Form von Berichten zur Familienkonstellation und Familiengeschichte wurden allerdings erst ab 16 Jahren und Angaben zur sozio-ökonomischen Situation erst ab 24 Jahren gegeben. Ab dem Alter von 20 Jahren wurden alle Lebenserzählungen außerdem zeitlich verständlich entweder mit Bezug zur Gegenwart, Vergangenheit und / oder Zukunft der Erzähler beendet. Zusammenfassend kann man erwarten, dass die Lebenserzählung eines beispielsweise 16jährigen mit Erwähnung seiner Geburt und der Familienhintergründe beginnt, trotz überwiegend zeitlich linearer Struktur verständliche temporale Abweichungen enthält und schließlich in der Gegenwart endet. Das lässt die Erzählung insgesamt temporal kohärent erscheinen.

Globale kausal-motivationale Kohärenz war bei den 8jährigen kaum zu verzeichnen, trat schwach in den Lebenserzählungen der 12jährigen zutage, stieg linear bis zum Alter von 24 Jahren an und blieb anschließend für das mittlere und späte Erwachsenenalter stabil. Auf Textebene wurde diese Form der globalen Kohärenz vorhergesagt durch veränderungserklärende und andere autobiographische Argumente (s. Tabelle 2), sowie überraschend durch die Elaboration der Enden. Folglich gelingt es einem beispielsweise 20jährigen in seiner Lebenserzählung, die Bedeutung der erzählten Ereignisse für die Entwicklung seiner Persönlichkeit argumentativ darzulegen und damit seine Identitätsentwicklung überzeugend zu porträtieren. Die Erzählung wird

zudem retrospektiv mit einer kurzen Bilanz des bisherigen Lebens beendet. Diese trägt zusätzlich zur kausal-motivationalen Kohärenz bei.

Globale thematische Kohärenz kam in den Lebenserzählungen der 8jährigen kaum vor, stieg linear bis zum Alter von 40 Jahren an und blieb anschließend bis ins späte Erwachsenenalter stabil. Damit ist thematische Kohärenz, im Vergleich zu den anderen beiden, die einzige Kohärenzart, für die bis ins späte Erwachsenenalter ein lineares Wachstum festgestellt werden konnte. Auf Textebene wurde sie auf allen Altersstufen durch stabilitätsstützende autobiographische Argumente und erneut durch elaborierte Enden vorhergesagt. Zusammenfassend benennt ein beispielsweise 28jähriger in seiner Lebenserzählung, neben der Darstellung seiner bisherigen kontinuierlichen Identitätsentwicklung auch die Punkte, die gleich blieben und kristallisiert am Ende die für ihn wichtigen Lebensthemen heraus, was ihm im Alter von 40 Jahren noch besser gelingen wird. Dazu sei allerdings angemerkt, dass die 40jährigen zwar höhere Werte verzeichneten als die 28jährigen, weshalb anhaltendes Wachstum in dieser Altersspanne geschlussfolgert wird. Aufgrund des Studiendesigns liegen allerdings keine empirischen Werte dazu vor, so dass diese Vermutung erst zu zukünftigen Messzeitpunkten verifiziert oder falsifiziert werden kann.

3.1.2 Der Entwicklungsverlauf globaler Kohärenz in Lebenserzählungen als Antwort auf lebenslange Identitätsaufgaben

Diese erste Langzeitstudie zur Entwicklung der Lebensgeschichte zeigte, dass globale Kohärenz ganzer Lebenserzählungen in der Adoleszenz entsteht und sich im Erwachsenenalter kausal-motivationale und thematische Kohärenz noch weiter entwickeln.

Insbesondere dieser Befund der fortdauernden Entwicklung der drei Kohärenzarten lässt darauf schließen, dass diese aufeinander aufbauen und zu unterschiedlichen Lebensphasen auf unterschiedliche Identitätsaufgaben antworten. Da die Adoleszenten ihre Vergangenheit, Gegenwart und Zukunft erstmalig für sich selbst explorieren (Erikson, 1984; McAdams, 2013), geht es für sie zunächst darum, sich in ihrem neu bewusst gewordenen diachronen Selbst zurecht zu finden. Parallel dazu entwickelt sich das grundlegende Verständnis, welche Ereignisse in eine Lebensgeschichte gehören und dass vorzugsweise normative Lebensereignisse mit sozialen Alterserwartungen (z.B. Einschulung mit 6 Jahren, Konfirmation mit 14 Jahren, Abitur mit 18 Jahren) eine Lebenserzählung zeitlich strukturieren und organisieren können. Dieses Verständnis, definiert als kulturelles Biographiekonzept (Habermas & Bluck, 2000) oder life script (Rubin & Berntsen, 2003), entwickelt sich im späten Kindes- und frühen Jugendalter und sagt temporale Kohärenz und temporale Makrostruktur vorher (Bohn & Berntsen, 2008; Habermas et al., 2009). Der erste grobe Überblick für Lebenserzählungen im Allgemeinen sowie das Zurechtfinden in der eigenen Lebenserzählung im Speziellen scheint mit der Etablierung temporaler Kohärenz im Alter von 16 Jahren weitestgehend abgeschlossen. Es gelingt ab diesem Alter eine Lebenserzählung, die den Lebenslauf zeitlich verständlich präsentiert, wenn auch die konkrete Identitätsentwicklung noch zu erahnen bleibt.

Im Anschluss daran entsteht die globale kausal-motivationale Kohärenz im Jugend- bis frühen Erwachsenenalter. Zeitlich trifft dies mit dem Konflikt *Identität vs. Rollendiffusion* des Stufenmodells der psychosozialen Identitätsentwicklung (Erikson, 1984) zusammen. Während Kinder und junge Adoleszente sich noch über ihre Eltern identifizieren, sieht sich der späte Adoleszente und junge Erwachsene herausgefordert, die von der Pubertät ausgelösten Veränderungen zu akzeptieren, sich mit den ihm bietenden sozialen Rollen auseinanderzusetzen sowie Verpflichtungen, Werte und

Identifikationen anzunehmen oder zu verwerfen, um schließlich in eine ihm gerechte Erwachsenenidentität hineinzufinden. Dieses Abwägen und Entscheiden will wohl überlegt und reflektiert sein, denn in diesem Alter werden Lebensentscheidungen mit weitreichenden Konsequenzen (z.B. bewusste Freundes- und Berufswahl) zunehmend selbstständig und selbstverantwortlich getroffen. Entsprechend traten in den Lebenserzählungen ab diesem Alter autobiographische Argumente auf, die wechselnde Lebensumstände, Wendepunkte und Motive in Einklang brachten. Das ließ die gesamte Erzählung kausal-motivational kohärent erscheinen. Ab dem Alter von 20 Jahren werden verstärkt Lebenserzählungen präsentiert, die die sinnhafte, gerichtete und kontinuierliche Entwicklungsgeschichte der Identität offenbaren.

Thematische Kohärenz entwickelte sich erwartungsgemäß im Anschluss an die beiden anderen Aspekte und überdies bis ins mittlere Erwachsenenalter von ca. 40 Jahren. Lag im Alter der späten Adoleszenz und des frühen Erwachsenenalters der Schwerpunkt der Identitätsentwicklung noch auf Veränderung und Aufbau, so fokussieren sich mittlere bis späte Erwachsene auf Stabilisierung des für sie Wesentlichen. In diesem Lebensalter werden Erwachsene von ihren zahlreichen privaten, familiären, sozialen und beruflichen Rollen gefordert, was ein Bedürfnis nach empfundener Identitätsgleichheit auszulösen scheint. Veränderungen zielen nun nicht länger auf die gesamte Identitätsentwicklung, sondern auf einzelne Bereiche des Selbstkonzeptes wie zum Beispiel auf einzelne Persönlichkeitszüge, Einstellungen oder Verhaltensweisen. Neue Lebensereignisse werden entweder an die bereits stabile Identität assimiliert oder, im Falle großer Diskrepanzen, die Identität an die Lebensereignisse akkommodiert (Sneed & Whitbourne, 2003). Der in Schrift I beschriebene Befund, dass sich veränderungserklärende und stabilitätsstützende autobiographische Argumente ungefähr parallel entwickeln und jeweils zu kausal-motivationaler bzw. thematischer Kohärenz beitragen, legt deren komplementäre

Funktion nahe. Mittlere und ältere Erwachsene scheinen Wechsel und Stabilität bewusster ausbalancieren zu können als Jüngere, da ihnen beide Arten autobiographischer Argumente bei Bedarf zur Verfügung stehen.

Ferner konnte quer- und längsschnittliche Identitätsforschung, die sich auf Eriksons Modell der psychosozialen Identitätsentwicklung stützt, zeigen, dass Wechsel und Stabilität der Identität sich im Laufe des Erwachsenenalters ergänzen, denn beides löst angemessen die Konflikte des Erwachsenenalters, *Identität vs. Rollendiffusion* und *Ich-Integrität vs. Verzweiflung* (Erikson, 1992; Kroger, 2014). Diese gleichzeitig wahrgenommene Balance von Gleichheit und Kontinuität entspricht nicht nur exakt Erikson's Definition von gesunder Identität (s.1.1.1.), sondern reüssiert im späten Erwachsenalter in einem „Gefühl von ... Ganzheit" (1992, S. 83). Mit einem gewissen Erfahrungsschatz und wenn Menschen sich selbst ausreichend durch diverse soziale und biographische Herausforderungen kennen gelernt haben, scheint es ihnen zu gelingen, die sie stabilisierenden Lebensthemen zu abstrahieren. Das erlaubt den wohl privilegiertesten Einblick in ihre Identität.

Damit konnte im Rahmen dieser Dissertation längsschnittlich bestätigt werden, dass globale Kohärenz in Lebenserzählungen während der Adoleszenz entsteht und erstmalig gezeigt werden, dass diese sich im Erwachsenenalter weiterentwickelt und durch den Gebrauch diverser Textindikatoren vorhergesagt wird (Schrift I). Die Identität erweitert sich um eine diachrone Dimension, indem ab der Adoleszenz dem Individuum die eigene kohärente Lebenserzählung zur Verfügung steht.

3.2. Autobiographisches Urteilen und Selbst-Kontinuität

Da Identitätsentwicklung ein lebenslanger Prozess ist und Leben stetig Veränderungen mit sich bringt, stellt sich die Frage, ob mittels einer kohärenten Lebenserzählung und

dem Bewusstsein der eigenen diachronen Identität subjektive Selbst-Kontinuität erreicht bzw. ein Leben lang erhalten werden kann. In Schrift III argumentieren die Autoren, dass autobiographisches Urteilen Selbst-Kontinuität erhält, weil im Zuge dessen Lebensveränderungen und ihre Folgen erklärt sowie ihre Bedeutung für die eigene Identitätsentwicklung reflektiert werden. Ausgehend davon testete Schrift IV die Hypothese, dass der beeinträchtigende Einfluss biographischer Brüche und Diskontinuitäten auf die Selbst-Kontinuität mittels autobiographischen Urteilens abgemildert werden kann. Insbesondere wurde der Effekt veränderungserklärender und anderer autobiographischer Argumente (s. Tabelle 2) getestet, die identitätsrelevante Veränderungen narrativ überbrücken und in den größeren Kontext der Lebensgeschichte einbetten. Erwartungsgemäß korrelierte, auch unter Ausschluss des Alters, autobiographisches Urteilen mit empfundener Selbst-Kontinuität bei dem Viertel der Probanden, die in den letzten vier Jahren die stärksten Lebensveränderungen erlebt hatten.

Die Ergebnisse legen nahe, dass in Zeiten großer Lebensveränderungen die Beeinträchtigungen im Selbst-Kontinuitätsgefühl durch autobiographisches Urteilen abgefedert werden. So konnte erstmalig Ricœurs (1991a) Argumentation der die Selbst-Kontinuität erhaltenden Funktion der Lebensgeschichte empirisch untermauert werden.

Mit dem übereinstimmend wiesen klinische Studien nach, dass erfolgreiches Coping bei Lebensbrüchen auch davon abhängt, ob lebensgeschichtlich Sinn hergestellt und die kritischen Ereignisse erfolgreich in die Identität integriert werden können (Park, 2010). Bloßes Erinnern der Vergangenheit mittels alter Fotos oder Filme, das zwar zur Selbst-Kontinuität beiträgt (Sedikides, Wildschut, Gaertner, Routledge & Arndt, 2008), scheint bei gravierenden persönlichen Veränderungen nicht ausreichend zum Sinnerleben beizutragen. Stattdessen müssen Vergangenheit und die gravierend veränderte Gegenwart bewusst harmonisiert werden. Dies gelingt am Besten durch

autobiographische Argumente, die den Lebensveränderungen zum Beispiel in Form von gelernten Lektionen, neuen Prägungen oder allgemeinen Einsichten Sinn abringen.

4. Ausblick auf weitere Forschung

So persönlich Lebenserzählungen sind, so einzigartig sind sie als Forschungsgegenstand. Weil autobiographische Erzählungen und insbesondere komplette Lebenserzählungen eine besondere Auswahl von persönlichen Ereignissen enthalten, diese mit Zielen, Motivationen, Werten und Persönlichkeitszügen verbinden und über erlebte Gefühle informieren, integrieren sie sämtliche Aspekte der Persönlichkeits- und Identitätsforschung.

Die oben dargestellten drei Ebenen in McAdams' Modell (vgl. 1.1.3., McAdams, 2013) gelten als drei Ausgangspunkte, Persönlichkeit und Individualität zu untersuchen (Raggatt, 2006). Andere Studien untersuchten, inwieweit die drei Ebenen miteinander zusammenhängen und inwieweit dies Menschen differentiell voneinander unterscheidet. Studien, die den Zusammenhang der Big Five (Ebene 1) mit Motiven, Zielen und Verhalten (Ebene 2) untersuchten, konnten zeigen, dass Menschen in ihrem Arbeitsverhalten (Consiglio, Alessandri, Borgogni & Piccolo, 2013), ihrem Beziehungserleben (Altmann, Sierau & Roth, 2013; Asendorpf & Wilpers, 1998), ihrer Kommunikation (Thorne, 1987) und ihrem Alkoholkonsum (Paunonen, 2003) von ihren Persönlichkeitszügen beeinflusst werden. Andere Studien, die den Zusammenhang zwischen Ebene 1 und Ebene 3 untersuchten, konnten Zusammenhänge zwischen den Big Five und der Gestaltung von autobiographischen Erzählungen zeigen, allerdings blieben die Ergebnisse für einzelne Persönlichkeitszüge widersprüchlich (McAdams et al., 2004; Raggatt, 2006).

McAdams und Kollegen (2004) schlussfolgerten daraus, dass Lebenserzählungen die Big Five nicht ausreichend präsentieren. Es erscheint allerdings fraglich, ob das Entdecken der Big Five die richtige Herangehensweise an autobiographische Erzählungen ist. Basierend auf den oben zitierten Studien, die Zusammenhänge zwischen Ebene 1 und 2 nachwiesen, wäre zu erwarten, dass diese beiden Ebenen in Lebenserzählungen miteinander verwoben sind. Motive, Ziele und Werte (Ebene 2) moderieren vermutlich den Zusammenhang zwischen Ebene 1 und 3, weshalb der Nachweis eines direkten Zusammenhangs misslang. So konnten Bipp, Steinmayr, und Spinath (2008) zeigen, dass Extraversion positiv mit Lernzielen (learning goal orientation) der Leistungsmotivation korreliert, während die Persönlichkeitszüge Verträglichkeit und Offenheit für Erfahrung eher mit Leistungszielen (performance goals) in Verbindung stehen. Leistungsmotivation und Ziele wiederum beeinflussen den Inhalt, die Wortwahl und emotionalen Ton alltäglicher autobiographischer Erinnerungen (Ebene 3; Bender, Woike, Burke & Dow, 2012). Auch deren Abruf einzelner autobiographischer Episoden wird von aktuellen Zielen und Motiven selektiert, mit denen das Selbstkonzept in Einklang bleiben möchte (Conway, 2005). Im Gegensatz zu diesen Studien, die Erzählungen einzelner Lebensereignisse untersuchten (Bender et al., 2012; McAdams et al., 2004; Raggatt, 2006), böten ganze Lebenserzählungen den Vorteil, dass sie über Zeit und Veränderung hinweg Kontinuität darstellen können, was die Integration und Erklärung vergangener, veränderter oder aufgegebener Ziele und Motive erlaubt, ohne das aktuelle Selbstkonzept zu bedrohen. Das sollte wiederum in einem weniger restriktiven Abruf autobiographischer Erinnerungen resultieren. Wenn das gesamte Leben als Referenzrahmen zugrunde gelegt wird, zeigen sich die empirischen Beziehungen zwischen den drei Ebenen von Identität vielleicht deutlicher. Zukünftige Identitäts- und Persönlichkeitsforschung könnte daher wie folgt gestaltet werden: zuerst werden mittels des Neo-FFI (Borkenau

& Ostendorpf, 1993) die Big Five erfasst, anschließend werden Ziele, Motive und Werte in autobiographischen Erzählungen inhaltlich kategorisiert und überprüft, ob diese mit den Big Five korrelieren, um schließlich psycholinguistisch zu erfassen, ob es persönlichkeits- und motivtypische korrespondierende formale narrative Kategorien gibt.

Die erfolgreiche Etablierung der Big Five als auch die Einteilung impliziter Motive in die drei Kategorien Macht, Leistung und Intimität (Woike, 2008a, 2008b) zeigt, dass Menschen nicht so einzigartig sind, dass sich nicht eine begrenzte Anzahl von Kategorien für verschiedene Identitätskonstrukte finden ließe. Dennoch mangelt es bisher an einheitlichen inhaltlichen und formal narrativen Kategorien, die autobiographische Erzählungen und gesamte Lebenserzählungen systematisieren. Ebenso wie die Big Five aus fünf Dimensionen bestehen, ließen sich vielleicht in ähnlicher Weise für Lebenserzählungen eine begrenzte Anzahl von Dimensionen finden, die wechselwirksam narrative Identität erfassen und die reliable Messung differentieller Unterschiede erlauben. Vorliegende Dissertation konnte zeigen, dass die Lebenserzählungen reliabel zwischen wenig und sehr kohärent unterschieden werden konnten. Weitere inhaltliche und narrative Kategorien könnten Stabilität der Lebenserzählungen, persönlich erlebte Agentizität, Werte, spontane Selbstbeschreibungen, Lebensthemen sowie die Identifikationen mit Rollen und emotionaler Ton sein. Sind eventuelle narrative Identitätsdimensionen einmal identifiziert, könnte weiterhin untersucht werden, ob diese über die Lebensspanne stabil bleiben oder sich im Zuge der kontinuierlichen Identitätsentwicklung ebenso kontinuierlich verändern und ob dies, im Umkehrschluss, einen Einfluss auf die Stabilität von Rollen, Werten, Identifikationen (Ebene 2) und von Persönlichkeitszügen (Ebene 1) hat. Im Unterschied zu den oben zitierten Studien, die die Teilnehmenden nach einzelnen Schlüsselerlebnissen fragten (McAdams et al., 2004; Raggatt, 2006),

bergen ganze Lebenserzählungen den Vorteil, dass die Teilnehmenden ihre erzählten Ereignisse selbst auswählen und auf Grundlage ihres gesamten Lebens autobiographisch urteilen, Bilanz ziehen und ihre gesamte Identitätsentwicklung darstellen. Eventuelle inhaltliche und narrative Identitätsdimensionen wären demnach natürlich auftretende Kategorien und im Gesamten für das Zusammenwirken mit den anderen beiden Ebenen vermutlich aussagekräftiger.

Zugebenermaßen vernachlässigen die hier angewandten Messungen der Kohärenz und des autobiographischen Urteilens den Inhalt der Lebenserzählungen. Es fehlt insbesondere die Berücksichtigung des psychosozialen Identitätsaspekts. Identitätsbildung findet jedoch maßgeblich über die Identifikation mit Rollen, Beziehungen und Gruppenzugehörigkeiten statt. Die Kategorisierung der sozialen Umwelt in Gruppen erlaubt Menschen Orientierung in sozialer Interaktion und die Definition ihrer eigenen sozialen Identität, d.h. ihres Platzes in der Gesellschaft (Tajfel & Turner, 1979).

Das Wissen um den eigenen Platz in der Gesellschaft im Erwachsenenalter ergibt sich unter anderem aus dem Berufsleben, weil die daraus abgeleitete Berufsidentität (*job identity,* Crocetti, Avanzi, Hawk, Fraccaroli & Meeus, 2013) sich einerseits aus dem persönlichen Zugehörigkeitsgefühl zu einer bestimmten Berufsgruppe („Ich bin Arzt“) und andererseits aus der sozialen Zugehörigkeit zu einer Organisation („Ich arbeite in der Notaufnahme des Markus-Krankenhauses“) zusammensetzt. Ebenso wie persönliche Identität, entwickelt sich die Berufsidentität durch Exploration und gesammelte Erfahrungen, aber auch durch Identifikation mit der Tätgkeit und der Organisation (Crocetti et al., 2013). Folglich ist die Berufsidentität Teil der psychosozialen Identität und zugleich eine Form der Lebensgeschichte, die sich angesichts von Stabilität und Wandel im Berufsleben über die Lebensspanne verändert. Aus diesem Grund könnte die Anwendung narrativer Methoden für die Sozial- und

Arbeitspsychologie gewinnbringend sein. Tatsächlich sind, abgesehen vom psychotherapeutischen Rahmen, Vorstellungsgespräche die soziale Gelegenheit, in der Menschen nach ihrem gesamten Werdegang gefragt werden. Um soziale und berufliche Identität zu erforschen, böten sich demzufolge ganze Lebenserzählungen, aber auch Transskripte von Vorstellungsgesprächen an. Bisher messen Fragebögen wie die Other in the Self Scale (Aron, Aron & Smollan, 1992), the Relational-Interdependent Self-Construal Scale (Cross, Bacon & Morris, 2000), or the Relational, Individual, and Collective Self-Aspects Scale (Kashima & Hardie, 2000) Identifikationen und individuelles Identifikationsverhalten. Im Unterschied dazu erlauben komplette Lebenserzählungen und, so darf wohl angenommen werden, auch Transskripte von Vorstellungsgesprächen komplexere Einblicke in die Wechselwirksamkeit von persönlicher und sozialer bzw. beruflicher Identität sowie deren Veränderung über die Lebensspanne.

Konkret könnte es aufschlussreich sein, wie viel Raum in Lebenserzählungen dem Berufsleben gewidmet wird, welche Art von Arbeitserlebnissen Personen in ihre Lebenserzählungen aufnehmen und demzufolge als identitätsbildend ansehen. Ebenso könnten zukünftige Studien in Lebenserzählungen untersuchen, in welchem Ausmaß die Identifikation mit dem Beruf und mit Arbeitgebern, Vorgesetzten oder dem Arbeitsteam zur narrativen Identität beitragen, inwieweit gesunde oder Überidentifikation stattfindet und inwieweit sich dies wiederum am Arbeitsplatz, zum Beispiel auf Teamdynamiken, auswirkt. Weiter könnte untersucht werden, inwieweit sich bei Verlust des Arbeitsplatzes, Stellenwechsel oder Pensionierung einmal erworbene psychosoziale Identität verändert bzw. stabil bleibt. Andererseits könnte in Transskripten von Vorstellungsgesprächen untersucht werden, ob die Entscheidung für den Beruf oder bestimmte Berufsentscheidungen kausal-motivational kohärent und in selbstverantwortlicher und selbstwirksamer Weise (Agentizität) erzählt werden können.

Diese Ansätze beträfen die Interdependenz zwischen persönlicher und sozialer Identität und erweitern Eriksons' psychosoziale Identität zur *narrativen psychosozialen Identität*. Verdeutlicht sei dies abschließend durch die Erweiterung des eingangs zitierten Ausspruch Ricœurs (1991a): das Subjekt erkennt sich nicht nur in der Geschichte, die es sich selbst über sich selbst erzählt, sondern auch in der Geschichte, die andere über es erzählen.

5. Konklusion

Identität setzt sich in ihren synchronen und diachronen Aspekten aus drei Ebenen zusammen, von denen die Lebenserzählung die umfassendste und diachrone Form ist. Die drei Ebenen komplementieren sich gegenseitig und keine Ebene kann eine andere ersetzen. Mittels jeder Ebene kann das Mich dem Ich auf die Frage „Wer bin ich?" in charakteristischer Weise antworten. Auf die Frage „Wie wurde ich dazu?" antwortet allerdings nur die Lebensgeschichte. In künftiger Persönlichkeits- und sozialer Identitätsforschung könnten deshalb zusätzlich zu Persönlichkeitseigenschaften, Zielen und Identifikationen narrative Merkmale erhoben werden, um nicht nur Stabilität, sondern auch Kontinuität der Identität zu berücksichtigen. Dafür hofft diese Arbeit als ein Ausgangspunkt zu dienen.

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ANHANG

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Characterizing Lifespan Development of Three Aspects of Coherence in Life Narratives: A Cohort-Sequential Study

Christin Köber
Goethe University Frankfurt

Florian Schmiedek
Goethe University Frankfurt and German Institute for International Educational Research (DIPF), Frankfurt am Main, Germany

Tilmann Habermas
Goethe University Frankfurt

The ability to narrate stories and a synchronic self-concept develop in the pre- and primary school years. Life story theory proposes that both developments extend to an even later developmental stage, that is, to adolescents' acquisition of a coherent life story. Cross-sectional evidence supports the emergence of a life story in adolescence, but is mixed in terms of later life span development. The present study examines longitudinally the development of global coherence in life narratives across almost the entire life span. Starting in 2003, a total of 172 participants narrated their lives over the course of 8 years (aged 16, 20, 24, 28, 44, and 69 when last tested) resulting in up to 4 life narratives per person. Three aspects of global life narrative coherence—temporal, causal-motivational, and thematic coherence—were measured with global ratings and predicted by their respective textual indicators. Children lacked most aspects of global coherence. Almost all indicators of temporal and causal-motivational coherence increased substantially across adolescence up to early adulthood, as did thematic coherence, which continued to develop throughout middle adulthood.

Keywords: life story, narrative, narrative identity, life span, autobiographical reasoning

"Ok, now you have the whole story" was one participant's way of wrapping up her life narrative after she had added a last episode to reinterpret her entire life in light of that episode. What exactly made this woman feel her life narrative was complete? We suggest that it was both a judgment of having included the most self-defining moments and of having tied together past events so that her development was coherently and comprehensibly narrated. To date, only cross-sectional studies have shown that the ability to narrate coherent life narratives develops in adolescence (Bohn & Berntsen, 2008, 2013; Habermas & de Silveira, 2008; Habermas & Paha, 2001). We longitudinally extended our study reported in 2008 and added a middle-aged and older adult group to explore the developmental changes of life narrative coherence from childhood to adulthood. After introducing the theoretical background, we define global life narrative coherence to finally discuss the evidence for its development to date.

Narrative Identity and the Life Story

To be understood regarding certain reactions, actions, or characteristics, one may refer to one's life story. The own history is interpreted to explain stability or change of personality. The most adequate form for such an interpretation of the self is narrative. This form of identity, named *narrative identity* by Ricœur (1991), allows constructing self-continuity across change over time. McAdams (2013) integrated this concept of narrative identity into his personality framework. At the highest level, individuals are the authors of their lives and aim to bring traits, skills, goals, values, and experiences into a meaningful life story. An entire life narrative is the most complete linguistic manifestation of the life story. Autobiographical reasoning employs the life story in a piecemeal fashion. It uses autobiographical arguments that connect specific memories to distant life parts and to personal development (Habermas, 2011), typically in autobiographical narratives of specific past events. Either way, the life story serves to interpret lives and to constitute narrative identity (Habermas & Köber, 2015).

Three Kinds of Global Textual Coherence

Any attempt to narrate a life needs to be globally coherent to succeed in constructing narrative identity. Global coherence is a

Christin Köber, Department of Psychology, Goethe University Frankfurt; Florian Schmiedek, Department of Psychology, Goethe University Frankfurt and German Institute for International Educational Research (DIPF), Frankfurt am Main, Germany; Tilmann Habermas, Department of Psychology, Goethe University Frankfurt.

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Correspondence concerning this article should be addressed to Christin Köber, Department of Psychology, Goethe University Frankfurt, Theodor W. Adorno Platz 6 PEG, D-60323 Frankfurt a. M., Germany. E-mail: koeber@psych.uni-frankfurt.de

fundamental aspect of life narratives, because they are expected to relate life events to their context, to each other, and to the individual's personality and development so as to present a meaningful, coherent life.

Bluck and Habermas (2000) defined four major aspects of overall global coherence: temporal, causal-motivational, and thematic coherence and the coherence-supporting function of the cultural concept of biography. The cultural concept of biography defines what a life narrative should look like. It includes a set of normative transitions with age norms, termed life script by Rubin and Berntsen (2003). Here we focus on the three kinds of textual coherence.

Temporal Coherence

Global temporal coherence enables listeners to orient themselves as to when an event happened in the narrator's life and to the textual elements contributing to that coherence. Life narratives are formed by a sequence of variously compressed representations of events, ranging from specific and repeated events to segments that chronicle extended events and entire life time periods (Habermas & Diel, 2013; Thomsen, 2009). An overarching temporal macrostructure, that is, the temporal order of events and the elaboration of beginnings and endings, helps to integrate these diverse autobiographical memories into a temporally coherent narrative (Habermas, Ehlert-Lerche, & de Silveira, 2009).

Any timeline of life begins with birth or even conception, that is, before individual memory sets in. Therefore life narratives are expected to begin no later than with birth. Sometimes birth stories or earliest memories are told to foreshadow the global interpretation of life (Lejeune, 1986). The basic way of any narrative to maintain listeners' temporal orientation is to imitate the sequence of events by narrating events in chronological order. Sometimes a narrative may deviate from linear chronology, termed *anachrony* (Genette, 1982). Anachronies need to be clearly marked by temporal indicators of when something happened in life in order to preserve the temporal orientation. Such indicators may refer to age, life phases, or calendar dates. In unmarked anachronies, the listener does not know when an event happened in life.

A requirement for ending a life narrative is to arrive in the present. Summarizing, most often with global biographical evaluations (Rosenthal, 1993), creates additional coherence. Because autobiographical life narratives cannot end with the end of life, the ending may also provide an outlook onto the future (Bohn & Berntsen, 2013).

Causal-Motivational Coherence

Global causal-motivational coherence of life narratives enables recipients and narrators to understand the narrator's personal development. Life narratives are prototypically intended to answer the question who one is today by narrating how one became this person.

At the textual level, global causal-motivational coherence results from linking events and the narrator's personality by portraying how one event caused other events or how motives led to actions producing consequences that transcend the boundaries of local events. We have termed this activity of reflecting about life events from a biographical perspective *autobiographical reasoning*, which involves the use of *autobiographical arguments* (Habermas & Bluck, 2000). Inspired by Pasupathi, Mansour, and Brubaker's (2007) dichotomy of change-engendering versus stability-maintaining biographical links, we later specified that causal-motivational coherence is created by arguments that explain change in life or personality, thereby creating continuity across change (Habermas & Köber, 2014), whereas arguments that create or imply stability or similarity contribute to thematic coherence (Habermas, 2011). There is a variety of autobiographical arguments that explain change. One may, for example, explain past actions with one's past developmental status, tell how one learned a lesson, refer to turning points or to personal and general insights. Also, life circumstances and events may exert a formative influence, and a specific experience may create a very individual sensibility. Further, an event may motivate an enduring personality change or an event may allow new insights in the self (Pasupathi et al., 2007). Autobiographical arguments are powerful instruments to create causal-motivational coherence if they explain enduring change in the self by reference to life events.

Thematic Coherence

Global thematic coherence allows listeners to grasp the dominant life themes of narrators. It is constituted by how well the different parts of a life and the narrator's personality match in terms of similarity of themes. It is implicit if similarities between various events or actions impress the listener but are not named. In addition, there are many ways to render thematic coherence explicit. For example, a past–present comparison may state that an element is still the same. Or an exemplification may illustrate a general point about the narrator or her or his life with a specific event (Habermas & de Silveira, 2008). Stability-maintaining self-event connections explain an action by an enduring personality trait, or declare an action as reflecting a trait (Habermas & Paha, 2001). Likewise, dismissing an action as atypical for oneself helps safeguard thematic coherence (Pasupathi et al., 2007).

Development of the Life Story and Its Coherence Across the Life Span

Although 9- to 11-year-old children succeed in crafting single event narratives (Peterson & McCabe, 1983), they cannot craft an entire life narrative. When asked to write their life story, 28% of the 10-year-olds in Bohn and Berntsen's (2008) study wrote an isolated life event instead of a life narrative. By age 12 children coherently related several single life events, and by age 14 most adolescents shared a detailed and coherent life story indicating the emergence of overall life narrative coherence in adolescence. However, this general observation does not answer the question what kind of coherence develops when. Reviewing the evidence, we report studies of global life narratives as well as of single event narratives.

Temporal Coherence

The little evidence regarding the emergence of temporal coherence of life narratives shows a steep increase between ages 8 and 12 and a leveling off at age 16 (Habermas & de Silveira, 2008). The development of the temporal macrostructure follows a parallel

age pattern. By age 8, children typically do not begin their life story at birth, but at any point in life. Twelve-year-olds, in contrast, mostly start at birth, maintain a chronological order, and end their life narratives in the present (Bohn & Berntsen, 2008; Habermas et al., 2009).

Another aspect of temporal macrostructure is the segmenting of life in overarching periods or life chapters. When asked to recount their lives in terms of life chapters, 8-year-olds produced over two thirds of chapters consisting of specific events instead of life periods. Only at age 12 over half the chapters consisted of life periods (Chen, McAnally, & Reese, 2013). Apparently, temporal coherence emerges as soon as children understand that a life narrative consists of more than one life event and start to bring events into a temporal sequence.

Causal-Motivational Coherence

The only study of the development of causal-motivational coherence of entire life narratives, measured by a rating scale for developmental consequentiality, found an increase with age, mainly between 12 and 20 (Habermas & de Silveira, 2008), supported by a parallel increase of autobiographical arguments. Chen, McAnally, Wang, and Reese (2012) used an adapted version of this rating scale for narratives of single critical events showing that developmental consequentiality increased substantially between the ages of 12 and 16 as did the use of the change-related autobiographical arguments *learning a lesson* and *personal insight*.

Other studies measured the use of specific autobiographical arguments in single event narratives. Between ages 11 and 18 the use of autobiographical arguments learning a lesson, personal insight, and *self-event connections engendering change* emerged slowly and increased continuously (McLean, Breen, & Fournier, 2010). Also, 18- to 22-year-olds used more learning a lesson and personal insight in turning-point narratives and reflected more on how three separate memories were related to each other than adolescents aged 13 to 15 (Grysman & Hudson, 2010).

These studies narrow the emergence of causal-motivational coherence to some time in early to mid-adolescence and indicate its continuous development throughout adolescence until early adulthood. Little, however, is known about the development of causal-motivational coherence in adulthood. What is known is based on studies of autobiographical arguments in single event narratives, not on entire life narratives. In a study of narratives of wisdom-related events, causal links to other life events increased linearly between adolescence and older adulthood. Drawing a lesson from this experience became more frequent between adolescence and middle adulthood, remaining stable in older adulthood (Bluck & Glück, 2004). Similarly, Singer, Rexhaj, and Baddeley (2007) found more autobiographical arguments (learning a lesson, personal insights) in self-defining memories of older (50 to 85 years) than in those of younger adults. Pasupathi and Mansour (2006) showed that self-event connections increased in women's oral turning-point narratives between young and middle adulthood, but decreased after age 70. In contrast, McLean (2008) found that younger adults aged 17 to 35 used more self-event connections engendering change than older adults aged 65 to 85. Thus, findings regarding adulthood are somewhat contradictory. This may be a result of comparing one younger with one older adult group, which prevents any examination of a possible curvilinear development.

Thematic Coherence

The least is known about the development of thematic coherence. Habermas and de Silveira (2008) rated global thematic coherence as indicated by plausible transitions between consecutive text segments in entire life narratives, finding the steepest increase between ages 16 and 20. They also coded exemplifications, that is, the use of specific events to exemplify a general statement, as textual elements contributing to thematic coherence, again finding an increase with age. Studying single event narratives, McLean (2008) found that older adults (65 to 85 years) used more self-event connections maintaining stability than younger adults (17 to 35 years). Taken together, the two studies seem to indicate that thematic coherence first develops in late adolescence and continues to develop in adulthood.

Studies of the life story's development to date are limited in several ways. Most of the studies relied on single event narratives, only allowing the coding of autobiographical arguments. Entire life narratives as the most complete manifestation of the life story can be more or less globally coherent. Thus, they allow measuring global coherence directly by rating scales, and not just textual elements that contribute to global life narrative coherence. Further, most studies used two age groups, none covered the entire life span, and all are cross-sectional. Also, most studies only used a single measurement method and cover only one of the three aspects of global coherence. Here we attempt to fill these gaps by studying entire life narratives longitudinally, with age groups spreading across almost the entire life span, using multiple methods to measure both the three aspects of global coherence and local text elements contributing to it.

Hypotheses

We expected that all three aspects of global coherence emerge in adolescence. For the adult age range, we expected that temporal coherence remains stable, while causal-motivational coherence continues to increase during early adulthood, and thematic coherence up to middle adulthood.

Method

Participants

This longitudinal study started in 2003 with a total of $N = 114$ participants aged 8, 12, 16, and 20 years. They provided two life narratives 2 weeks apart except for nine participants who narrated their lives only once (cf. Habermas et al., 2009). Of these, four participants had been excluded for various reasons from the analysis of Wave 1 published earlier, but were included in the present longitudinal analysis to maximize the number of participants. Four years later, 104 individuals participated again, of whom 94 participated a third time, again, 4 years later (dropout 8.9% and 9.6%). For participants who had provided two life narratives in 2003 ($N = 105$), values were averaged. In 2007, two adult age groups (40 and 65 years, $N = 28$ and 30) were added to investigate life span development. Of these, 51 participated again 4 years later (dropout

Table 1
Age (Mean, Standard Deviation) and Number of Participants by Cohort for Each Measurement Time and Initial Gender Distribution

Year	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6	*N*
2003	8.63 *(0.23)*	12.45 *(0.34)*	16.56 *(0.41)*	20.51 *(0.53)*			114
2007	12.90 *(0.52)*	16.57 *(0.41)*	20.70 *(0.51)*	24.93 *(0.73)*	41.39 *(2.86)*	64.38 *(2.73)*	162
2011	17.03 *(0.48)*	20.58 *(0.39)*	24.61 *(0.41)*	28.90 *(0.67)*	45.08 *(3.02)*	68.73 *(2.65)*	150
N		In 2003			In 2007		
Female	13	17	13	15	14	15	87
Male	14	14	15	13	14	15	85

rate 12.1%). Gender was about equally distributed in the six cohorts (see Table 1).

In 2003, the youngest cohort was the higher achieving half of third graders from an elementary school, while Cohorts 2, 3, and 4 were present or former students of a Gymnasium, that is, a German higher-track high school. Its mixed social composition, mainly middle-class with a substantial proportion of lower-class backgrounds, was comparable to that of the elementary school population. Cohorts 5 and 6 were recruited via flyers and among continuing education university students. In 2011, all cohorts were well educated. The majority (71%) were about to or had graduated from school with Abitur, that is, the highest German school degree; 18.8% had graduated after 10 years of school (Mittlere Reife); and 1.7% had no school degree. Those who did not participate in 2011 and had still been in school when last tested made up the remaining 8.5%. A good third (35.2%) of the participants had at least one parent born outside Germany. A migrant background was present in roughly half of each of the four younger cohorts, but in fewer of the two oldest cohorts. Participants were recompensed with 20 Euros in 2003, and 40 Euros in 2007 and 2011. At each follow-up, we contacted participants up to three times by letter, then via email, phone, and social media, and obtained parental informed consent for minors.

Procedure

In 2003, the four youngest cohorts were tested twice, 2 weeks apart, by two different (out of three) female interviewers. In 2007 and 2011 all six cohorts were tested only once by new female interviewers unknown to the participants. Thus, participants in the four younger cohorts provided up to four life narratives, and participants in the two older cohorts provided two, resulting in a total of 531 life narratives.

Materials

Seven most important memories and life narratives. Participants wrote their seven most important specific memories on index cards and put them in chronological order. This served to make sure that life narratives also contained specific events and to reduce the memory load, especially for the youngest age group. Participants were asked to narrate their life for about 15 min without being interrupted. They were instructed to include the seven most important memories and to tell their life such as to explain how they had become the person they were at the present. Interviewers only encouraged to continue, but asked no questions (for verbatim instruction cf. Habermas & de Silveira, 2008). Afterward, participants dated the seven most important memories.

Transcription and division into propositions. Life narratives were audio recorded, transcribed verbatim, and divided into propositions, that is, into comprehensible main or subordinate clauses. For each wave, two coders independently divided 40 life narratives into propositions and agreed on between 96.2% and 98.6% of propositions. Each of the two coders divided half of the remaining life narratives into propositions.

Rating and coding of global coherence. Different coders rated the three kinds of global coherence and coded in each proposition textual indicators of all three kinds of global coherence, respectively (see Table 2). To guarantee consistent coding across all measurement times, all life narratives were rated and coded anew, including the ones from 2003. This may have resulted in minor differences to the values published earlier for Wave 1. However, we did check interrater reliabilities with the earlier coders, unless manuals were revised or new. All reliabilities were based on the independent coding or rating of 32 life narratives, balanced for age, gender, and measurement time. Once agreement of at least Cohens' $\kappa = .80$ or intraclass correlation $r_{IC} = .80$ was reached, one coder coded all the remaining life narratives. To ensure that the coder did not deviate from the manual during the ensuing coding process, a second reliability was calculated on the basis of additional 16 life narratives. Both interrater reliabilities are provided below for the rating scales and in the tables for the codes. The codes we did not change are introduced only briefly (for extensive descriptions cf. Habermas & de Silveira, 2008; Habermas et al., 2009).

Global ratings of temporal, causal-motivational, and thematic coherence. We used three 7-point scales to rate the three kinds of global coherence from the recipient's point of view. More specifically, the scales measured how well the reader is temporally oriented, how well a sense of the developmental significance of events is conveyed, and how thematically coherent the narrative is. In the earlier versions, only four of the seven points of the global rating scales had received a verbal definition, leading to a preference for these points. Therefore, we now provided verbal anchors for all scale points. The scale for global thematic coherence was constructed anew because of the relatively poor performance of the old version (cf. Habermas & de Silveira, 2008). The new scale measures the degree to which the narrator implicitly or explicitly thematically relates diverse individual elements of the life story to each other. Although monothematic life narratives have a high

Table 2
Five Groups of Local Indicators of Global Coherence

Type of global coherence	Codes and examples
Temporal	1a) Temporal indicators: % of propositions (κ_1 = .804, κ_2 = .954)
	Distance from present: "I think this is half a year ago"; "2 years ago"
	Life phase: "I got to know her in fourth grade"; "When I was a baby"
	Age: "When I was 9"
	Calendar date: "In 2002"; "On May 6, 2006"
	1b) Temporal disorientation: due to different measures *z*-standardized variable
	Date without year: "We married at the 13th of August."
	Unmarked anachrony: "That was in kindergarten, I slipped on the stairs. Once I was at home with my mum and I was on the chair, then I fell down with my head on the table, I fainted."
Causal	2) Self-event connections engendering change: % of propositions (κ_1 = .742, κ_2 = .590)
	Event explains change in personality: "That journey changed many things for me; in that moment I understood what is meant by the meaning of life, and since then I am a little more self-confident."
	Event reveals unknown personality aspects: "When I came back to Vietnam, I realized that in the meantime I had grown away from my own culture, the Vietnamese way of life, let's say from these Vietnamese traditional mentalities."
	3) Other autobiographical arguments: % of propositions (first five arguments: κ_1 = .848, κ_2 = .842; all arguments κ_1 = .933, κ_2 = .915)
	Developmental status: "At the time I wasn't aware of any of that, after all I was still too young for that."
	Biographical background: "I really had problems with my teacher, she was my Physics teacher and today, out of defiance, I'm studying Physics."
	Formative experience: "My burn-out has led me to no longer attach so much importance to money today."
	Learned lesson: "After that I told myself, when I fall in love, then the next time I must, when I fall in love, take care that school doesn't suffer from that."
	Generalized insight: "I was missing him for many months. Probably it's always like that, when it's the first kiss."
	Turning points: "The fact that all of a sudden the child was there turned my life upside down."
Thematic	4) Self-event connections maintaining stability: % of propositions (κ_1 = .742, κ_2 = .590)
	Personality explains event, event is typical for personality: "In puberty I was always extremely shy and well-behaved. I mean, I never rebelled against anything. So I was very restricted and limited in my ideas and possibilities. That's why I had never a boyfriend. I really was a late bloomer."
	Event is atypical for, or contradicts personality: "Normally, I and the guys in my class, we are really uncool, I mean very well-behaving the whole time. But on that school trip, we freaked out. Oh man, I was so drunk."

degree of thematic similarity, we are interested in the ability to create thematic coherence across diverse contents of life for two reasons. If a life narrative is monothematic because events are drawn only from one area of life, or are highly similar at a relatively concrete level (e.g., all deal with soccer), then this is achieved by excluding most other areas of life that normatively should be part of it. Furthermore, we are interested in the sociocognitive ability to abstract thematic coherence from diverse experiences. Thus the scale counts as no coherence if the individual episodes are completely disconnected or if only events from one area of life are addressed (values 1–2). There is some thematic coherence if implicit similarities are discernible (values 3–4). There is thematic coherence if episodes, heterogeneous in content, are explicitly thematically connected, for example, by comparing various episodes, or by designating one episode as typical for others (values 5–7). Interrater reliabilities were r_{IC} = .81 based on 32 life narratives and r_{IC} = .78 based on 16 randomly selected additional life narratives for temporal orientation, r_{IC} = .81 and r_{IC} = .78, respectively for developmental consequentiality, and r_{IC} = .86 and r_{IC} = .83, respectively for thematic coherence.

Temporal macrostructure. Some global coherence may be provided through the temporal macrostructure, that is the overall temporal order and the elaboration of beginnings and endings (Habermas et al., 2009). Elaboration of the narrative's beginning and ending was measured on 5-point (beginning) and 4-point (ending) scales. They measured whether participants started their narratives at the beginning of life and ended in the present, and how elaborate the beginnings and endings were (see Table 3). We see elaboration of beginnings and endings as contributing especially to temporal coherence, but also to causal-motivational and thematic coherence.

Local indicators of temporal coherence. Temporal indicators provide temporal orientation in the life by indicating distance from the present (e.g., "2 years ago"), age, calendar dates, and biological or social life phases (cf. Habermas & de Silveira, 2008). The number of all temporal indicators was divided by the total number of propositions per life narrative. Further, we created a negative indicator of temporal coherence, termed temporal disorientation, by *z*-standardizing and averaging two negative indicators. These were the relative frequency of dates with month and possibly day, but without the year (see Table 2), and the absolute number of unmarked anachronies, that is, unmarked temporal leaps which lead to uncertainty or confusion about when in life an event had happened (see Table 3).

Local indicators of causal-motivational coherence. Causal links between personality and events (Habermas & Paha, 2001) were coded with a new, less complicated manual, and complemented by two self-event connections suggested by Pasupathi and colleagues (2007). Furthermore, we no longer included immature conceptions of personality (global social attitudes, personal preferences, specific abilities, habits; cf. Habermas & de Silveira, 2008), restricting self-event connections to genuine, that is, general and stable personality traits, basic values, and talents. We still assume that self-event connections, which explain change, sustain causal-motivational coherence; but now think that stability-

Table 3
Temporal Macrostructure

Codes with examples
Timing and elaboration of beginning (κ_1 = .988, κ_2 = .972)
0–Unclear: "It all started with me and my mother flying to my father to Oslo."
1–After birth: "When I was quite small, I got up to a whole lot of mischief."
2–At birth: "I was born, and at first I still knew very little."
3–At birth with objective details: "I was born in Frankfurt."
4–At birth with details and story: "I have a twin sister. We were born on December 6 1990 by a Caesarian section."
Timing and elaboration of ending (κ_1 = .882, κ_2 = .875)
0–Arbitrary: "A sort of camera was found which didn't belong to us at all. That was big trouble and everybody was always in a bad mood for the rest of the time. That was stupid. And then we made lasagna. And then we flew back again. Finished."
1–In present: "and today we want to bake biscuits again and go to the Christmas fair."
2–Only with retrospect: "I don't know, I have lots of friends whom I've known for a long time, and that just gives me more confidence, that I can talk to people. I think, there's nothing else to tell."
2–Only with prospect: "What else is there? Well, I'd love to study medicine and become a doctor, yeah."
3–With both retro- and prospect: "I've taken leave. I will go to Switzerland for skiing, have a lovely time for a whole month, then come back, then term starts again. Otherwise life here is still always monotonous as it was at the beginning; you have friends of course, but nevertheless I was used to something quite different. I'm a summer person. I need lots of lovely weather, sun, beach, laughter, simply lots of life, and for me here this is no life. I've made up my mind to do my diploma as quickly as possible and then to buzz off from here. My parents will stay here."
Unmarked anachrony: Relative frequencies (κ_1 = .859, κ_2 = .938)
"That was in kindergarten, I slipped on the stairs. Once I was at home with my mum and I was on the chair, then I fell down with my head on the table, I fainted."

maintaining self-event connections sustain thematic coherence (cf. Habermas, 2011). Change-engendering self-event connections were either explanations of change in personality (always including values and talent) by an event or events that reveal one's personality (see Table 2).

Other autobiographical arguments were coded as a second group of local indicators of causal coherence. Adding to the five arguments coded earlier (developmental status, biographical background, formative experience, lesson learned, generalized insights), we also coded *turning points*, indicating a time of transition with enduring changes in life (see Table 2). Again we calculated the relative frequency of the sum of self-event connections and other autobiographical arguments respectively.

Local indicators of thematic coherence. We did not use any of the local indicators used earlier (Habermas & de Silveira, 2008) because those indicators either were conceptually only indirectly related to thematic coherence (hedges) or proved to be difficult to code due to their infrequency (exemplifications). Here we used self-event connections maintaining stability as local indicators of thematic coherence. These were explanations of events or actions by personality or statements that an event cannot be explained by personality, because it was highly atypical (see Table 2). Again we used relative frequencies.

Results

Data Analysis Strategy

Global coherence of life narratives produces a global impression in recipients, and is therefore best measured globally by ratings of entire life narratives. It is the product of many small local links between distant local events or between a local event and overarching elements of life such as personality or values. These local elements may be autobiographical arguments or more structural elements such as chronological order or beginnings' and endings' elaborations. Because these local elements contribute to global coherence, they also indicate it. In earlier publications we had not strictly differentiated global coherence ratings from local elements contributing to global coherence. In this study we take advantage of rating overall coherence and coding local indicators in the same life narratives, which is not possible in single event narratives, to test local indicators' contribution to global coherence

Regarding developmental trends, the age variable indexes the development and change of a series of heterogeneous social and cognitive factors (Habermas & Bluck, 2000), which in turn enable the narrator to use local textual elements to create the final quality of global coherence. We followed the rationale of first modeling age-related trends and individual differences therein and then proceeding to explain those individual differences not accounted for by common age-related trends in terms of theory-based selections of textual elements (i.e., by including these as predictor variables into the models containing the age-related trends). We thus only test age effects on global coherence. Age effects on local indicators were not tested independently, because they are obvious in most cases. Instead, we tested the much less obvious prediction of global coherence by local elements once age had been taken into account. This is the first study to test age-independent effects of local indicators on global coherence with a model that goes beyond mere partial correlations. Because the four younger cohorts overlap at ages of 12, 16, 20 and 24 (cf. Table 1), we checked for cohort effects in every measure via univariate ANOVAs and also for gender effects in every cohort. None was significant and was thus not reported here.

First, we provide descriptive data on the effects of age on the length of narratives. Then we explore correlations between the three global ratings and local indicators on which we based the order in which they were entered into the mixed models, which are then reported separately for the three kinds of coherence.

Length of Life Narratives

The length of life narratives increased with time and age. Descriptive statistics showed that the increase in length stopped at age

20 with about 280 to 300 propositions per life narrative. The narratives of the middle aged and older adults at time two were, on average, about 280 propositions long and at time three about 360 propositions long. To compensate for differences in length, we used relative frequencies of local indicators.

Correlations Between Global Ratings and Corresponding Codes

As each textual indicator is assigned to one corresponding global rating on a theory-guided basis, we calculated correlations prior to the longitudinal analyses in order to validate those measures. All correlations were calculated separately for each measurement time, partialing out linear and quadratic age effects (see Table 4). Temporal disorientation and temporal indicators correlated most strongly and significantly across all measurement times with temporal global rating. At the first measurement time beginnings correlated slightly more with thematic global rating, but at the following measurements most strongly and significantly with temporal global rating. In contrast, endings correlated most with causal-motivational and thematic rating at all measurement times. Both other autobiographical arguments and change-engendering self-event connections correlated most strongly with the corresponding causal-motivational global rating. Also, stability-maintaining self-event connections correlated most with thematic global rating at each measurement time. Thus the correlational patterns for all indicators except endings confirmed our expectations.

Mixed Models

To investigate age-related trends in the three aspects of global coherence as well as local textual indicators as potential predictors of individual differences therein, mixed models for repeated measures data were applied, using maximum likelihood estimation with PROC MIXED in SAS 9.3. These models were applied separately for younger (8–28 years) and older (40–69 years) participants and for the different aspects of coherence (i.e., temporal, causal-motivational, and thematic ratings). For each combination of age group and coherence rating, a series of models with all possible combinations of fixed and random intercepts and slopes was estimated. The model for the age-related trends with the smallest Akaike Information Criterion was chosen as the best fitting one. Based on this, textual indicators were tested as time-varying covariates in a predefined order. If entering a covariate as predictor into the model resulted in a significant improvement of model fit, as indicated by a comparison of model deviances with χ^2 tests, it was retained in the model before the next predictor was entered. Otherwise, it was not included and the next predictor was tested. Because age-related trends were always included in the models, this procedure tested whether textual indicators could explain variance in coherence ratings over and above shared age-related trends. That is, significant effects indicated that participants with relatively high values on textual indicators at a certain age scored higher on coherence ratings, taking into account that both coherence and textual indicators exhibited age-related trends.

According to their partial correlations across all measurement times with corresponding global ratings and age partialed out, the order of entering predictor variables was temporal disorientation ($r = -.361$), beginning ($r = .345$), temporal indicators ($r = .315$), ending ($r = .313$) for temporal coherence; change-engendering self-event connections ($r = .401$), other autobiographical arguments ($r = .394$), and ending ($r = .431$) for causal coherence; and stability-maintaining self-event connections ($r = .394$) and ending ($r = .453$) for thematic coherence. Ending as predictor was tested as the last potential predictor in each type of coherence, because of its high correlation with both causal-motivational and thematic rating (cf. Table 4). If the main effect of a textual indicator was significant, a possible interaction with age was also tested after inclusion of all significant main effects.[1]

Effects of Age on Global Coherence

Temporal coherence. For temporal coherence, the best model for age-related differences and changes in the younger sample included a random intercept at age 8, a random linear slope, and a fixed quadratic slope, indicating a decelerating increase with individual differences in both the level and the rate of change. Including the textual indicators of disorientation, beginning, and temporal indicators each significantly improved model fit, all with positive regression coefficients (see Table 5). Yet, adding the textual indicator of ending did not improve the model.

Regarding the older sample, the best model included a fixed intercept located at age 40 and a fixed linear slope. Only the inclusion of local indicators of disorientation and temporal indicators significantly improved model fit, whereas adding of beginning and ending did not. Surprisingly, the age trend was significant. This may be due to the decreasing use of temporal indicators and the slight increase of temporal disorientation (Figures 4 and 5).

Figures 1, 2, and 3 portray the life span development of global temporal coherence, beginning, and ending. All three increased throughout adolescence and remained stable throughout adulthood. Temporal indicators, however, did not vary systematically with age (see Figure 4). Temporal disorientation decreased steeply between 8 and 12 years of age and was mostly absent throughout life span.

In conclusion, the hypothesis that the temporal aspect of global coherence increases early in adolescence and remains stable in adulthood was supported. Moreover, it is predicted throughout life span by the degree of disorientation and the use of temporal indicators and additionally by the beginnings of the younger participants' life narratives.

Causal-motivational coherence. For causal-motivational coherence, the best model for age-related differences and changes in the younger sample included a fixed intercept, a random linear slope, and a fixed quadratic slope. Including the textual indicators of change-engendering self-event connections, other autobiographical arguments, and ending each significantly improved model fit

[1] Main effects and interaction with linear age trends were tested, even if no random intercepts or random linear slopes of age were included in the model. It might run counter to intuition to test whether individual differences (in slopes) can be accounted for by predictor variables when these individual differences are not included in the model of age-related trends to begin with. However, due to different power of testing fixed and random effects, fixed effects of predictor variables can be significant even if the corresponding random effect is not. We checked whether including those random effects changed the pattern of significant effects for the predictor variables, though, which turned out not to be the case.

Table 4
Correlations Between Global Ratings and Local Indicators With Linear and Quadratic Age Effects Partialed Out

Year	Temporal rating			Causal rating			Thematic rating		
	2003	2007	2011	2003	2007	2011	2003	2007	2011
Temporal rating	—	—	—	.030	.290*	.179*	−.051	.125	.041
Beginning	.169	.254*	.289*	.170	.160*	.091	.185	.112	−.049
Ending	.137	.070	.046	.295*	.234*	.222*	.374*	.213*	.401*
Temporal indicators	.362*	.201*	.293*	−.099	−.136	−.134	−.155	−.096	−.168
Temporal disorientation	−.451*	−.196*	−.236	−.009	−.032	−.123	−.025	−.070	−.092
Causal rating	.030	.290*	.179*	—	—	—	.570*	.484*	.486*
Other autobiographical arguments	−.045	.069	−.061	.534*	.389*	.292*	.345*	.109	.192*
Change-engendering self-event connections	−.102	.047	−.017	.321*	.254*	.249*	.251*	.124	.110
Thematic rating	−.051	.125	.041	.570*	.484*	.486*	—	—	—
Stability-maintaining self-event connections	−.028	−.093	.131	.231*	.243*	.306*	.369*	.280*	.348*

* $p < .05$.

(see Table 6), all with positive regression coefficients. Furthermore, there was a significant negative interaction term of autobiographical arguments with the linear age-related trend, indicating that the positive effect of autobiographical arguments decreased with age.

Regarding the older sample, the best model included a random intercept and a fixed slope. Including the textual indicator of change-engendering self-event connections improved model fit (see Table 6), but the inclusion of other autobiographical arguments and ending did not.

Figures 1 and 6 show the continuous development of global causal-motivational coherence and change-engendering self-event connections up to about age 24. Equally, other autobiographical arguments increased continuously up to 20 years of age (see Figure 6). All three remained stable during adulthood.

In sum, the hypothesis that causal-motivational global coherence emerges in adolescence was supported. It was absent in 8-year-olds, developed continuously up to about age 24, and remained constant during adulthood. Further, the variability among younger participants was also due to their use of autobiographical arguments and due to their way of ending the life narrative. Besides, the use of change-engendering self-event connections predicted global causal-motivational coherence in life narratives of individuals of all ages.

Thematic coherence. For thematic coherence, the best model for age-related differences and changes in the younger sample included a fixed intercept, a random linear slope, and a fixed quadratic slope. In the older sample, the best model included a fixed intercept and a fixed slope. Including the textual indicator of stability-maintaining self-event connections and ending each significantly improved model fit for younger and older participants (see Table 7).

Figure 1 shows that global thematic coherence increased most steeply up to age 24 and continued to develop between ages 28 and 40. Stability maintaining self-event connections were absent in the 8-year-olds and developed continuously between ages 12 and 20, remaining more or less constant during adulthood (see Figure 6).

Additionally, we explored the shift from implicit to explicit thematic coherence, indicated by a mean value exceeding 4 on the global rating scale. The four younger cohorts barely created explicit thematic coherence. Scores of 5 or higher began to emerge at age 20, but their mean frequency was only about 15.2% across the four younger cohorts throughout the 8 years of measurement. In contrast, about 66% of the two older cohorts established explicit thematic coherence across measurement times.

In sum, the hypothesis that global thematic coherence emerges in adolescence and continues to develop to middle adulthood was supported. Global thematic ratings increased most between ages 12 and 24 and continued to increase between 28 and 40 years of age. Moreover, the occurrence of thematic coherence across all ages was influenced by the use of stability maintaining self-event connections and the elaboration of life narratives' endings.

Discussion

This first longitudinal study of the development of the life story supports the theory that global coherence in life narratives emerges in adolescence. There was both an intra- and interindividual increase with age in ratings of three aspects of global coherence. A similar increase was observed in the formation and elaboration of a temporal macrostructure, and in the relative frequency of a variety of local indicators across the adolescent age range up to young adulthood. Most indicators of coherence remained stable across adulthood. Most importantly, local indicators of coherence differentially predicted specific kinds of global coherence.

Temporal Coherence

Global temporal coherence in entire life narratives developed, as expected, earlier than the two other kinds of coherence. Visual inspection suggests that only rudimentary global temporal coherence was present at age 8, increased most between ages 8 and 12, was established at age 16, and maintained throughout the life span.

Beyond age-related trends, temporal coherence was significantly predicted by the absence of temporal disorientation, the relative frequency of temporal indicators, and in younger individuals the elaboration of life narratives' beginnings, but surprisingly not by endings. Especially the finding of temporal indicators is noteworthy, because they did not vary systematically with age. Already at age 8, children were capable of using temporal indicators. However, they did not succeed in providing more than some temporal orientation for the listener. This impression is confirmed by the steep decrease of temporal disorientation between ages 8 and 12. Apparently, temporal indicators are used more efficiently with age.

Table 5
Mixed Models for Age-Related Trends in Temporal Coherence

	Growth model						Growth model with textual indicators							
	Age 8–28 years			Age 40–69 years			Age 8–28 years				Age 40–69 years			
	Estimator	*SE*	*t(df)*	Estimator	*SE*	*t(df)*	Estimator	*SE*	*t(df)*	$\Delta\chi^2$	Estimator	*SE*	*t(df)*	$\Delta\chi^2$
Fixed effects														
Intercept	3.850*	0.152	25.41 (82.1)	5.470*	0.308	17.77 (109)	3.987*	0.204	19.52 (137)		5.337*	0.238	22.46 (109)	
Age	0.295*	0.029	10.27 (150)	0.009	0.006	1.49 (109)	0.175*	0.030	5.76 (159)		0.013*	0.006	2.18 (109)	
Age^2	−0.009*	0.001	−6.69 (144)				−0.005*	0.001	−3.91 (151)					
Disorientation							−53.232*	8.861	−6.01 (122)	37.9	−71.000*	29.369	−2.42 (109)	5.4
Beginning							0.107*	0.048	2.23 (259)	7.3				
Temporal Indicators							0.057*	0.012	4.80 (278)	22.9	0.053*	0.023	2.29 (109)	5.1
Random effects														
Intercept	0.374	0.190					0.193	0.123						
Covariance (Intercept, Age)	−0.027	0.016					−0.012	0.011						
Age	0.002	0.001		0.693	0.094		0.001	0.001						
Residual (1)	0.479	0.108					0.371	0.073						
Residual (2)	0.724	0.112					0.651	0.098						
Residual (3)	0.474	0.093					0.412	0.073						
Model fit														
Deviance	751.7			269.4			682.4				258.9			

Note. Nonstandardized estimates of fixed effects and random effects are presented. *t*-Tests for fixed effects in the full models are based on Kenward-Roger degrees of freedom (see Littell, Milliken, Stroup, Wolfinger, & Schabenberger, 2006). Textual indicators were tested sequentially with $\Delta\chi^2$ tests ($df = 1$) based on model deviance (−2 Log-Likelihood), that is, it was tested whether the effect was significant when entered in addition to all effects above it. For younger participants, residual variance was allowed to differ across the three occasions indicated by the numbers in parentheses. Random effects were not tested for significance individually.
* $p < .05$.

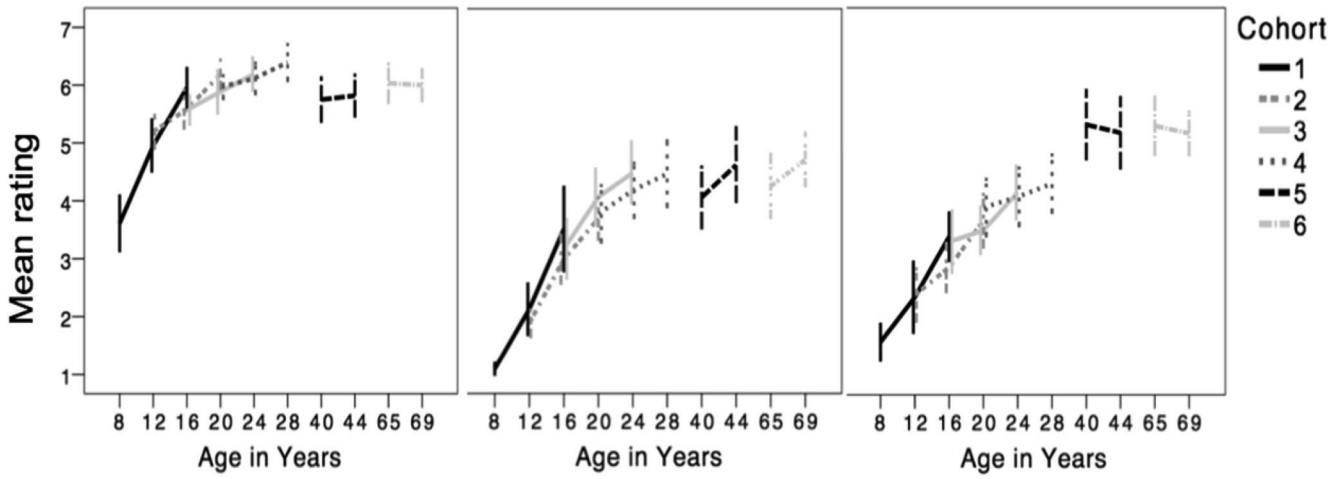

Figure 1. Mean global ratings and confidence intervals (95%) for temporal (left), causal-motivational (middle), and thematic coherence (right).

To learn to craft temporally coherent life narratives is a noteworthy developmental step, because the understanding of biographical time builds on several cognitive processes. Friedman (2005) suggested that representation and manipulation of calendar time units, such as parts of the day, week, and year are fundamental to date autobiographical memories and to arrange them in correct order. Children under age 10 cannot correctly use these temporal representations to indicate which of two personal events had happened earlier. Further, our findings are similar to Friedman, Reese, and Dai (2011), who in a sample of 8–12-year-olds found that the ability to bring autobiographical events in correct temporal order increased between ages 8 and 12.

Besides time knowledge, the development of a temporal macrostructure of life narratives is aided by the acquisition of a cultural concept of biography between late childhood and midadolescence (Habermas, 2007). Knowing that individual lives are culturally structured by normative transitions, which are expected to be accomplished at a certain age, helps structure life narratives chronologically. The acquisition of the life script predicts global temporal coherence and temporal macrostructure between ages 8 and 20 (Bohn & Berntsen, 2008; Habermas et al., 2009).

Evidently, calendar time knowledge and life script knowledge, which are acquired in late childhood and early adolescence, are prerequisites for telling autobiographical events in a comprehensible temporal order. This contradicts Dunlop and Walker's (2013) claim that some form of life story without autobiographical arguments is already present in early childhood. Our findings clearly demonstrate that temporal coherence of life narratives barely starts to emerge in late childhood. This study thus provides strong evidence for the relative absence of temporal order in children's life stories.

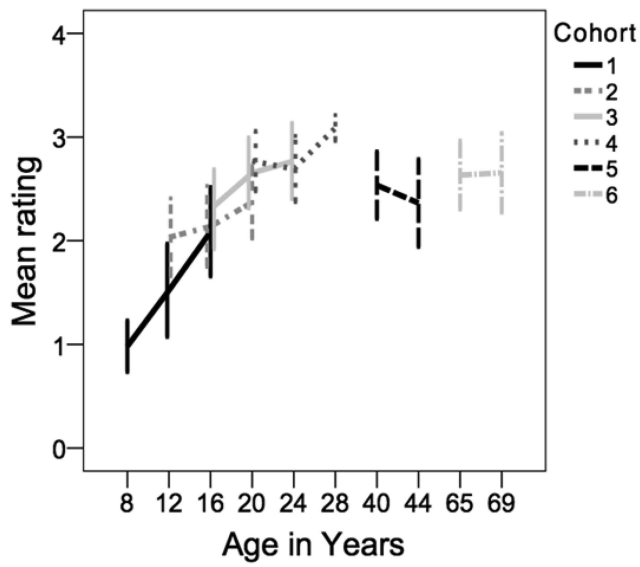

Figure 2. Mean rating and confidence intervals (95%) for beginning.

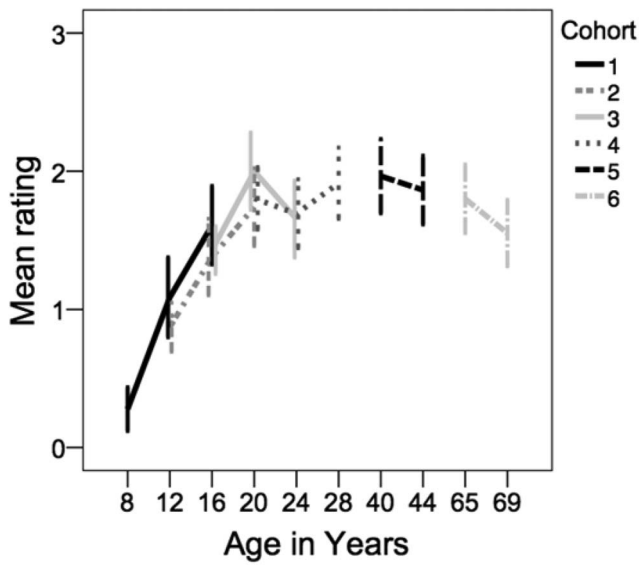

Figure 3. Mean rating and confidence intervals (95%) for ending.

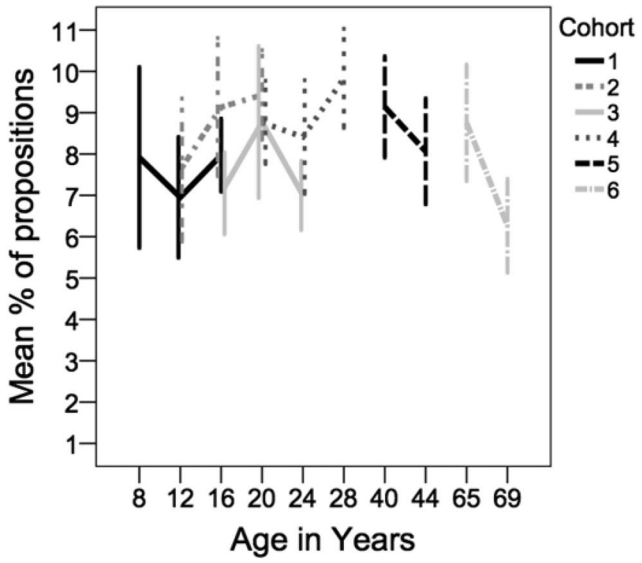

Figure 4. Mean percentages and confidence intervals (95%) for temporal indicators.

Causal-Motivational Coherence

Global causal-motivational coherence was almost absent at age 8 and increased most between ages 12 and 20. It leveled off, as expected, in early adulthood at about 24 years of age. Causal-motivational coherence in younger participants' life narratives was significantly predicted, beyond age, by its corresponding textual indicators, change-engendering self-event connections, and other autobiographical arguments as well as by the elaboration of life narratives' endings. However, the positive effect of other autobiographical arguments decreased with age. Once autobiographical reasoning was established, it no longer predicted variations in causal-motivational coherence. Only the use of the highly specific change-engendering self-event connections still predicted global causal-motivational coherence in older adults' life narratives.

In a similar vein, elaboration of endings predicted causal-motivational coherence over and above age only in the younger sample. Visual inspection shows that endings developed only across the younger age range, expressing in the lower range of values an increase in the temporal structuring of endings. Temporal sequence is a logical prerequisite for causal-motivational sequences, which may explain part of this effect.

Confirming findings from cross-sectional studies, causal-motivational coherence emerged at age 12 and continued to develop until early adulthood. This coincides with Erikson's conflict of *Identity versus Identity Diffusion* located in adolescence and early adulthood (Erikson, 1959). Childhood identity, established by infantile identifications with parents, evolves into an adult identity, which requires commitments that may result from continuing infantile identifications (foreclosure) or from questioning of parental values and extensively exploring new identities and values (ego identity). Erikson pointed out that the life story is the most adequate format to capture an individualized psychosocial identity formed in adolescent exploratory experiences. Our findings suggest that the life story enables the individual to explain change in identity due to uncontrollable circumstances as well as due to decisions made in the light of life experiences.

Thematic Coherence

As expected, global thematic coherence was almost absent at age 8, and increased steadily up to age 40 to remain constant thereafter. Its textual indicator, stability maintaining self-event connections, predicted thematic coherence over and above age throughout the life span, as did endings too. Once the temporal and causal-motivational structure of life narratives are mastered, individuals seem to increasingly organize their life narratives by central motives and life themes. Going beyond the early adolescent mere chronological sequencing of life events, adults structured their life narratives also causal-motivationally and thematically. Endings appear to have a special role for wrapping up life narratives by providing an overall retrospective evaluation, which states a dominant theme, and by providing a resulting outlook.

Discussions of identity development in adulthood point to the challenge of finding a balance between change and stability, between assimilating new experiences to identity and accommodating identity to events which are too discrepant from the individual's self-concept (Sneed & Whitbourne, 2003). Achieving this identity balance is facilitated by autobiographical narratives, because they allow exploring the implications of experiences and circumstances for the self (Kroger & McLean, 2012). Our findings show that both change engendering and stability maintaining self-event connections develop in a fairly parallel fashion throughout adulthood and differentially contribute to causal-motivational and thematic coherence, respectively. Cross-sectional and longitudinal identity research relying on Erikson's framework imply that change and stability of identity complement each other throughout adulthood in response to both tasks of *Identity versus Role Confusion* and *Integrity versus Despair* (Kroger, 2015). In addition, our findings suggest that concerns about stability and life themes reach a maximum in middle adulthood. Only then they became an explicit topic. McAdams (1993) suggests that the thematic lines of

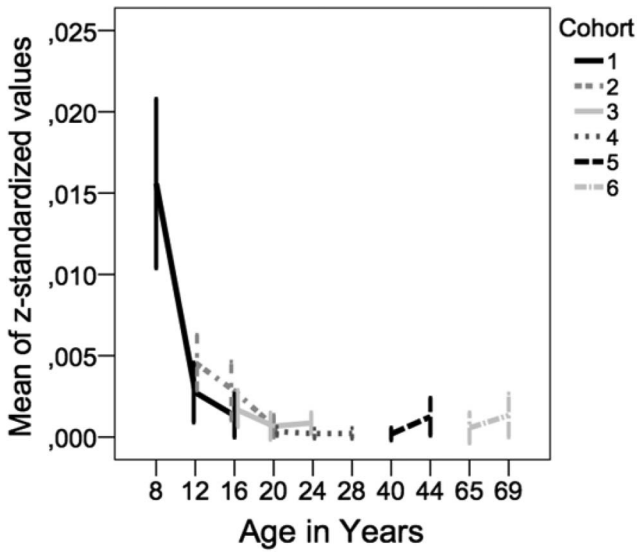

Figure 5. Mean z-standardized values for temporal disorientation.

Table 6
Mixed Models for Age-Related Trends in Causal-Motivational Coherence

	Growth model						Growth model with textual indicators							
	Age 8–28 years			Age 40–69 years			Age 8–28 years				Age 40–69 years			
	Estimator	*SE*	*t(df)*	Estimator	*SE*	*t(df)*	Estimator	*SE*	*t(df)*	$\Delta\chi^2$	Estimator	*SE*	*t(df)*	$\Delta\chi^2$
Fixed effects														
Intercept	0.955*	0.133	7.19 (104)	4.170*	0.239	17.42 (64.1)	0.816*	0.122	6.68 (112)		3.923*	0.245	16.01 (74.3)	
Age	0.329*	0.032	10.31 (176)	0.016	0.012	1.34 (65.2)	0.171*	0.035	4.87 (223)		0.016	0.012	1.43 (63)	
Age^2	−0.007*	0.002	4.35 (211)				−0.001	0.002	−0.34 (253)				−4.35 (211)	
Change-engendering self-event connections							0.852*	0.147	5.79 (251)	46.1	0.611*	0.222	2.76 (91.8)	7.5
Other autobiographical arguments							0.583*	0.153	3.81 (225)	7.3				
Ending							0.321*	0.087	3.68 (283)	14.3				
Age × Other autobiographical arguments							−0.037*	0.012	−2.98 (292)	8.8				
Random effects														
Intercept				0.902*	0.284						0.752	0.262		
Age	0.004	0.001					0.002	0.001						
Residual (1)	0.630	0.099		0.945	0.188		0.477	0.074			0.932	0.188		
Residual (2)	0.771	0.134					0.675	0.117						
Residual (3)	1.136	0.215					1.117	0.195						
Model fit														
Deviance		928.4			362.3			851.9				354.8		

Note. Nonstandardized estimates of fixed effects and random effects are presented. *t*-Tests for fixed effects in the full models are based on Kenward-Roger degrees of freedom (see Littell, Milliken, Stroup, Wolfinger, & Schabenberger, 2006). Textual indicators were tested sequentially with $\Delta\chi^2$ tests ($df = 1$) based on model deviance (−2 Log-Likelihood), that is, it was tested whether the effect was significant when entered in addition to all effects above it. For younger participants, residual variance was allowed to differ across the three occasions indicated by the numbers in parentheses. Random effects were not tested for significance individually.
* $p < .05$.

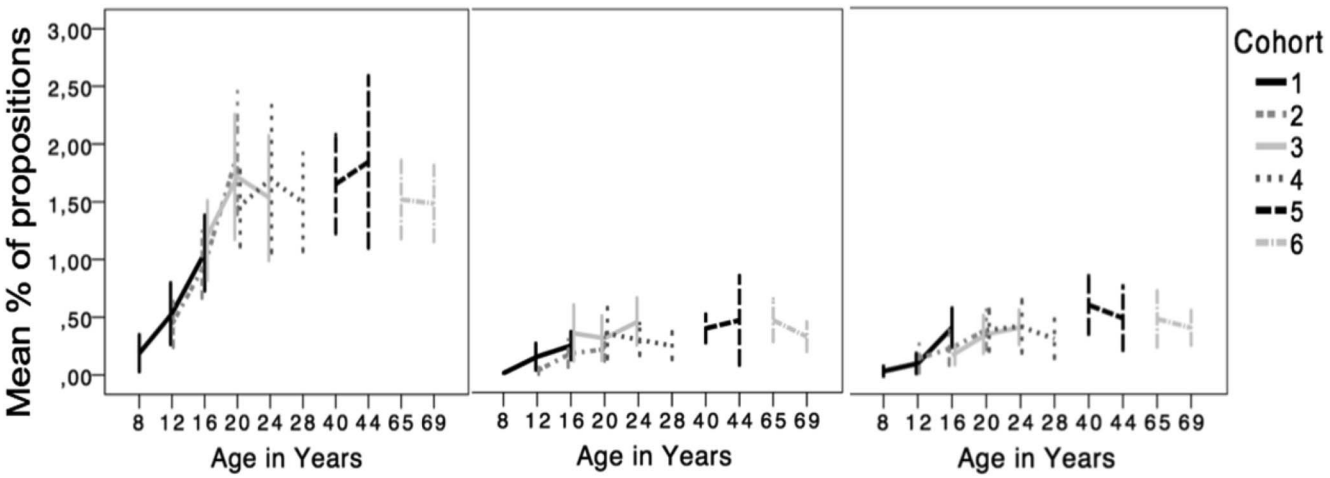

Figure 6. Mean percentages and confidence intervals (95%) for other autobiographical arguments (left), change-engendering (middle), and stability-maintaining (right) self-event connections.

the life story become more nuanced and concrete in adulthood, because life changes are less dramatic than in adolescence. Adults, however, are challenged to integrate numerous private, familial, social and professional roles into a meaningful thematic whole. Maybe only when commitments are made, roles are established and life is sufficiently stable, the proverbial thematic red thread can be found and articulated in the life narrative.

However, this effect can be undermined, if the life story is rendered overcoherent by denying and leaving out discrepancies and contradictions instead of negotiating them with the aim of finally integrating them. To be both coherent and credible, life narratives need to equilibrate stability with growth, leaving room for ambiguities, discrepancies, and contradictions, which point to a future horizon of possible resolutions. Thus, overcoherence used as a possible defense mechanism remains to be studied.

Limitations

A major limitation of this study is the homogeneity of the sample in terms of educational level and cultural background. Though there was a substantial percentage of participants with at least one immigrant parent, the content of life narratives suggests that the participants were well integrated with German culture. Other studies suggest cultural differences in the content and narrative structure of autobiographical memories and people's self-concept (Wang, 2013). Therefore, possible differences in the development of life narrative coherence due to cultural variations remain to be studied.

Furthermore, 15 minutes may have unduly restrained the narration of longer lives and limited the possibility to create global coherence, most specifically thematic coherence, which requires being able to present a variety of events and then distill a theme. Perhaps with more time allotted, adults might have provided even more thematic coherence to their lives. But differing lengths of life narratives would have reduced the comparability between cohorts in other ways.

Implications

This study has important implications for other fields of psychology, particularly for the fields of narrative development, of self-concept and identity development, and of wisdom. The life story format emerges when the two developmental lines of narrative and self-concept merge in early to midadolescence, and this may give rise to the development of wisdom in adulthood.

First, the development of narrative competence during the preschool years allows narrating fictional stories and personal experiences and is generally accomplished by middle to late childhood (Peterson & McCabe, 1983). Autobiographical narratives studied in this line focus on narratives of single memories, which may include several episodes, but generally focus on fairly specific events. To date, narrative development has only rarely been followed through adolescence and adulthood, confirming that narrative structure in autobiographical narratives is developed in middle childhood (Berman & Nir-Sagiv, 2007). However, life narratives differ profoundly from single memory narratives, because their frame of reference is not an event, but a human life, requiring special knowledge about lives and a much more encompassing global text coherence. Life narratives are a specialized, but highly relevant form of narrative, which, as this study strongly suggests, is a later communicative-cognitive achievement than the competence to narrate single event stories. The theory of narrative development thus needs to be extended by adding a specifically adolescent and adult life story format to the standard narrative format. Also, this study adds to the sparse literature on narrative development across adulthood (e.g., Adams, Smith, Nyquist, & Perlmutter, 1997) by highlighting an increase of global thematic coherence up until mid-adulthood. Thematic coherence, however, is a complex phenomenon. Future studies would benefit from identifying additional narrative devices such as explicit statements of recurrent themes in life or metaphors of the self that integrate a variety of experiences.

Second, the life story format offers a diachronic self-concept, going beyond a merely synchronic self-concept. In the pre-

Table 7
Mixed Models for Age-Related Trends in Thematic Coherence

	Growth model						Growth model with textual indicators							
	Age 8–28 years			Age 40–69 years			Age 8–28 years				Age 40–69 years			
	Estimator	*SE*	*t(df)*	Estimator	*SE*	*t(df)*	Estimator	*SE*	*t(df)*	$\Delta\chi^2$	Estimator	*SE*	*t(df)*	$\Delta\chi^2$
Fixed effects														
Intercept	1.522*	0.179	8.52 (144)	5.274*	0.192	27.41 (109)	1.430*	0.169	8.44 (145)		3.659*	0.379	9.64 (109)	
Age	0.251*	0.038	6.60 (211)	−0.002	0.010	−0.18 (109)	0.130*	0.041	3.19 (257)		0.008	0.009	0.87 (109)	
Age^2	−0.006*	0.002	−3.07 (237)				−0.002	0.002	−0.98 (256)					
Stability-maintaining self-event connections							0.856*	0.166	5.17 (286)	30.6	0.429*	0.197	2.18 (109)	8.9
Ending							0.386*	0.098	3.93 (283)	15.1	0.703*	0.178	3.94 (109)	14.5
Random effects														
Age	0.002	0.001					0.001	0.001						
Residual (1)	1.235	0.172		1.635	0.222		1.061	0.148			1.318	0.179		
Residual (2)	1.136	0.177					1.108	0.171						
Residual (3)	0.765	0.170					0.793	0.155						
Model fit														
Deviance	970.6			362.9			924,9				339.5			

Note. Nonstandardized estimates of fixed effects and random effects are presented. *t*-Tests for fixed effects in the full models are based on Kenward-Roger degrees of freedom (see Littell, Milliken, Stroup, Wolfinger, & Schabenberger, 2006). Textual indicators were tested sequentially with $\Delta\chi^2$ tests ($df = 1$) based on model deviance (-2Log-Likelihood), that is, it was tested whether the effect was significant when entered in addition to all effects above it. For younger participants, residual variance was allowed to differ across the three occasions indicated by the numbers in parentheses. Random effects were not tested for significance individually.
* $p < .05$.

school years, the self is conceived of in physical terms and global evaluations, then in terms of preferences and specific abilities. In late grade school stable habits and attitudes characterize the self-concept, whereas in early adolescence a concept of underlying traits is developed. Only mid-adolescents begin to use biographical information to construct a diachronic concept of self (Damon & Hart, 1986), in accordance with Erikson's conception of ego identity as using the life story format.

Most theories comprehend the self—consisting of personality traits, self-concepts, central motives and scripts—as being atemporal. The relationship between an atemporal, synchronous self-concept and personal memories has generally been treated as one of consistency. Klein and Loftus (1993), for example, demonstrated that trait self-knowledge is stored as such, and not extracted from specific memories each time it is accessed. Rather specific memories may be used to exemplify aspects of the self-concept (e.g., Habermas & de Silveira, 2008), but may also be distorted to increase consistency with the present view of oneself (Conway, 2005). However, there is no clear explanation for when memories inconsistent with the present self remain accessible, when they are distorted or when their accessibility is lowered. We point to the decisive role of the life story and the role of autobiographical reasoning about personal change. The accessibility or degree of distortion of personal memories may not be influenced so much by whether they are consistent with the concept of the present self, but rather by how the individual can integrate them into a more or less coherent life story. Consistency in terms of the sameness of remembered and current self is different from the coherence of a story. The life story format and autobiographical reasoning allow creating self-continuity and identity across change in self and life. Hence, we argue that autobiographical reasoning safeguards the meaningfulness and consistency of the self-concept by explaining how the self changed over time. To the degree that this explanation succeeds, self-defining memories that are no longer consistent with the present self may nevertheless remain accessible or not be distorted.

Third, the life story format may be used to organize knowledge that permits insight, judgment, and advice for one's own life and others' lives, that is, personal and general wisdom (Staudinger, 2013). Similar to the life story, wisdom as measured by hypothetical dilemmas develops between adolescence and young adulthood (Pasupathi, Staudinger, & Baltes, 2001). Mickler and Staudinger (2008) argued that wisdom was more difficult to measure in relation to one's own life, so that they chose to measure personal wisdom as the quality of reasoning about oneself from the perspective of a significant other. Admittedly there is a motivational difference between reasoning about one's own or somebody else's life: when narrating the life of a significant other one may not know enough to flesh it out, whereas when narrating one's own life one may be motivated to overlook certain events. However, we believe that the personal form of wisdom can be elicited as autobiographical reasoning about one's own life. This supports the notion that the working through of difficult life experiences may be a decisive factor for developing autobiographical reasoning and resulting personal wisdom (Bluck & Glück, 2004).

Conclusion

Global coherence in entire life narratives emerges in early adolescence and increases significantly up to early adulthood. The development of three aspects of coherence proceeds gradually with age: global temporal coherence emerging first, followed by causal-motivational coherence, and finally by thematic coherence. Specific textual elements contribute to specific aspects of global life narrative coherence. This was demonstrated by predicting the three aspects of global coherence with different textual elements over and beyond the prediction by age. The gradual development of three kinds of coherence suggests that they build upon each other allowing the life narrative to mature in response to current identity tasks.

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Köber, C., & Habermas, T. (zur Veröffentlichung eingereicht). Temporal macrostructure of entire life narratives and its development across the lifespan.

The temporal macrostructure of entire life narratives and its development across the lifespan

Christin Köber & Tilmann Habermas

Department of Psychology, Goethe University, Frankfurt am Main

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Correspondence regarding this article should be addressed to Christin Köber, Department of Psychology, Goethe University, Theodor-W.-Adorno-Platz 6, D- 60629 Frankfurt a. M., Germany. Phone: +49 69 798 35299, E-mail: koeber@psych.uni-frankfurt.de.

Abstract

In Western cultures, life narratives are expected to convey one's life from birth up to the present. Disparate autobiographical memories need to be integrated into a more or less coherent story, which is facilitated by an overarching temporal macrostructure. The temporal macrostructure consists of elaborated beginnings, contextualizing the self in pre-existent family and society, linear temporal order, and elaborated endings. The present study examines longitudinally the development of temporal macrostructure in life narratives across the lifespan. In this cohort-sequential study a total of 172 participants covering 8 to 69 years of age narrated their lives over the course of eight years, resulting in up to four life narratives per person. The hypothesis that temporal macrostructure emerges in adolescence is mostly confirmed and further developmental changes throughout adulthood are found. This study shows strong evidence that story structure and life story structure differ in their development.

Life narratives constitute a special narrative format, because they cover an extended time span with many different life events, and because they are told to better understand one's identity development (e.g., Erikson, 1968; McAdams, 2013). In order to derive meaning and better self-understanding from a life narrative, the different life events need to be related to each other in a meaningful way. The temporal macrostructure of life narratives consists of elaborated beginnings including the life's contextualization in family and society, a linear temporal order and elaborated endings. It helps to integrate the diverse events of a life. We first discuss why life narratives need an overarching macrostructure in comparison to personal single event narratives and then discuss the evidence to date on the lifelong development of the temporal macrostructure.

The narrative structures of single event narratives and of entire life narratives

In entire life narratives many different life events are expected to be included and to be related to other parts of life and to the narrator's personality development up to the present. Therefore life narratives are more complex than narratives of single life events. The latter normally contain specific events happening in the time span of hours or days, rarely weeks. Different underlying story structures have been suggested for such personal single event narratives. Labov and Waletzky (1967) described personal narratives as being structured around high points. They proposed an overall narrative structure consisting of an abstract announcing the story, an orientation to person, place, time and behavioral situation, a complication containing a series of events and actions, an evaluation emphasizing the importance of the experience and marking the high point, a resolution, and finally a coda which connects the past with the present. Other investigators described stories as composed of episodes with an intentional structure (Stein & Glenn, 1979; Stein, 1982; Thorndyke, 1977). Something happens to protagonists, which

motivates them to respond or to set up a goal. One complete episode contains the motivation of the protagonist's actions, the goal-directed actions itself, and finally the attainment or non-attainment of the protagonist's goal (Stein & Glenn, 1979). To study the development of story structure, Peterson and McCabe (1983) applied the high point and the episodic analysis to personal single event narratives from three- to nine-year old children. Length, coherence, and overall narrative structure according to Labov and Waletzky's high point analysis developed with age. Also the ability to produce episodes with a complete intentional structure increased.

However, when Bohn and Berntsen (2008) asked children to write their life story, 28% of ten-year-olds wrote an isolated single life event, but not an entire life narrative covering several distant life events or even the lifespan. By age 12, all children but one related chronologically more than one life event, and by age 14 a substantial minority shared life narratives with a chronological structure, appropriate beginnings and endings and an evaluation. Single event narratives were better structured than life narratives earlier on, and gained less in terms of structure across the age range studied. These findings indicate that the ability to narrate and structure personal single events develops earlier than the ability to tell and structure an entire life.

One probable reason for this difference in developmental timing is that entire life narratives do not follow a single plot with a high point or goal-orientated episodic narrative structure. Life narratives' overall narrative structure must connect the different plots of various single life events with long stretches of time between them. This leads to a complex nested structure, with chapters for life phases (Chen, McAnally, & Reese, 2013; Thomsen, 2009) containing multiple single or repeated event narratives as well as summarizing chronicles and evaluative argument sections (Habermas & Diel, 2013). Habermas, Ehlert-Lerche, and de Silveira (2009) coined the term *temporal macrostructure* to designate the overall linear temporal

structure of life narratives. It consists of elaborated beginnings, a basically linear temporal order, and elaborated endings. Because the temporal macrostructure is a quality of entire life narratives, it can only be studied in such. Yet, most research on the development of the life story has used single event narratives like those of earliest memories (Josselson, 2000), key events (McAdams, 1993) or turning point memories (Grysman & Hudson, 2010). These studies concerned important content, not the structure of the life story.

To date, only two studies explored the development of the temporal macrostructure of written and oral entire life narratives between ages eight and twenty (Bohn & Berntsen, 2008; Habermas et al., 2009). They show that the temporal macrostructure emerges in early adolescence and continues to develop until late adolescence. However both studies are cross-sectional, so that age differences may be due to cohort effects. Also, it remains unknown whether the temporal macrostructure undergoes further development in adulthood. Therefore we followed up Habermas and colleagues' sample (2009) to confirm developmental changes of temporal macrostructure longitudinally. Also we added a middle-aged and older adult group to explore possible later developments across the entire life span. Finally we refined the analysis of narrative beginnings by analyzing their use for providing a social context to the life. We now present the elements of the temporal macrostructure and suggest evidence regarding their development, both direct evidence based on entire life narratives and indirect evidence.

Development of the elements of temporal macrostructure

The structural elements of temporal macrostructure are beginnings, including social contextualization, endings, and overall linear temporal order.

Beginnings and contextualization

Narrative beginnings serve to provide orienting information about the context of the central events of a story, including persons, places, time and situation. In single event narratives, already preschool children include orienting statements, although their number and variety increase throughout the childhood (Berman, 2004; Menig-Peterson & McCabe, 1978). Story opening may also contain general background information about the event, the family or the protagonists, which Berman and Katzenberger (2004) found to be provided only from late adolescence on.

The typical orientation for an entire life differs from that needed to understand a single event. Because life begins with birth, one common means of temporally structuring a life narrative is to begin no later than at birth (Brockmeier, 2001; Richardson, 2008). Life narratives' beginnings may contain time and place of birth as orienting narrative information and as information which formally identifies a person. In wave one of the present longitudinal study, most eight-year-olds did not mention their birth, but started at some time later in life. At age 12, most pre-adolescents began their life narratives at birth and also specified either place or date of birth (Habermas et al., 2009). Similarly in Bohn and Berntsen's study (2008) most 11- and 14-year-olds provided place or date of birth in their life narratives' beginnings. This indicates that in early adolescence individuals learn to begin their life story with birth including date or place.

Beside these formal biographical data, background information regarding familial and social background may further contextualize a life. For instance, providing information about the family members already present at birth, the parents' pre-history, and the socioeconomic or sociocultural situation may be provided (Habermas & Hatiboğlu, 2014). To the best of our knowledge, such contextualization in life narratives' beginnings has never been systematically studied. The understanding of society develops only gradually during adolescence (Barrett &

Buchanan-Barrow, 2005; Furnham & Stacey, 1991), so that the ability to contextualize one's life in family and society may develop later than the ability to provide time and place of birth.

Endings

Story endings serve to resolve the complication or problem, which made the story worth telling (McCabe & Peterson, 1984). In personal single event narratives, the resolution is the end of the plot. The coda serves to link the story to the present and may contain an evaluation of the resolution (Labov & Waletzky, 1967). From age five onwards, over half of the children include a high point, but only at age seven to eight a majority of children also include a resolution. Codas, however, are relatively rare in children's narratives, and become more explicit and elaborate with age (Hudson & Shapiro, 1991; Peterson & McCabe, 1983). Codas that evaluate the resolution seem to occur only after childhood. Even ten-year-olds mostly finish their written personal single event narratives about an interpersonal conflict with a resolution, but without a coda that evaluates the event or its resolution. At age 16, however, individuals mostly finish with codas that evaluate the event as well as the events' impact on the narrator (Berman & Nir-Sagiv, 2007).

In contrast to narratives of single life events, endings of life narratives cannot serve to resolve a single problem of the narrator's past. As life has not ended at the time of telling, the present is still part of the story, and any resolution remains preliminary. Thus, a basic prerequisite for ending a life narrative may be to arrive in the present. The best structural equivalent to an evaluative coda that life narratives can achieve is a retrospective summary with a global evaluation reviewing the entire life (Rosenthal, 1995). Another possibility is to end with an outlook onto the future, which may result from a prior global evaluation. The most elaborated ending arrives in the present and contains both a global evaluation of the narrator's past and an outlook onto the future.

At age eight, most children finished their life narratives with an arbitrary end somewhere in the past. Most twelve-year-olds arrived in the present, but were still lacking a global evaluation of their life. Only at age 16, a majority of life narratives ended with either an outlook or a retrospective evaluation (Habermas et al., 2009). In contrast, in Bohn and Berntsen's study (2008) of written entire life narratives already half of the 14year-olds finished with a short retrospective global evaluation or an outlook onto the future. These results narrow the emergence of elaborated evaluative endings to some time between 10 and 16 years of age. Although both studies found a cross-sectional increase of the elaboration of endings with age, we do not know for sure whether this is only a difference between groups or actually a development with age. Furthermore, the use of a retrospective evaluation and a prospective outlook was not studied separately. Thus, it remains unclear whether the two actually develop similarly.

Overall linear temporal order

One central property on which all definitions of narratives agree is that they imitate the sequence of events in time (e.g., Bal, 1999; McCabe & Peterson, 1991; Peterson & McCabe, 1983). According to Zwaan's (1996) *iconicity assumption,* listeners assume two sequentially narrated events to reflect the order of the occurrence of these events. Already preschool children maintain the typical sequence of events in form of "and then…, and then…" sentences (Nelson, 1986; Peterson & McCabe, 1983).

Recounting an entire life, however, requires to bring more than two events in correct temporal order. Moreover, life is complex and events often overlap in time. This simultaneity of events may necessitate deviations from chronological order (Aksu-Koç & Stutterheim, 1994). Genette (1982) termed such deviations from chronological order anachronies and argued that they must be explicitly marked by temporal markers to keep the reader or listener temporally

oriented. Marked anachronies maintain temporal orientation, whereas unmarked anachronies do not indicate when in the story an event happened and lead to temporal disorientation. Narratives with neither of them obtain a linear chronological order.

Besides allowing the creation of simultaneity of events, anachronies also serve to provide background information necessary to understand the story, such as explanations or comments from the narrator's point of view. Also, they may be employed as stylistic devices to evaluate, to entertain and to increase the listener's interest. In order to surprise, some background information may be provided only after having told the event or the complication. In order to maintain interest or to evoke curiosity, the resolution of the event may be told before the event itself has been explained (Brewer & Lichtenstein, 1982).

Studying fictional narratives, Aksu-Koç and Stutterheim (1994) found that at the age of five children start to create simultaneity and to use anachronies. Both temporal markers and anachronies are increasingly mastered throughout childhood. This developmental trend seems to continue into adolescence. When asked to write a fictional story about someone with a problem, adolescents aged 17 years used more anachronies than 12- and 14-year-olds (McKeough & Genereux, 2003).

Studying entire life narratives, Habermas and collegues (2009) found marked anachronies to increase in frequency from age eight to age 12 and to unexpectedly decrease again between ages 12 and 16. This finding may be a cohort effect and asks for longitudinal clarification. Possibly, the skillful use of marked anachronies may be less a developmental achievement than rather a stylistic device. Once mastered, the use of marked anachronies may depend more on individual narrative style rather than on age.

To date, two studies indicate a continuous increase in artful deviations from linear order with age. First, older adults with a mean age of 61 integrated anachronies containing background information better into their personal single event narratives because of their more extensive use of orienting and temporal markers than two younger adult groups (mean ages 20 and 39; Pratt & Robins, 1991). Second, when writing a diary, only older adults in their 70s and 80s, but not younger adults, employed anachronies and interrelated several stories (Kemper, 1990). Because both studies used single event narratives, it remains unclear whether in later life the frequency of artful deviations from a linear order would also increase in entire life narratives.

In sum, previous cross-sectional work indicates that life narratives' temporal macrostructure emerges in adolescence. Yet, several questions remain to be clarified. First, the familial and social contextualization of one's life has not been studied in life narratives, although developmental research indicates its possible emergence in adolescence. Second, it has been assumed but not tested whether endings with retrospective evaluation and a prospective outlook develop in parallel. Third, the frequency of the use of marked anachronies in entire life narratives was discontinuous across adolescence and has never been studied throughout adulthood. We aimed to fill these gaps by studying entire life narratives longitudinally in age groups distributed across the life span. We expected a linear temporal macrostructure to emerge in adolescence and to become more artful in adulthood. This may show in three trends:

1. Elaborated beginnings at the time of birth, orienting social contextualization of one's life and elaborated evaluative endings become more frequent across adolescence.
2. A clear linear chronological order expressed by a decrease of unmarked anachronies emerges in early adolescence.

3. The frequency of artful deviations from a linear order while maintaining the temporal orientation by the use of marked anachronies increases across adulthood.

Method

Participants

This longitudinal study started in 2003. Measurements were repeated in 2007 and 2011. In the beginning, a total of N =114 participants assigned to four cohorts aged 8, 12, 16, and 20 years provided two entire life narratives two weeks apart except for nine participants who narrated their lives only once (cf. Habermas et al., 2009). For various reasons four participants had been excluded from the analysis of wave one published earlier, but were included in the present longitudinal analysis to maximize the number of participants. In 2007, 104 individuals participated again, of whom 94 participated a third time in 2011 (dropout 8.9% and 9.6%). For participants who had provided two life narratives in 2003 (N = 105), values were averaged. In 2007, two adult cohorts (40 and 65 years, N = 28 and 30) were added to examine lifespan development. Of these, 51 participated again in 2011 (dropout rate 12.1%). Gender was almost equally distributed in the six cohorts (Table 1).

In 2003, the youngest cohort was the higher achieving half of third graders from an elementary school, while cohorts 2, 3, and 4 were present or former students of a German higher-track high school. Its mixed social composition, mainly middle class with a substantial proportion of lower class backgrounds, was comparable to that of the elementary school population. The both adult cohorts 5 and 6 were recruited via flyers and among continuing education university students. In 2011, all six cohorts were well educated. The majority (71%) was about to or had graduated from school with the highest German school degree (Abitur), 18.8% had graduated after 10 years of school (Mittlere Reife) and 1.7% had no school degree.

Those who did not participate in 2011 and had still been in school when last tested made up the remaining 8.5%. A good third (35.2%) of the participants had at least one parent born outside Germany. A migrant background was present in roughly half of each of the four younger cohorts, but in fewer of the two oldest cohorts. Participants spoke fluent German. They were recompensed with 20 Euros in 2003, and 40 Euros in 2007 and 2011. Each time, we contacted participants up to three times by letter, then via email, phone, and social media, and obtained parental informed consent for minors.

Procedure

In 2003, the four youngest cohorts were tested twice, two weeks apart, by two different (out of three) female interviewers. In 2007 and 2011 all six cohorts were tested only once by new female interviewers unknown to the participants. Thus, participants in the four younger cohorts provided up to four life narratives, and participants in the two older cohorts provided two, resulting in a total of 531 entire life narratives.

Material

Seven most important memories and life narratives. Participants wrote their seven most important specific memories on index cards and put them in chronological order on the table in front of them. This served to make sure that life narratives also contained specific events and to reduce the memory load, especially for the youngest cohort. Participants were asked to narrate their life for about 15 min without being interrupted. They were instructed to include the seven most important memories and to tell their life such as to explain how they had become the person they were at present. Interviewers only encouraged to continue, but asked no questions (for verbatim instruction cf. Habermas & de Silveira, 2008).

Transcription and division into propositions. Life narratives were audio recorded,

transcribed verbatim, and divided into propositions, that is, into comprehensible main or subordinate clauses. For each wave, two coders independently divided 40 life narratives into propositions and agreed on 96.2% to 98.6% of propositions. Each of the two coders divided half of the remaining life narratives into propositions.

Coding. The first author coded beginnings, contextualization, and endings of life narratives and counted the number of marked and unmarked anachronies. In the Appendix we present excerpts from four life narratives of two participants with their complete coding to illustrative purposes. Interrater reliability was calculated by comparing these codings with earlier one of wave one (Habermas et al., 2009). Since contextualization had not been coded in wave one, interrater reliability was calculated with codings of a master student. All reliabilities are based on the independent coding of 32 life narratives, balanced for age, gender, and measurement time. To guarantee consistent coding across all measurement times, all life narratives were coded anew, including the ones from 2003. This may have resulted in minor differences to the values published earlier for wave one (Habermas et al., 2009). To ensure that the first author did not deviate from the manual during the ensuing coding process, a second reliability was calculated on the basis of additional 16 life narratives. Both interrater reliabilities are provided in Table 2. Except for contextualization, codes are introduced only briefly (for more extensive descriptions cf. Habermas et al., 2009).

Beginnings and endings. Elaboration of the beginning and ending of the narratives was measured on five-point (beginning) and four-point (ending) scales. They measured whether participants started their narratives at the beginning of life and ended in the present, and how elaborate the beginnings and endings were (Table 2).

Contextualization. We coded the presence or absence of three kinds of contextualization

in the life narratives' beginning, i.e., whether there was any mentioning of the family composition, of the family's socio-economic status, or of the family history at the time of birth (Table 2). To reduce the number of tests, the different kinds were summed resulting in their absolute frequency per life narrative.

Temporal order. Overall temporal order was measured by summing all deviations, leaps or insertions, from a linear chronological structure if they exceeded four propositions (Table 2). We distinguished marked anachronies, which maintained a temporal orientation, from unmarked anachronies, which did not indicate when in life an event happened.

Results

Prior to the longitudinal analyses, we provide descriptive data on the effects of age on the length of narratives. Then we explore correlations between the structural elements in order to test the theoretical conception of temporal macrostructure to finally investigate its development with age.

Length of Life Narratives

The length of life narratives increased with time and age. The increase in length stopped at age 20 with about 280 to 300 propositions per life narrative. The narratives of the middle aged and older adults at time two were, on average, about 280 propositions long and at time three about 360 propositions long. To compensate for differences in length, the absolute number of marked and unmarked anachronies was multiplied by 100 and divided by the number of propositions (relative frequency).

Correlations Between Dependent Variables

To explore the relation between all dependent variables we calculated correlations across measurement times prior to the longitudinal analyses. Table 3 shows that beginnings, contextualization, and endings correlated with each other positively and with unmarked

anachronies negatively. This confirms the conception of temporal macrostructure consisting of beginnings, contextualization, linear temporal order (as indicated by the unmarked anachronies' negative correlation) and endings. Accordingly, marked anachronies did not correlate with beginnings, contextualization or endings.

Effects of Age on Temporal Macrostructure

We investigated the longitudinal development of temporal macrostructure with age via mixed models for repeated measures for each dependent variable by using maximum likelihood estimation in RStudio Version 0.98.994, procedure LMER. Outliers were corrected to the whiskers of respective boxplots for each cohort. In about 3% (calculated across all measurement times and cohorts) outliers were corrected for marked anachronies, and about 1.5%, for unmarked anachronies, but not in any of the remaining dependent variables.

In mixed models, intercepts represent the initial status of participants, whereas slopes represent the increase or decrease due to age per measurement. Both intercepts and slopes can be fixed or random. Whereas a fixed intercept indicates the averaged initial value across participants, a random intercept is allowed to take on different values and is thus specific to a participant. The underlying assumption of the random intercept model is that the growth rate is the same for all individuals and thus rather unrealistic in developmental growth models. Therefore slopes were also allowed to vary. Such random intercept random slope models allow individual differences in both, the level and the rate of change. Mixed models for repeated measures were applied separately for younger (8-28 years) and older (40-69 years) participants because of their different number of measurement times. For the younger subsample age-related trends were modeled as linear and quadratic slopes to test for decelerating growth. For the older subsample, we only checked linear trends, because quadratic effects require at least three

measurement times. For each of the two subsamples, different models were estimated to identify the best fitting one, that is, all possible combinations of the following effects of age were tested: (a) fixed or random intercept (located at 8 years for the younger and at 40 years for the older sample, respectively), (b) fixed or random linear slope, and (c) and, only for the younger subsample, an additional fixed quadratic slope being included or not. Of the resulting models, the one with the smallest Akaike Information Criterion was chosen and all random effects were tested separately by a comparison of model deviances with χ^2 tests. Due to the age overlaps in the four younger cohorts at ages of 12, 16, 20 and 24, we additionally checked for cohort and gender effects in each measure running univariate ANOVAs. Only significant results will be reported.

Beginnings. The best model for age-related differences and change in the younger sample included a random intercept at age eight, a fixed linear slope and a fixed negative quadratic slope, indicating different initial values in participants and a common decelerating increase with age (Table 4). In the older subsample, a random intercept at age 40 and a fixed linear slope fitted the data best, although they were not significant, indicating no more growth throughout adulthood (Table 5). Figure one shows that elaboration of beginnings increased most between ages eight and 12, continuing up to age 16. At age eight, about a third of the participants started their life narrative anywhere in life, that is, with a temporally unclear beginning. From age 12 on, the large majority of participants started their life narratives at birth including at least one detail like birth date or place, which was established by age 16. The univariate ANOVA revealed a gender effect among the 16-year-olds, with more elaborate beginnings among the boys.

Contextualization. The best model in the younger sample included a random intercept at

age eight, a fixed linear slope and fixed negative quadratic slope, indicating again a decelerating increase with age (Table 4). In the older subsample, a random intercept at age 40 and a fixed linear slope fitted the data best, although they were not significant (Table 5). Figure two portrays the development of each social context separately. From age 16 on, almost a third (about 30%) contextualized their life narratives with family constellation, which reached its peak at age 28 and decreased later on. Contextualization in family history started at about the same age, but increased less up to age 24, remaining fairly stable throughout adulthood. Last, socio-economic context emerged rather late by age 20, continued to increase throughout early adulthood and remained stable later on, even though it was mentioned less frequently than the two other kinds of contextualization.

Unmarked Anachronies. The best model for the younger subsample included a random intercept at age eight, a negative random linear age slope and a fixed quadratic age slope, which were all significant (Table 4). The negative slope and Figure three show that unmarked anachronies decreased steeply between ages eight and 12 to remain at an extremely low level thereafter. Accordingly, there was no significant age trend in the best model of the older subsample including a random intercept at age 40 and a fixed slope (Table 5).

Marked Anachronies. The best model in the younger subsample included a significant fixed intercept at age eight indicating differing initial values in participants, but no development due to age as indicated by the non-significant fixed linear and fixed quadratic slopes (Table 4). Figure four portrays a heterogeneous growth pattern, which did not vary systematically with age. The steep increase between ages eight and 12 continued to age 16 only in cohort one. The univariate ANOVA evidenced a cohort effect for cohorts three and four at age 24. The 24-year-olds of cohort three used more marked anachronies than the 24-year-olds of cohort four (Figure

4). Moreover, Figure four indicates that the use of marked anachronies decreased between 28 and 40 years to increase thereafter in both older cohorts. Accordingly, the best model for age-related differences and changes in the older subsample included a fixed intercept at age 40 and a significant random linear slope displaying an increase throughout middle and late adulthood. The higher the initial use of marked anachronies, the higher its subsequent rate of change due to age (Table 5). Interestingly, both adult cohorts showed a very similar growth pattern and fairly the same frequencies (Figure 4).

To further explore whether the use of anachronies is more a characteristic of individual narrator style rather than of general development, we explored the stability of their use across measurement times. In the younger subsample, the use of anachronies did not correlate with their use at subsequent measurement times (r_{12} = -.076, p = .441; r_{13} = .046, p = .648; r_{23} = .165, p = .112). The correlation in the older subsample, however, indicated a tendency for participants who used marked anachronies before to continue using them (r = .264, p = .061) confirming the significant random linear age slope of the multilevel model.

Endings. The best model in the younger subsample included a fixed intercept at age eight, a fixed linear and negative quadratic slope, indicating a decelerating increase with age (Table 4). In the best model of the older subsample, a fixed intercept at age 40 and a fixed negative linear trend were found significant indicating a slight decrease in adulthood (Table 5). Figure five reveals that endings' elaboration increased between ages eight and 20, but decreased in late adulthood. To explore whether this decrease was specifically due to a decrease in outlooks onto the future, as might be suspected on the basis of the decreasing life expectancy, we inspected the relative frequencies of endings with prospect and with retrospect separately (Table 6). Most eight-year-olds ended their narratives at an arbitrary point in life. By age 12, the vast

majority (77.5%) ended their life narratives in the present, as did most all participants by age 20. At age 16 a third added a retrospective evaluation to the ending in the present, which reached a level of two third between ages 28 and 65, dropping to every second participant at age 69 (we are summarizing the sum of columns 3 and 5 in Table 6). An outlook onto the future was added to an ending in the present by an exceptional 45% at age 20, and still by about every third participant up to the mid-forties, but dropping to 17% and 10% in the sixties (sum of columns 4 and 5). Thus the slight but significant decrease in the elaboration of endings across mid- and later adulthood is mainly due to a steady decrease in future outlooks down to less than a third (from 36% to 10%); a decrease of retrospects in the sixties (from 63% to 48%) only reinforced this decrease in the overall elaboration of endings.

Discussion

This study confirms longitudinally the development of life narratives' temporal macrostructure in adolescence and reveals further changes in adulthood.

Age effects for temporal macrostructure

Beginnings, Contextualization, and Endings. As expected in the first hypothesis the elaboration of beginnings and endings increased mainly between ages eight and 16, continuing at a decreasing speed to age 20. Overall beginnings and endings remained at a stable level of elaboration across adulthood, with some decline in later adulthood. From age 12 on, the large majority of participants started their life narratives at birth including at least one detail like birth date or place, and ended them in the present. Thus by age 12 the beginning and ending of a chronological structure are established, confirming earlier studies longitudinally.

This study provides the first evidence that the spontaneous social contextualization of life develops later. Some participants started mentioning their family constellation at age 12, some

started mentioning family history at age 16. The mentioning of both increased up to the mid-twenties, with some variation across mid- and older adulthood. The family's socio-economic context was rarely mentioned before age 20. The sequence of contextualization starting from the present family, going back to its history, and widening the view to the wider socio-economic context, reflects the expanding range of awareness in terms of Bronfenbrenner's (1993) nested social ecosystem.

The endings of life narratives were increasingly elaborated by adding a prospect or retrospect between ages 12 and 28. From age 16 onwards, half or more of the participants added at least one of these elaborations. However the two kinds of elaborations developed somewhat differently. Outlooks onto the future peaked at age 20, remaining at a level of a third of participants up to the mid-forties. Evaluative retrospects increased in frequency up to age 28, remaining at a stable level up to the mid-sixties.

The peak of outlooks onto the future at age 20 may be explained by age-typical identity issues and the participants' current life situation. At this age, young German adults have just finished school or just started university, compelling them to choose long-term career goals in order to find and establish an adult role in society (Erikson, 1968; McAdams & Zapata-Gietl, 2015). The slight decrease of the degree of elaboration of endings across mid- to later adulthood is mainly due to a decrease in prospects. This might be motivated by the decreasing proportion of the life still to live relative to the life already lived. Finally we confirmed Habermas and colleagues' (2009) speculation that endings including both retro- and prospect remain an exception at all ages.

Linear temporal order, marked and unmarked anachronies. Our approach to define the temporal macrostructure of entire life narratives is based on the temporally sequential nature

of any narrative. As expected in hypothesis two, the ability to establish a linear chronological order, reflected by the steep decrease of unmarked anachronies, is acquired by early adolescence. But this did not result in an exclusively linear chronological order as indicated by the parallel substantial occurrence of marked anachronies at the age of 12. To mark anachronies, a variety of abilities are required, such as an ability to correctly use linguistic temporal indicators (Blewitt, 1982), to estimate the temporal distance of events, and to order events. Further, to organize time in life requires calendar knowledge, which is acquired around ages 10 to 12 (Friedman, 2005). Then, as indicated by our results, it can be applied in entire life narratives to mark anachronies explaining the absence of unmarked anachronies at age of 12.

Our expectation (hypothesis 3) that the artfulness of the temporal macrostructure, as expressed by the use of marked anachronies, would increase across adulthood was not confirmed. Neither an age-related trend nor an individual narrative style in the use of marked anachronies was observed in the younger subsample. Thus, the earlier nonlinear cross-sectional development with age (Habermas et al., 2009) was not confirmed. Only in middle to late adulthood an increase with age was found. This increase depended also on the individual as it was bigger for those, who used more marked anachronies at time one. Yet, our hypothesis regarding continuous development of artful narrating across adulthood via more marked anachronies could not be confirmed, because their frequency decreased between 28 and 40 years of age and both older cohorts did not differ in frequency despite their age-related individual growth. Just to count the numbers of anachronies does not seem to capture the artful style of life narratives' macrostructure.

Comparing life narratives' temporal macrostructure to single event narratives' structure

Clear beginnings introducing specific orienting information like time or place of birth developed first. Later in adolescence, beginnings were further elaborated by adding life's social contextualization. From age 12 on, life narratives were organized in a more or less linear chronological order, and temporal deviations were clearly marked. A clear ending in the present developed first. During adolescence and early adulthood endings were further elaborated by adding a retrospective evaluative.

The developmental order of the acquisition of these elements of the temporal macrostructure of life narratives tends to be similar to the development of the structure of single event narratives. In single event narratives, orienting beginnings emerge in preschool age as well as a basic linear order. Clear endings develop in late childhood and are further elaborated by adding an evaluative coda in early adolescence (c.f. Berman & Nir-Sagiv, 2007; Berman, 2004; Hudson & Shaprio, 1991; Menig-Peterson & McCabe, 1978; Peterson & McCabe, 1983). The big difference, however, is that the development of the temporal macrostructure of life narratives takes place later in life – there is, in Piagetian terms, a *décalage,* a temporal shift between single event and life narratives. Apparently, the narrative competence to start, to contextualize, to temporally organize and to end personal single event narratives precedes the competence to do all this in entire life narratives.

The reason for this consecutive development of the two narrative structures may be the content, which requires different narrative structures. Older children succeed better in narrating events because they learn to master the structure of narratives (Hudson & Shapiro, 1991). Accordingly, narrating an entire life requires knowledge of both the content of a life story and its corresponding structure. The *cultural concept of biography* or *life script* designates this knowledge of a standard life course and of normative transitional events and their timing (Bohn

& Berntsen, 2008; Habermas, 2007). It helps to select and order events in life narratives and is more or less established by age of 12. Apparently, as soon as knowledge of biographical time and of life narrative content is acquired, children acquire the competence to construct its overarching linear temporal order.

Implications

A major limitation of this study is that the participants were asked to recount their lives chronologically. This was based on the assumption of a temporally sequential nature of narrative and allowed exploring the development of the ability to structure a life chronologically. However we do not know whether individuals would also spontaneously recount their lives chronologically. It would be interesting to explore whether there are other forms of macrostructure in spontaneous life narratives. Individuals could structure their life narratives by important motives or by lessons learned. For example, a fundamental motive could be described in the beginning, and which would then be used to color certain life events or motivate decisions, to then, in a second take, start again with another important motive and its impact on other life events. The proverbial red thread would then be provided by these motives instead of a chronological order. Another possibility is to structure the life narrative according to life domains, for example, first narrating chronologically one's family life and then, going back, narrating chronologically one's work life (Rosenthal, 1995).

Another limitation of the study is that counting marked anachronies did not capture artful narrating in adults. Botvin and Sutton-Smith (1977) suggested a method to measure complexity of narrative structure, which Kemper (1990) later adapted to adults' narratives. Eight levels of structural complexity measure the hierarchical and multiple embedding of plot units, episodes,

events and final evaluations. Maybe this technique is more adequate for capturing artful narration of adults.

Finally, it would be interesting to study whether the developmental trends found in this study are identical when telling a significant other's life. Narrating somebody else's life, one may not know enough to flesh out the narrative, leading to a more skeletal life narrative. We would speculate that narrating another individual's life one has to rely more on schematic life story knowledge such as the temporal macrostructure and the cultural concept of biography.

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Table 1

Age (Mean, Standard Deviation) and Number of Participants by Cohort and Gender for Each Measurement Time

Year	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6	N
2003	8.63 *(0.23)*	12.45 *(0.34)*	16.56 *(0.41)*	20.51 *(0.53)*			114
2007	12.90 *(0.52)*	16.57 *(0.41)*	20.70 *(0.51)*	24.93 *(0.73)*	41.39 *(2.86)*	64.38 *(2.73)*	162
2011	17.03 *(0.48)*	20.58 *(0.39)*	24.61 *(0.41)*	28.90 *(0.67)*	45.08 *(3.02)*	68.73 *(2.65)*	150
N	in 2003				in 2007		
Female	13	17	13	15	14	15	87
Male	14	14	15	13	14	15	85

Table 2
Temporal Macrostructure

Codes with examples
Timing and elaboration of beginning (κ_1 =.988, κ_2=.972)
0 - Unclear: "It all started with me and my mother flying to my father to Oslo."
1 - After birth: "When I was quite small, I got up to a whole lot of mischief"
2 - At Birth: „ I was born, and at first I still knew very little"
3 - At birth with objective details: „ I was born in Frankfurt"
4 - At birth with details and story: "I have a twin sister. We were born on December 6 1990 by a Caesarian section."
Contextualization of life (all three κ_1 =1.000, κ_2=1.000)
Socio-economic context: „We didn't have much money, and both my parents had to work to make ends meet."
Family composition: „I was born in Frankfurt on the 16th of March 1942 as my parents' fourth child."
Family history: „I was born in London in England. That's because my father worked there at the university, and my mother came along to Britain with him to go to University."
Timing and elaboration of ending (κ_1 =.882, κ_2=.875)
0-Arbitrary: "A sort of camera was found which didn't belong to us at all. That was big trouble and everybody was always in a bad mood for the rest of the time. That was stupid. And then we made Lasagne. And then we flew back again. Finished."
1-In present: "and today we want to bake biscuits again and go to the Christmas fair. "
2-Only with Retrospect: "I don't know, I have lots of friends whom I've known for a long time, and that just gives me more confidence, that I can talk to people. I think, there's nothing else to tell."
2-Only with Prospect: "What else is there? Well, I'd love to study Medicine and become a doctor, yeah."
3-With both Retro- and Prospect: "I've taken leave. I will go to Switzerland for skiing, have a lovely time for a whole month, then come back, then term starts again. Otherwise life here is still always monotonous as it was at the beginning; you have friends of course, but nevertheless I was used to something quite different. I'm a summer person. I need lots of lovely weather, sun, beach, laughter, simply lots of life, and for me here this is no life. I've made up my mind to do my diploma as quickly as possible and then to buzz off from here. My parents will stay here."
Anachronies: Relative frequencies (Leaps κ_1 =.859, κ_2=.940; Insertions κ_1 =.770, κ_2=.872)
Leap: "In 1994 I had my first boyfriend, but what I just forgot, in 1989 my father left my mother. I was really sad about that and cried so much"
Insertion: "And in 8th grade we became best friends, but before in elementary school we had been like enemies. The others had to choose to be friends either with her or with me, that was rough. But in 8th grade we made a school trip and somehow we became best friends then."
Unmarked anachrony: "That was in kindergarten, I slipped on the stairs. Once I was at home with my mum and I was on the chair, then I fell down with my head on the table, I fainted."

Table 3

Correlations between Variables of Temporal Macrostructure across all Measurement Times with Linear and Quadratic Age Effects Partialled Out

	Beginning	Contextualization Sumscore	Marked Anachronies	Unmarked Anachronies	Ending
Beginning	--------	.304*	.036	-.187*	.188*
Contextualization Sumscore	-------	-------	.043	-.075	.054
Marked Anachronies	-------	-------	--------	-.032	-.019
Unmarked Anachronies	-------	-------	-------	--------	-------
Ending	-------	-------	-------	-------	--------

Note. *$p < .05$

Table 4

Mixed Models for Age-Related Trends in Temporal Macrostructure and Contextualization in the Younger Subsample aging 8 to 28 years.

	Beginnings			Contextualization			Marked Anachronies			Unmarked Anachronies			Endings		
	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)
Fixed Effects															
Intercept	1.182*	0.142	8.31 (308.5)	0.151	0.131	1.15 (310.7)	8.383*	1.000	8.38 (3.0)	2.217*	0.271	8.17 (7.2)	0.279*	0.100	2.80 (300.9)
Age	0.157*	0.028	5.61 (277.9)	0.077*	0.025	3.07 (272.2)	4.633	2.131	0.22 (3.1)	-0.473*	0.062	-5.59 (6.4)	0.198*	0.021	9.41 (304.2)
Age^2	-0.004*	0.001	-2.67 (261.5)	-0.001	0.001	-0.96 (255.7)	-2.207	1.032	-0.21 (3.0)	0.012*	0.003	4.17 (6.4)	-0.006*	0.001	-6.11 (295.4)
	Variance		*SD*	Variance		*SD*	Variance		*SD*	Variance		*SD*	Variance		*SD*
Random Effects															
Intercept	0.211*		0.460	0.246*		0.496				0.127*		0.356			
Age										0.072*		0.268			
Residual	0.560		0.748	0.433		0.658	0.3760		0.613	0.400		0.632	0.3571		0.598
Model fit															
Deviance	-398.5			-370.7			-297.4			-346.6			-294.8		

Note. Random effects, if present, were tested sequentially with $\Delta\chi^2$ tests ($df = 1$) based on model deviance (-2Log-Likelihood), that is, it was tested whether the effect was significant when entered in addition to all effects above it. *$p < .05$.

Table 5

Mixed Models for Age-Related Trends in Temporal Macrostructure and Contextualization in the Older Subsample aging 40 to 69 years.

	Beginnings			Contextualization			Marked Anachronies			Unmarked Anachronies			Endings		
	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)	Estimator	*SE*	*t* (*df*)
Fixed Effects															
Intercept	2.453*	0.154	15.92 (58.8)	1.102*	0.162	6.78 (63.4)	0.778*	0.134	5.80 (4.2)	0.054	0.040	1.33 (65.8)	1.960*	0.105	18.66 (62)
Age	0.006	0.008	0.76 (58.3)	0.013	0.008	1.57 (61.8)	0.009	0.007	1.30 (4.0)	0.001	0.002	0.88 (64.1)	-0.011*	0.005	-2.09 (61)
	Variance		*SD*	Variance		*SD*	Variance		*SD*	Variance		*SD*	Variance		*SD*
Random Effects															
Intercept	0.275*		0.524	0.124		0.352				0.006		0.076			
Age							0.019*		0.138						
Residual	0.560		0.748	0.941		0.970	0.376		0.307	0.061		0.247	0.304		0.551
Model fit															
Deviance	-141.9			-157.7			-92.3			-7.2			-103.9		

Note. Random effects, if present, were tested sequentially with $\Delta\chi^2$ tests ($df = 1$) based on model deviance (-2Log-Likelihood), that is, it was tested whether the effect was significant when entered in addition to all effects above it. *$p < .05$.

Table 6
Distribution of degree of elaboration of endings by age.

	Ending				
	Arbitrary	In Present	Only with Retrospect	Only with Prospect	With retro- and prospect
Value	0	1	2	2	3
Age					
8	**72.6**	25.5	-	1.9	-
12	22.5	**62.6**	7.5	14.9	1.4
16	5.45	*48.2*	27.4	15.0	4.0
20	1.9	28.9	24.3	**30.9**	14.0
24	1.9	36.6	32.7	21.2	7.7
28	-	21.7	47.8	17.4	13.0
40	-	25.0	39.3	14.3	**21.4**
44	-	22.7	45.5	22.7	9.1
65	-	33.3	**50.0**	3.3	13.3
69	-	51.7	37.9	3.4	6.9

Note. Most frequent ending per category in boldface. Most frequent category per age underlined.

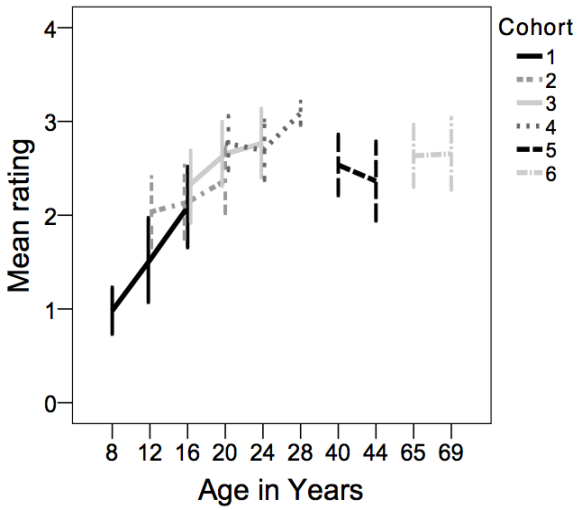

Figure 1. Mean rating and confidence intervals (95%) for beginnings.

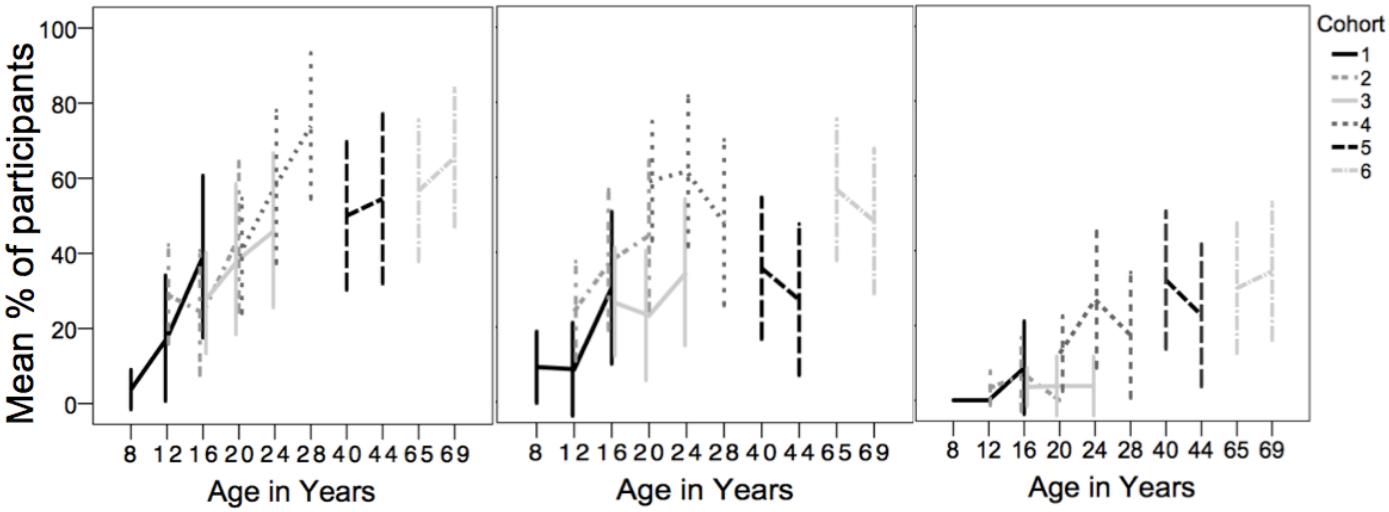

Figure 2. Mean occurrence and confidence intervals (95%) for family constellation (left), family history (middle) and socio-economic context (right).

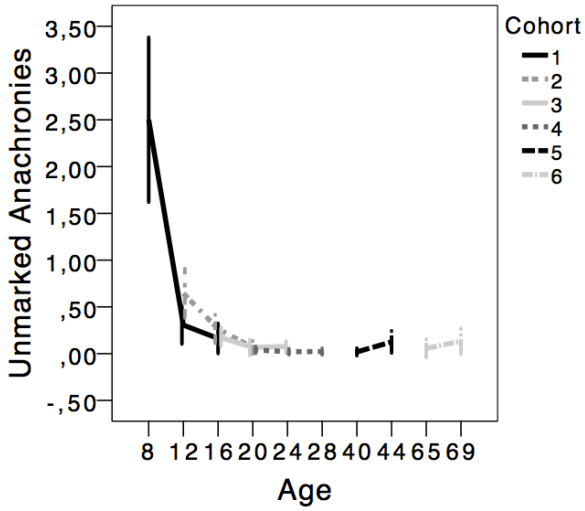

Figure 3 Mean percent and confidence intervals (95%) for unmarked anachronies.

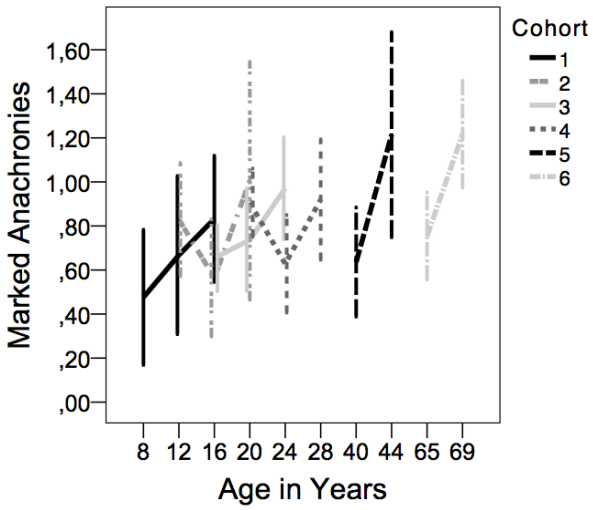

Figure 4. Mean percent and confidence intervals (95%) for marked anachronies.

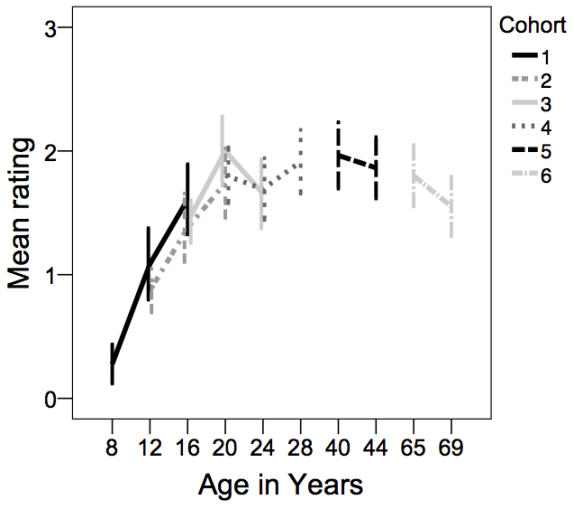

Figure 5. Mean rating and confidence intervals (95%) for endings.

Appendix

Table A1

Excerpts from two participants with the coding of temporal macrostructure.

Participant	Life Narrative	Coding
Male	Okay, well, in the past, when we had just moved here	Arbitrary Beginning
First life narrative	I needed to go to the doctor with my mom	
at the age of 8	and there was this lady	
	and they both talked about something	
	…	
	and when we wanted to leave,	
	she gave me some chocolate	
	and said I was a brave boy.	
	And in Disneyland, I used to see the ad in TV,	Unmarked anachrony
	there is a big castle	
	and you need to take the seat belt	
	and then it goes very high up and down, up and down.	
	First, I did not know what that was	
	and my dad went on	
	and I wanted to go with him	
	but I was still too little.	
	And the other day, I saw a scary film.	Unmarked anachrony
	The boy could see dead people,	
	that was pretty scary	
	I was a little afraid, these two days though.	
	And that was it.	Arbitrary end
Third life narrative	Yeah, I was born here in Frankfurt, in the Wilhelm hospital	Begin at birth with place
at the age of 16	I remember	of birth
	that we first lived in Frankfurt	
	until I was four years old	Temporal indicator
	…	
	In sixth grade, me and my friend Stefan did this funny thing,	Temporal indicator
	oh no, I forgot,	Marked anachrony with
	earlier, in the fifth grade, I started to go to the after-school care club	temporal indicator
	and there I met Stefan	
	and we became friends	
	And then in sixth grade, we …	Temporal indicator
	…	
	Although I live in Germany, I still feel Croatian,	
	my dream is to go back there again one day	
	I am grateful that I could do school here in Germany.	
	Right now I am doing my high school degree (Abitur)	
	So far, everything is alright.	
	So I hope,	Ending with prospect
	I will succeed,	
	and maybe, when I will have finished my studies	
	I will go back to Croatia.	
Female	Ok, so I was born in Frankfurt im Main.	Begin with place of birth
First life narrative	When I was three years old,	Temporal indicator
at the age of 16	I went to Kindergarten,	
	but I did not like it there,	
	because the teacher were not that nice.	
	…	
	Just recently, my parents split up.	Temporal indicator
	That was pretty chaotic,	
	because there was a lot of trouble at home,	
	but now they say	
	they will stay in the same apartment	
	but we kids, we don't know	

	what to think about that. Actually, we just try to endure and hope things will calm down. But actually, it feels very weird when I get home from school I always have the feeling that I should not talk to either of them 'coz I don't want to make the other one sad. But we do also have - three years ago I said I'd like to have a pet And I picked a big dog, And I trained him very well And I am so proud of him … I have many friends, Most of them I've known for a very long time, four or five years, We do a lot of things together Therefore I am pretty busy in my daily life, We see each other almost every day Well, that was pretty much it, I don't know what else to say.	Marked anachrony with temporal indicator Ending in present
Third life narrative at the age of 24	So, my name is Nicole Müller, I was born the 5th of May 1987 in Frankfurt I have two older brothers, so I was always the only girl. And we first lived in Frankfurt… … When I was 16 years old, my parents got a divorce. That was awful, because both fought a lot, therefore I did not succeed anymore in school and I dropped out of school. After that, I found myself an apprenticeship position as lawyer assistant. First I found it very boring, but meanwhile I really like the job. Some clients and cases are just incredible… Recently, I moved in with my boyfriend We met two years ago He is really important for me Because before I had only had bad luck with men I am still excited that now we live together It is like a new life phase is about to start This is really the most recent thing I think about the most right now Maybe also due to my parents' divorce Sometimes I am afraid I will end the same way But my boyfriend says we just need to talk things out He is so great So I hope We will stay together for a very long time.	Begin at birth with objective details and with family constellation Temporal indicator Temporal indicator Temporal indicator Ending with retro- and prospect

ANHANG C: SCHRIFT III

Habermas, T., & **Köber, C**. (2015). Autobiographical reasoning is constitutive for narrative identity. In K. C. McLean & M. Syed (Eds.), *Oxford handbook of identity development* (pp. 149-165). Oxford, UK: Oxford University Press. doi:10.1093/oxfordhb/9780199936564.013.010

Oxford Handbooks Online

Autobiographical Reasoning Is Constitutive for Narrative Identity: The Role of the Life Story for Personal Continuity

Tilmann Habermas and Christin Köber

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Abstract and Keywords

Autobiographical reasoning relies on the life story format for linking distant parts of life with each other and with personal development. Taking the lead from Ricoeur's concept of narrative identity, the argument is developed that the emergence of the life story and the ability for autobiographical reasoning in adolescence adds a powerful tool for identity exploration and stabilization. Autobiographical reasoning especially helps explicitly bridge biographical disruptions by spelling out transformations and their motives. Weaker attempts to explain personal sameness in time or personal stability are reviewed and argued to be more limited than autobiographical reasoning in their ability to bridge personal change. Furthermore, the role of narrative as point of reference for autobiographical reasoning is highlighted, linking our concept to that of narrative identity as originally conceived. Finally, contextual and stylistic features of autobiographical reasoning are specified that render it beneficial for self-continuity and well-being.

Keywords: self-continuity, autobiographical reasoning, life story, well-being, identity claims, biographical ruptures, life transitions, life narratives, autobiographical arguments, psychosocial identity

The central contention of this chapter is that the life story format offers unique, explicit ways of establishing and re-establishing personal continuity. This is especially relevant in times of biographical upheaval and change. Once a change of identity is reflectively and explicitly integrated into the life story, simpler mechanisms of securing a sense of personal continuity will again do most of the work.

The epistemological self or I is present in the evaluating and reflecting voice of the narrator, whereas the empirical self or Me is the past, present, or future protagonist of the life story. The life story can represent different empirical selves in their temporal sequence, highlighting both thematic coherence, which stresses sameness across time, as well as causal-motivational coherence, which stresses change and development but still bridges the different self-states to form a continuous self.

We use the term "life story" as an overarching concept for the life as told, remembered, or thought about. There are two major manifestations of the life story: entire life narratives, which are linguistic products situated in time and social space, and autobiographical reasoning (AR). The term "autobiographical reasoning" designates a process of thinking or talking about the personal past that involves arguments that link distant elements of one's life to each other and to the self in an attempt to relate the present self to one's personal past and future. AR establishes a biographical perspective on events and oneself. This involves using the life as a frame of reference. In addition to hierarchically integrating events into static personality traits, more importantly, AR may also create a dynamic developmental story to link diverse events to the self (Habermas, 2011; Habermas & Bluck, 2000).

How can (life) narratives and (autobiographical) arguments both manifest the same representation—the life story schema (Bluck & Habermas, 2000)—given that arguments provide logical links between statements so that one statement supports the other, but narratives imitate sequences of events, typically introducing sentences with the phrases "and then…, and then… "? Narrative is the more encompassing text type because it contains not only narrative clauses, but also arguments, descriptions, and chronicles (summaries of events) (Labov & Waletzky,

1967). In life narratives, autobiographical arguments (i.e., arguments characteristic of AR) contribute to their global coherence. By global coherence we mean a characteristic of the entire text of a life narrative, which has different aspects such as temporal, causal-motivational, and thematic (Habermas & Bluck, 2000).

In the context of everyday storytelling, AR occurs when a specific life event is spontaneously placed in a biographical context. Therefore autobiographical arguments can be identified in naturally occurring texts such as diaries, web blogs, talk shows, or printed autobiographies. AR can also be elicited both by asking for narratives either of an entire life or of biographically significant single episodes, such as self-defining memories or turning points. Finally, AR may also be elicited by asking how personal continuity is created.

To make the point that AR is essential for the development of identity, specifically for bridging biographical disruptions to ensure self-continuity and thereby securing well-being, this chapter starts with Erikson's concept of psychosocial identity, relating a prereflective sense of identity to explicit AR about identity. We then summarize the philosophical argument that personal continuity requires the life story, establishing narrative identity. This will be contrasted with psychological positions that personal continuity is not necessary in a postmodern society and with positions that attempt to explain a sense of personal sameness in time by prereflective and nonbiographical mechanisms of memory, self-concept, social-environmental continuities, and situated identity performances. We then argue that, in adolescence, a new powerful tool for establishing and above all re-establishing personal continuity is acquired, the life story with its intertwined ability for AR. We first introduce Chandler's model of the development of arguments that establish personal continuity to complement them with other, more general autobiographical arguments. We specify why not only arguments, as suggested by Chandler, but also the life story as a narrative format is helpful in constructing personal continuity. Finally, we explore in which ways AR may be helpful for rather than detrimental to personal development by ensuring self-continuity as a basis for well-being.

Psychosocial Identity and Adolescence

The transition between childhood and adulthood requires taking on the responsibilities of an adult role in terms of gender and personal relationships, profession, and values. The commitment to and integration of the social aspect of identity are reflected in a subjective sense of identity, which is noticeable mostly when it is challenged. Erikson (1968) takes the description of this subjective sense of identity from clinical experience with states of identity diffusion and depersonalization (Federn, 1950). The subjective sense of identity is complemented by an explicit, objective view of one's identity resulting from social interaction and self-reflection. Identity-related self-reflection and exploration, most specifically AR, is activated when identity becomes problematic and needs to be revised and reintegrated.

We summarize Erikson's descriptions of psychosocial identity in six points. The first three aspects of identity require a balance, whereas the latter three tend to be healthier if one end of the dimension is achieved: (a) individuality versus belonging, (b) synchronous self-sameness versus flexible adaptation to situational requirements, (c) diachronic self-sameness versus change, (d) agency, (e) feeling at home in one's body, and (f) self-esteem. Identity diffusion is experienced as a cluster of (a) not belonging or being no-one special; (b) clumsily not adapting to situational demands, or of changing chameleon-like from situation to situation; (c) being frozen in time, as in depression, or as feeling disconnected from one's past self; (d) feeling helpless and controlled; (e) living in a strange body; and (f) being worthless.

Becoming able to construct a subjective life story in adolescence lends a diachronic dimension to the self-concept and therefore affects most the identity aspect of self-continuity. To achieve self-continuity, individuals need to find a balance between remaining the same and continuing to change and learn as they live their lives. Put in this general way, personal continuity is a lifelong task, especially at times when change is required, such as being confronted by developmental tasks or normative transitions or when change is imposed by others' actions, economic circumstances, or difficult life events.

Psychoanalysis suggests that identification is a basic mechanism that not only shapes identity, but also helps create personal continuity by linking values that motivate and direct life choices to the past. McAdams (2013) suggests a first developmental transition from mere traits and action tendencies to conscious intentions and medium-range goals in middle childhood. However, only adolescence brings the next developmental step that is decisive for identity. When becoming adults, individuals gain the autonomy and assume the responsibility

necessary for making life choices, passing through a transitional phase of trying out identities. Thus, only in adolescence are children's prereflective identifications with parental values potentially questioned, critically reflected, refuted, or consciously reaffirmed. This timing is probably due both to the social attribution of responsibility as well as to the emerging social-cognitive ability to reflect on one's identity. This shows, for example, in the dawning of an awareness of one's physically defined identity in society as belonging to a specific race (Obama, 1995), being handicapped, or being extremely thin (Habermas, 1988). To sum up, the aspect of identity most affected by the advent of the life story is self-continuity.

Self-Continuity Through Narrative Identity

Here, we briefly introduce some philosophical arguments for a narrative conception of personal continuity (Thomä, 1998). These will then be compared with psychological positions and evidence that attempt to do without a narrative conception of self-continuity and with our and others' psychological evidence for a narrative conception of self-continuity.

Dilthey (1926, p. 200) assumes that life is lived with a direction that provides it with coherence. Therefore, when writing an autobiography, coherence does not have to be created out of chaos but can be based on the implicit coherence of the life lived by picking biographically salient events and explicating their relationships. Moreover, by looking back, unity in life is also created by valuing the present and looking ahead with a purpose in the mundane activity of reflecting on life (cf. Staudinger, 2001). Only MacIntyre (1981) explicitly links the unity of life to a narrative quality. He interprets life as a quest for the good life, and quests can be seen as the prototypical narrative plot (Propp, 1929). Therefore, he argues, we constantly narrate our life to ourselves, creating unity by orienting it toward an idea of the good life. This is ethically required because commitments made and debts assumed oblige the individual for the future.

Paul Ricoeur (1990, p. 246), in contrast, concedes to life as lived only a prenarrative quality, inasmuch as it is partly structured by the subject's actions. He distinguishes between concepts of personal identity as sameness versus self-sameness. The former is some form of substantial or formal identity, which is not necessary for the latter. Sameness requires something to remain the same, whereas self-sameness does not. Ricoeur (1992, p. 116) lists several possible ways to define sameness: numerical identity, qualitative sameness as extreme resemblance, developmental sameness as uninterrupted continuity, and relational sameness as permanence of an organization or Gestalt irrespective of the successive substitution of its parts. Character, as defined by lasting dispositions, appears to present an example of substantial sameness. However, character also has a history and may be based, for example, on identification with significant others of the past, thereby turning it into an example of developmental sameness. For Ricoeur, the prime instance of self-sameness is keeping one's word. Here, no substantial identity between the past self who gave the word and the present self who has to keep it is necessary. It is enough to have the morally binding obligation that bridges the temporal gap. Ricoeur introduces the concept of narrative identity as that which mediates the sameness of character and the self-sameness of the promise. Narrative links the permanence of character to the gap between the present narrator and the past protagonist, for whose actions the narrator is responsible. It is the nature of events and of their emplotment that they transform characters and link past to present self, character to narrator.

Thus, Ricoeur argues that whereas differing degrees of sameness can be constructed with different arguments, two discontinuities—the development of character and the gap between the actor and the responsible narrator—can only be bridged by life narration to create self-sameness, or, as we term it, self-continuity. Only the narrative transformations of emplotment, he argues, create self-continuity across character development and across the gap between protagonist and narrator. Before attempting to substantiate aspects of these philosophical claims with psychological evidence in the section on "Autobiographical Arguments and the Life Story Construct Self-Continuity across Change," we review some of the positions opposed to a narrative conception of self-continuity.

How Means Other than Narrative Support Sameness: Memory, Self-Concept, Relationships and Environment, and Identity Performances

A first line of arguments that attempt to explain the diachronic aspect of personal identity, reaching back to Locke (1634), derives a sense of personal sameness from the ability to remember. Along the same line, William James

(1895, "I," p. 333) explained the sense of personal sameness in time by the reflecting I's judgment that remembered past selves possess a trace of that bodily "animal warmth" and familiarity that distinguishes the present Me from present Not-Me. A second line of arguments explains sameness by the assimilation of memories to the present self-concept. A third line of arguments ties sameness in time to continuities in the individual's relation to the environment. A fourth line places the establishment and maintenance of personal identity in local, situated identity performances, or even questions the necessity of diachronic identity at all. We now discuss each of these arguments in turn.

Remembering Establishes Personal Sameness in Time

For a long time, personal continuity played no role in the psychological theories of memory. Ebbinghaus (1885) rendered the experimental study of general laws of memory possible by decontextualizing remembering, counting the correct reproductions of meaningless syllables. The concept of episodic memory, originally invented to differentiate Ebbinghaus' kind of memory from knowledge, or semantic memory (Tulving, 1972), was later redefined (Tulving, 1983) by complementing what was being remembered (e.g., paired words) with the situational circumstances of a former experience and with the feeling of actually remembering and not imagining or simply knowing a past scene. Tulving (1985) characterized the immediate subjective experience of remembering a sequence of events that one had experienced as containing perceptual details and first-person experiences, like visual perspective, thoughts, and emotions. Remembering is metaphorically described as reliving (Wheeler, Stuss, & Tulving, 1997).

Tulving's concept of episodic memory implies, and Addis and Tippett (2008) spell this out, that a sense of personal sameness in time is created by remembering or imagining an event from a first-person perspective. However, the mere experience of remembering past experiences provides only a weak version of personal sameness in time for two reasons. First, the inclusion of a first-person perspective in remembering is not very reliable evidence of remembering a scene that the individual has personally experienced. Judgments of the source of one's memory rely not only on qualities inherent in the memory, but also on knowledge (Johnson, Hashtroudi, & Lindsay, 1993). For example, I might sometimes remember vividly and with detail accessible mainly from the first-person perspective a scene I have seen in the movies. Second, this kind of sense of personal sameness in time only regards the sameness of the cognizing I, but not of the person or Me. Elaborating their claim, Prebble, Addis, and Tippett (2013) limit the sameness in time rendered possible by remembering to the subjective sense of sameness (i.e., the identity of the remembering I with the former experiencing I), not the continuity of the reflected-upon, present Me with the remembered Me.

Prebble, Addis, and Tippett (2013) posit the ability to remember as an absolute precondition for a sense of continuity. They point to neurological patients who, together with losing personal memory, also lost knowledge of who they are. However, although the ability to remember past events may be a necessary precondition for a sense of continuity, it is not a sufficient condition. Even in the absence of neurological damage, individuals may feel as if memories did not reflect their own experiences. They may not feel that they were in the past experiencer's body, or they may not feel it was them who did what they remember. Such variations in the prereflective sense of Me-ness may regard both the body and the mind. If they regard the present self, they are termed self-estrangement or depersonalization. If they regard the past self, they constitute states of varying degrees of dissociation or simply a sense of personal discontinuity. This feeling of being disconnected with one's past self has been extensively described in the psychopathology literature. Erikson (1968) dealt with it as a symptom of identity diffusion, which Kernberg in turn (1984) used as a major criterion for borderline-level personality organization.

Memories are Compared to Stable Self-Concept to Create Self-Continuity

Thus, being able to remember does not necessarily entail a sense of self-continuity both because of other possible sources of first-person memories than actual personal experience and because of the unreliability of a subjective sense of personal continuity. There also needs to be some kind of similarity between the present and the remembered self.

Therefore William James located personal sameness in time not in the cognizing I, but in the remembered extended Me. It is a prereflective sense of familiarity and "animal warmth" evoked by a memory that leads the I to reidentify and appropriate the remembered experience as one's own (James, 1890, "I," p. 334). The core of this feeling is the

constant perception at the fringe of consciousness of being alive in one's body. Thus, for James, in addition to the ability to remember at all, it is a prereflective awareness of sameness of the Me that is at the base of a sense of self-continuity.

Conway and Pleydell-Pearce (2000) suggest a more reflective comparison between past and present Me. Their model of autobiographical memory integrates a hierarchically nested autobiographical knowledge base with motivational states and personal goals. These select and also distort personal memories so as to render them consistent with personal goals and to thereby increase personal sameness in time. The stress on goals, however, leaves out the distortions of memories that enhance consistency with the present real and ideal self.

Therefore a revision of the model added a stable self-concept, termed "conceptual self," consisting of convictions about stable traits of the self, complementing the future-oriented personal goals (Conway, Singer, & Tagini, 2004). In the revised model, distortions of older memories serve to create consistency with the self-concept and to be consistent with stable motives (cf., Woike, 2008). Goal-related recent memories, in contrast, are freed from this bias so as to enable realistic actions for attaining goals. The added self-concept is a model component that describes what is assumed to be a constant in the individual's personality across time, thus accounting more realistically for a sense of personal continuity than did mere consistency with goals in the earlier model. The conceptual self is linked to self-defining memories (Moffitt & Singer, 1994) of situations that are typical of the central concerns and conflicts of the individual. These memories condense a variety of past events into one prototypical representation ("repisodic" memories [Neisser, 1981]; "nuclear scenes" [Tomkins, 1992]). They represent the highly stable core emotional and relationship patterns of an individual ("internal working model" [Bowlby, 1969]). They remain rather insensitive to situational requirements and new life experiences. This is what Pasupathi (this volume) terms tacit themes of narratives. In our life story model (Habermas & Bluck, 2000), these themes create thematic coherence in life by assimilating diverse experiences to central motives, both implicitly and explicitly.

In contrast to Tulving's assumption that remembering past events serves to establish personal sameness in time by the immediacy of the experience of reliving, Conway's model turns this relationship around, suggesting that the present self-concept biases remembering so as to increase self-continuity. Self-continuity is, thus, not provided by the identity of the remembering I, but by the perceived similarity of the present and past Me. However, the cost of this accomplishment is the necessity of downplaying and reducing actual differences and personal change.

Stability of Relations to Others and the Environment Safeguards Personal Continuity

Now, if the similarity of remembered self and present self-concept influences the sense of self-continuity, the actual stability of the individual in her or his context should also play a role. William James defined the empirical Me as comprising the spiritual, the social, and the material self. Thus, the stability of social relations and of the environment should contribute to a sense of self-continuity. Intimate relationships are at the core of personal continuity, which shows in the effects of the death of a loved one (Pennebaker, Mayne, & Francis, 1997). Developmentally, the basis for a subjective sense of continuity is a secure attachment to a stable (e.g., Smyke, Dumitrescu, & Zeanah, 2002) and sensitive parental figure, based on which internal working models are constructed that generalize early experiences with a caretaker to later relationships (Bowlby, 1969). Despite the internalization of stable relationships by the end of the first year of life, relationships remain a source of continuity throughout life, as is indicated by the negative effects of divorce on the development of attachment security in children (Beckwith, Cohen, & Hamilton, 1999; Cookston & Remy, this volume). Social roles and social identities also support a sense of subjective continuity. Again, this is most apparent at times of discontinuity, as during role transitions (e.g., retirement) or role loss (stroke; Haslam et al., 2008).

The stability of one's material basis, the body, and of the material environment is closely linked to the stability of social relations and also contributes to a sense of continuity. Feeling at home in one's body may be disrupted both by maturation and involuntary body modifications, such as the loss of body parts. Familiarity of place is an important buffer against separation anxiety in toddlers. Having a home (Smith, 1994) or community (Fried, 2000) remains a source of stability throughout adulthood. Place attachment and place identity are disrupted in relocations (e.g., when leaving the parental home, Chow & Healy, 2008).

Migration implies multiple discontinuities in terms of relationships, roles, place, and also linguistic and cultural environment. Socioterritorial transitions may be bridged collectively by rites of passage (van Gennep, 1910) or

individually by an idealization of the past in terms of nostalgic longing (Sedikides, Wildschut, Arndt, & Routledge, 2008) or by taking along personal objects that serve as souvenirs (Habermas & Paha, 2002).

Social and material stability offers familiar surroundings, space for routine activities, and a secure foundation for exploring new environments and activities. The importance of stable others and environments translates psychologically into an attachment to or an identification with them. Whereas attachment requires the presence of its object, identification can do without it. Often, identifications result from identifying with a lost attachment object (Freud, 1923). If a sense of continuity is precarious because changes in the environment threaten it, identifications with specific others, groups, and values may stabilize it. Still, even a sense of continuity based on identifications in some instances depends on actually having a specific role or group of reference. Thus, a belief in the stability of a group one identifies with correlates with subjective well-being (Sani, Bowe, & Herrera, 2008). Similarly, attempts to create a collective past and future in native Canadian communities correlate with lower rates of suicides (Chandler, Lalonde, Sokol, Bryan, & Hallett, 2003).

Situated Narrative Performances Maintain or Establish Identity

Social relations and roles influence identity formation and maintenance at a relatively abstract level. Therefore, some authors ask which microgenetic mechanisms actually create and maintain identity in specific situations. Situated identity negotiations have been theorized by sociologists like Goffman (1959) and discourse analysts like Davies and Harré (1990). They stress the dramaturgical character of identity performances. Insofar as interactions are part of enduring relationships, they are essential for reinstating, reinterpreting, and reconfirming identities that are rooted in intimate relationships. Also, the more social aspects of identity require continuous confirmation and interpretation to remain alive. In this sense, identity performances are essential for maintaining self-continuity. More specifically, claiming identities by the way a story is told and by the depiction of the self in a story may contribute more to self-continuity because some stories of significant events tend to be retold again and again. McLean, Pasupathi, and Pals (2007) reviewed evidence of how stories are shaped by personality as well as by listeners (cf., Pasupathi, 2001; Pasupathi & Hoyt, 2009). They argue that stories that reflect stable self-aspects tend to be told more frequently.

Most situationist accounts of identity, however, lean toward a postmodern position that negates even the psychological and social necessity of self-continuity. Most radically, Kenneth Gergen (1991) criticizes concepts of an enduring personal identity and the construct of biography, confronting it with a concept of multiple situated identities. He argues that the belief in the life story as expressing a stable identity has historically given way to fleeting identifications and patchwork or pastiche identities that change with situational demands. This is supposedly due to society's recently increasing demand for lifelong flexibility on the job market, as well as in personal relationships.

In the narrative field, Michael Bamberg (2011) criticizes a life narrative approach as focusing solely on a crystallized, unambiguous version of a reflected past, missing the improvisational fluidity and interactional nature of everyday storytelling (see Korobov, this volume). Similarly, Antonino Ferro (2006) proposes a narrative model of psychoanalytic psychotherapy that focuses on the destabilizing moment of the analytic situation and the co-creation of new local narratives that are truer to the emotional experience of the dyad, thus opening up new ways of experiencing and understanding. Ferro discards the large biographical narrative as irrelevant to psychoanalysis. Thus, these situationist approaches do away with the necessity and reality of creating personal identity over time.

Limitations of these Approaches: Developmental and Other Challenges to Self-Continuity

The postmodern approaches just mentioned ignore the psychological necessity of self-continuity as evidenced by states of identity diffusion and identity disorders, by the devastating effects of dementia, and by the social psychological phenomena of enduring identification with roles and groups. They ignore the social necessity of being able to address others as continuous in order to be able to maintain relationships and a social order with actors who are responsible for their past actions.

The other approaches presented thus far do contribute to an understanding of how a sense of continuity is created and maintained. Many of them, however, require that the self does not, in fact, change. Mere remembering cannot bridge much of life change because memories tend to fade with time, as does the first-person perspective. The

more remote the past self, the more likely it is described in terms of traits; that is, from an observer instead of an actor perspective (Pronin & Ross, 2006). Concordantly, a subjective field perspective gives way to a visual observer perspective the older personal memories grow (Nigro & Neisser, 1983). A visual observer perspective is also more frequent when remembering or imagining actions that are deemed atypical of the current self (Libby & Eibach, 2002) and probably even more so when questioning the validity of the specific motives or wanting to mitigate responsibility for an action. Thus, a first-person perspective that Tulving (2002) considers central for reliving the past, and Prebble, Addis, and Tippett (2013) consider the main source of a sense of self-continuity, tends to get lost with time and personal change.

Although assimilating memories to a current self-concept is more efficient than the mere phenomenal experience of remembering in bridging personal change simply by reducing the perception of change, it does not provide a mechanism to create self-continuity when change is acknowledged. The model of the autobiographical knowledge base, with its temporally and thematically defined nested structure, does permit placing memories in specific phases of life. But, again, what is not represented in the model is how the individual has changed and developed. If there is a conviction that one has changed, differences between past and present are even exaggerated in memories (Ross, 1989).

Stability of the body and the environment provide familiarity and a prereflective sense of personal sameness. Change in the body and in the environment, however, may lead to a sense of estrangement and discontinuity. Keepsakes, souvenirs, and telecommunication help bridge these disruptions. More forcefully, the mechanism of identification with the region one grew up in, one's family, and loved ones provides a strong psychological bridge to past relations and environments that have been lost. However, not all change is a loss of significant others—change in the self, one's body, and personality cannot be bridged by identification.

Everyday stories may be repeated and may depict constant traits of the individual, but everyday storytelling by itself does not offer a mechanism for bridging personal change. One exception may be the sharing of memories of the distant past with friends, which may serve to reinforce a sense of self-continuity (e.g., Bluck, Alea, Rubin, & Habermas, 2005). Otherwise, to help bridge personal change, everyday storytelling does need a biographical perspective, a reference to the life story, as we will now argue.

Autobiographical Arguments and the Life Story Construct Self-Continuity Across Change

Adolescence is the one life phase—maybe together with very old age—in which individuals change the most and in which it is therefore most difficult to maintain a sense of personal continuity. Whereas children have an identity as children of their parents and define themselves by their looks, preferences, habits, and, beginning in early adolescence, character traits, adolescents take on the transitory identities of youth culture, to confront the question what kind of adult they want to become and what kind of life they want to lead. Primary emotional relationships change, as do occupation and often also the environment. Although foundations for adult identity are laid in late adolescence and postadolescence, more recently termed "emerging adulthood," modern societies require a continuing flexibility in terms of work identity and also of intimate relationships. Therefore adult identities also need to remain somewhat flexible to accommodate normative transitions and non-normative life events such as illness, separation, and loss of job.

Adolescents acquire a new cognitive-communicative ability, the life story format and the related ability for AR (Habermas & de Silveira, 2008; Köber & Habermas, in preparation), which makes it easier to bridge discontinuities and integrate change into identity. We argue that under normal circumstances (i.e., in times of relative stability), the prereflective ways of establishing a sense of personal continuity discussed earlier suffice (if they are not undermined by primitive defense mechanisms in severe personality disorders or dissociative disorders). But in times of biographical change and rupture, a switch to the reflective mode of autobiographical reasoning may enable individuals to mend and bridge the breaks in their lives. Once this has been done and integrated into one's life story schema, the reflective mode is no longer necessary for maintaining a subjective sense of self-continuity.

We first present one form of AR that results in lay theories of personal change. We then add other autobiographical arguments that complement the development of a biographical perspective on life. Returning finally to Ricoeur, we argue that AR relies on narrative, more specifically on the life story format.

The Development of Lay Theories of Personal Continuity

Michael Chandler and colleagues have studied adolescents' reasoning about how it is possible to change over time and still remain the same person in Piagetian-style clinical interviews (Chandler, Lalonde, Sokol, & Hallett, 2003). They present biographical sketches of fictional characters and ask how the protagonists have changed, whether they are still the same person, and how that was possible. Also, participants are asked what they were like five years earlier, what they are like at present, how they have changed, and again how it is possible that they are still the same person. These questions aim to elicit the best arguments participants can provide to justify personal continuity despite change.

Chandler devised five developmental levels of increasingly adequate explanations of personal continuity, each level allowing for an essentialist and a narrativist version of the argument. Essentialist arguments assume some form of basic personal sameness in time, whereas narrativist arguments assume a sequence of diverse states related through transformations. Among the developmentally more refined ways of reasoning, level 3 sees personal development as following a predictable sequence of maturational steps, which either determine the changing surface of an unchanged core identity or which are causally related. At level 4, change is more individual, and continuity is found either in an abstract core trait or in the individual's quest for self-discovery. Level 5 offers a kind of epistemological uncertainty principle that one can never truly know, but only approximate, an individual's core or life line.

Chandler's theory is the only psychological work that has seriously grappled with the structure of reasoning about personal continuity. It was used with several hundred participants and has shown a clear cross-sectional correlation with age. Chandler offers a comprehensive view of lay philosophies of personal continuity. However, when narrating a life or constructing biographical coherence, the construction of personal continuity is usually less explicit and more partial. Therefore our analysis of textual means and single arguments complements Chandler's approach. Although the textual approach is more partial and formal, and therefore cannot offer the description of coherent philosophies, it does allow a more quantitative approach. Also, it does not depend on clinical interviews but can be applied to naturally occurring texts and to both oral and written monologues. We will take up Chandler's two strands of continuity claims, essentialist and narrativist, by distinguishing between claims of stability (i.e., sameness over time) and claims of continuity (i.e., a continuous sequence of transformations). Finally, we argue, with Ricoeur and against Chandler, for a specific advantage of narrative for bridging discontinuities.

Other Autobiographical Arguments and Their Contribution to Identity

AR involves arguments that refer to the life story as a frame of reference. Staudinger (2001) interpreted AR as the personal form of life reflection, the impersonal form of which she terms "general wisdom." In gerontology, the terms "life review" (Butler, 1963) and "integrative reminiscing" (Watt & Wong, 1991) denote a critical and evaluative look back on one's life that mostly involves AR.

The following nonexhaustive list of typical arguments used in AR draws mainly on Habermas and Paha (2001; cf. Habermas, 2011). Each of these arguments contributes to personal continuity by implying a concept of the whole life, either by stating sameness in time or bridging discontinuity. Habermas and Bluck (2000) introduced four major kinds of global coherence in life narratives: adherence to a cultural concept of biography (cf. Habermas, 2007), temporal, causal-motivational, and thematic coherence. In life narratives, autobiographical arguments tend to contribute to thematic coherence if they create similarity between different parts of life, thereby supporting sameness in time or stability. Autobiographical arguments tend to contribute to causal-motivational global coherence if they explain or motivate change, thereby contributing to self-continuity across change. Autobiographical arguments can be used within entire life narratives to contribute to their global coherence. They may be and mostly are used in other contexts, such as when narrating a specific biographically significant event. We first present arguments contributing to stability, then arguments contributing to personal continuity across change in the individual's personality and life, and finally arguments that create continuity across change in the individual's understanding of life.

Arguments Contributing to Stability

Thematic coherence is constructed hierarchically, by creating a higher level category that integrates more specific

categories or instances. A major device in autobiographical narrations is *exemplification*. It mainly serves the rhetorical function of persuading the listener of a general claim by providing specific instances (Schütze, 1984), such as when a claimed aspect of one's personality is substantiated by an episode in which this trait is manifested. Also, evaluations of people ("he never really accepted me") or evaluations of extended time periods ("the first months at college were terrible") may be substantiated by exemplifications. In addition to lending depth and credibility to a biographical narrative, exemplifications also link specific events to more general statements covering extended periods of time, thereby creating stability across specific events.

A similar argument is used to *explain specific actions by the actor's personality*. Whereas exemplifications lead from a general claim to a specific instance, explanations of actions by personality follow from a specific action or reaction to general personality traits. Although individuals usually explain their own actions in terms of motives and goals, if an action appears to be problematic or a rational motive is not at hand, a trait may be adduced. This has the effect of assimilating a specific episode to a lasting personality trait, which potentially may also explain other actions at other times in life, thereby contributing to stability. Linde (1993) introduced this argument as one of two major ways of creating coherence in life narratives, the other being the reverse causal-motivational relation, which explains personality change with events (see later discussion). Pasupathi, Mansour, and Brubaker (2007) pointed to an interesting variation of the argument. Narrators may also deny that an action may be explained by a trait by stating that an action is atypical for the self, pointing to mitigating circumstances and to the exceptionality of the event. This *not me-event link* contributes to personal stability by discounting an event that does not fit the personality claimed by the narrator.

Another way to highlight stability in life is to state that an element of the narrated past event is still currently the same. Such a *past-present comparison* is used to relate the narrated story world to the present real time of narrator and listener. Still another way to construe stability in a life is to find *parallels between a specific episode and other episodes*. Thus, not infrequently, narrators state that a given kind of experience happened to them more than once or that it was a typical experience. In this case, it is not an abstract trait, but a class of episodes or pattern of experiences that is stable.

Arguments Contributing to Continuity Across Change

The following biographical arguments create continuity not through sameness or stability but by bridging change. At a basic level, continuity may be created by referring to the *developmental status* of an individual in the normative course of development to explain her or his reaction, ability, or sensibility (McCabe, Capron, & Peterson, 1991), such as in "My parents' divorce didn't affect me much. I wasn't really aware of what was happening. I was still too little." This invokes a conception of the human lifespan.

In a more individual vein, specific experiences may be said to have had a *formative influence*. This kind of argument again helps to integrate a specific experience with the emergence of permanent aspects of personality. The discontinuity bridged here is a weak one because it is one between formlessness and being formed.

Whereas being formed by parents is part of the normative script of development, more individual influences of specific events on the development and change of personality can be formulated as *events causing personality change*, as in "After age 10, I became a shy person because the separation of my parents made me distrust others." Compared to explanations of actions by personality, here, the direction of causality is reversed (Linde, 1993), and the genuinely biographical argument is made that experience has shaped personality.

An experience may also have a more specific influence in creating a sensibility or motivation to react in a specific way in specific kinds of situations (Feldman, Bruner, Kalmar, & Renderer, 1993). This prototypical biographical argument is used to explain strange behaviors by reference to the *biographical background* of the individual, as in "When a car suddenly raced toward us, he panicked. He had been run over by a car when he was small."

Finally, events may also be causally related to long-term *biographical consequences*, such as changes in life circumstances, relationships, or later events. Mackavey, Malley, and Stewart (1991) identified events in written autobiographies that were explicitly named as biographically consequential, which most frequently came from early adulthood. A specific linguistic form to point out biographical consequences is a past-present comparison that states that something is different *ever since* a specified event happened.

Arguments Contributing to Sameness or to Continuity Across Change in the Narrator's Subjective Outlook

A subset of arguments regards the individual's knowledge and understanding, evaluations, and intentions. They may either state their sameness or their change across time. Here, we focus on the latter class of arguments. If the subjective outlook has changed, explaining the change by reference to an experience again creates continuity by bridging change.

A simple way for an event to change an individual's outlook is to provide new information. An *increase in knowledge* is often expressed negatively by stating that, at a specific point in life, one had not yet known something or by verbs like "finding out." Experiences in which an aspect of personality is revealed belong to this category if the assumption is that the aspect has always been there, just as the metaphor of "coming out" implies for homosexual orientation (cf., Pasupathi et al., 2007).

Other autobiographical arguments depict life as progressing not in terms of mere knowledge but of understanding. In *general insights,* the individual abstracts from a single experience to a general rule of how the world works, as in this insight of a 15-year-old: "I was really emotionally hooked up with him for a long time. Probably that's what always happens when it's the first kiss" (Bluck & Glück, 2004; McCabe et al., 1991; McLean & Thorne, 2003; Pratt, Norris, Arnold, & Filyer, 1999). *Personal insights* are provoked by specific experiences and regard the workings or depth of one's own (or another person's) personality or the validity of a higher value that should be adopted. This is the most consequential insight because it profoundly affects the view of oneself or one's basic values and therefore also the way one understands one's life story. For instance, a 20-year-old recounts that during puberty he totally withdrew into reading books, that only at age 16 did he realize he did this out of fear, and that he would not be able to develop as a person if he continued in this way. These insights are the hallmark of a life narrative or AR that aims at knowing oneself. Pasupathi termed these insights an "event-personality connection," in which an event *reveals* an aspect of one's personality (Pasupathi et al., 2007).

Finally, some autobiographical arguments depict life as progressing not in terms of knowledge or mere understanding, but also in terms of values that provide direction to life. In hindsight, experiences may motivate one to *re-evaluate an event* from bad to good or vice versa. This roughly corresponds to McAdams's (2006) redemption and contamination sequences. A still local, but more future-oriented change in outlook is brought about when the individual *learns a lesson.* An experience is related to a lasting understanding of a mechanisms and how to better deal with a specific future situation, as when a 12-year-old boy states "That's why I told myself, next time I fall in love, school work should not suffer from it." The most comprehensive autobiographical argument is a variant of personal insights; namely, when an experience leads to an *insight into higher values*. Such experiences are often constructed as turning points because they motivate rerouting life in a new direction.

These biographical arguments relating an experience to change in the subjective outlook imply an increase in understanding and insight. They help construct a life story as a continuous increase in knowledge and understanding of the world and the self. If the insights regard values, they even constitute the life story as one of moral improvement.

The Role of Narrative and the Life Story

Autobiographical arguments are more elementary than entire lay philosophies. To varying degrees, both help construct diachronic sameness or continuity across change. Essentialist lay philosophies may use autobiographical arguments that contribute to self-sameness or stability, whereas narrativist lay philosophies may use autobiographical arguments that contribute to self-continuity by bridging change in life and the self.

Arguments creating stability appear to support straightforward sameness; arguments supporting continuity support a kind of developmental sameness, in Ricoeur's sense. Arguments regarding change in the subjective outlook always involve the present narrator's relating to the past protagonist. To be accepted as responsible individuals by listeners, narrators are obliged to either endorse their past outlook or justify why they have changed their mind. This adds a moral quality to the empirically based continuity of character and therefore reminds us of Ricoeur's argument for the moral quality of what he termed self-sameness or what we term continuity. Although arguments used in life narratives do not neatly translate into Ricoeur's categories, they do reflect his distinctions.

Thus, in contrast to psychological approaches discussed before, the essentialist and narrativist lay philosophies and the corresponding autobiographical arguments can create personal sameness or continuity despite personal change. However, if autobiographical arguments suffice to create personal continuity across change, narrative might not be necessary and therefore loose talk of narrative identity may be misleading.

Three reasons indicate the indispensable role of the life story as narrative for maintaining personal continuity. First, autobiographical arguments use a concept of life, which is a temporally structured phenomenon that requires the narrative format to be put in words. Second, the second class of autobiographical arguments that bridge change is more potent in the face of massive personal change than is the first class, which always needs to find an ever more abstract concept for conceiving sameness. The second class of autobiographical arguments involves a concept of human development. Individual development again implies a narrative format because it is an ordered sequence of events. Ricoeur couches this argument in terms of the role of character in literary narrative or the novel, in which characters are transformed by emplotment (i.e., the narratively structured interplay of intentional actions with each other, with failure, and with chance). Third, autobiographical arguments involving the subjective outlook on life explain differences between present and past evaluations of life by reference to personal experiences. Thus, a change in outlook needs to be integrated into a story about how an event challenged the earlier evaluation. Again, this requires narrating the event that led to a revision of subjective outlook, contrasting earlier protagonist evaluations to later protagonist evaluations and finally also to the narrator's present evaluation. Evaluations, in turn, need to be justified by reference to values, which again may be justified by life experiences.

When and How Autobiographical Reasoning May Support Self-Continuity and Well-Being

Thus far, we have argued that the life story and its use in AR is the most potent instrument for creating personal continuity across change. In this final section, we discuss how specific contexts and forms of the actual use of AR may influence how effective AR is in securing self-continuity. Furthermore, since to date there are no studies of the relation between AR and a sense of self-continuity, we review evidence for the relation of AR to well-being. Based on the clinical literature (Kernberg, 1984), we expect an integrated identity and basic sense of self-continuity to form the necessary but not sufficient basis for well-being, although other measures such as the ability to tolerate ambivalence, a basic ability for empathy, and moral maturity to be closer correlates.

In the empirical narrative literature, the assumption prevails that well-being is related to and may be the result of a well-integrated and coherent life-story (e.g., Baerger & McAdams, 1999; Bauer & Bonanno, 2001; King, Scollon, Ramsay, & Williams, 2000; Lilgendahl & McAdams, 2011). However, recently, this has been called into question (McLean & Mansfield, 2011). Sales, Merrill, and Fivush (2013), for example, found a substantial positive correlation between learning a lesson and insights and depressiveness in 16- to 21-year-olds' narratives of worst-ever experiences. We will discuss under which life circumstances, at which ages, and which forms of AR may contribute to personal continuity and well-being.

Life Circumstances and Nature of Events Processed

If life circumstances are fairly stable and little maturation and psychological change is taking place in an individual's life, the mechanisms offered by other psychological approaches will probably suffice to safeguard a basic sense of self-continuity. Only when life or the individual changes drastically do these basic mechanisms no longer suffice, and a sense of personal discontinuity may threaten the individual's sense of identity. It is under these circumstances that switching to a reflective, explicit consideration of biographical ruptures through AR may compensate an impending loss of a sense of self-continuity. Once a rupture has been integrated into the life story schema in some benevolent way that protects one's self-esteem, explicit reasoning will no longer be necessary.

Most studies of coping deal not with bridging biographical disruptions but with strategies of eliminating the threat to continuity, buffering the effects by drawing on additional resources, compensating for the effects, and reducing the perception of the threat or by changing its evaluation (e.g., Zimbardo, 1999). Studies that do analyze strategies for maintaining or reestablishing continuity across severely disruptive life events without denying the discontinuity usually do imply the life story. The search for meaning after disruptive life events (e.g., Silver, Boon, & Stones, 1983) implies trying to integrate them into the wider web of one's life. Studies that explicitly look for strategies for bridging discontinuity (e.g., Klauer, Ferring, & Filipp, 1998) most often discuss narrative strategies to bridge

biographical disruptions (Bury, 1982), such as losing one's partner (Bauer & Bonanno, 2001), losing work through retirement (Nuttman-Shwartz, 2008), or losing one's autonomy through a stroke (e.g., Hinojosa, Boylstein, Rittman, Hinojosa, & Faircloth, 2008).

Thus, individuals probably engage most in AR in times of biographical rupture or transitions. Therefore it is also in these times that AR is probably the most functional in contributing to self-continuity and, through this, also to well-being. In times of personal stability, there will be less motivation to spontaneously engage in AR because a subjective sense of self-continuity is sufficiently provided by the nonreflective mechanisms discussed earlier in the section on other than narrative supports of sameness. This is supported by a study of 18-year-olds. Among the respondents who could report a turning-point experience in their lives, those who said they had learned a lesson or gained an insight from that experience improved in well-being over the previous 3 years (Tavernier & Willoughby, 2012). The evidence remains indirect because it made no difference how long before a turning point had been experienced. Other indirect evidence for the relevance of AR in times of change is that although developmental embedding of low-point experiences was not related to life satisfaction (Chen, McAnally, Wang, & Reese, 2012), developmental embedding of turning-point experiences through AR was (Chen, 2011). Both studies also suggest that even if a biographical rupture has long passed, when asked to narrate it, the narrative bridging of biographical discontinuity by AR nevertheless still makes a difference for well-being.

Disruptive biographical transitions need not be negative. However, negative events usually tend to be more disruptive than positive events. Therefore negative events evoke more cognitive efforts at processing and narrating them. For positive life events, there is neither a need for explications nor for bridges with the narrator's personality. Indeed, reasoning about positive events can even reduce well-being (Lyubomirsky, Sousa, & Dickerhoof, 2006). Although positive life events are often results of enduring personal strivings and for that reason conform to one's personality, negative events are unforeseeable, unexpected, and therefore additionally stressful and challenging. Accordingly, in an adult sample, AR correlated positively with well-being only if concerning negative, but not positive events (Lilgendahl & McAdams, 2011; see the section following the next one).

Age

Some negative or null-correlations between autobiographical reasoning and well-being were observed in several studies in early to mid-adolescence. For instance, in a study of boys' (aged 11 to 18) written low-, high-, and turning-point narratives, McLean, Breen, and Fournier (2010) found a negative correlation of learning lessons and gaining insights in younger boys and no relation in the older boys. However, the presence of another autobiographical argument, explanations of personality change by events, did correlate with positive well-being in all age groups. In the study by Chen (2011; Chen et al., 2012), the relation between developmental embedding of turning-point narratives to life satisfaction was qualified by age, such that, in younger adolescents, the relation was negative, but in older adolescents positive. A study with an adult lifespan sample showed a positive correlation between AR and well-being. The correlation held even when event valence, personality, and social class were controlled (Lilgendahl & McAdams, 2011). However, in this study, AR was operationalized as any causally linked statement about self-growth, which means it was a selection of statements with positive implications about the self and therefore did not cover all of AR.

Therefore, it seems that AR only begins to become helpful in terms of well-being in the course of adolescence. This coincides with the acquisition of the ability for AR, which emerges in middle to late adolescence (Bohn & Berntsen, 2008; Habermas & de Silveira, 2008; Habermas & Paha, 2001), possibly suggesting that successful autobiographical reasoning requires a mature competence for AR.

Valence, Form, and Spontaneous Frequency

We have defined AR formally, abstracting from its content as well as from the way it is put into practice. McLean and Mansfield (2010) point out that sometimes repressing or consciously denying challenging events to protect and maintain positive self-perception might work better than AR. It is certainly possible that the repression and avoidance of very hurtful emotions have some gain (Coifman, Bonanno, Ray, & Gross, 2007), especially immediately following a severely negative, traumatizing event. But because negative events are unavoidable, the life story perspective and especially the need to maintain self-continuity suggest that, in the long run, avoidance of processing and biographically integrating negative life events may come at a cost.

However, difficult life events are double-edged swords that work both ways, either to damage and weaken the self or to motivate self-growth (Boals & Schuettler, 2010). The mere centrality of negative events to the life story is negatively related to well-being (Berntsen & Rubin, 2007). Thus, AR needs to be used to integrate turning points or negative life events into the life story in such a way that the consequences and final evaluation are positive. McAdams's (2006) redemption sequence describes in a general way the positive integration of negative events into the life story. Thus, in the study by Jennifer Pals Lilgendahl and Dan McAdams (2011), a second predictor of well-being in addition to (positively valenced) AR was if negative events had positive effects on the narrator's personal development. Earlier, Lilgendahl had demonstrated that women who narrated their most difficult and identity-challenging experiences in a pattern of coherent positive resolutions exhibited an increase of ego-resiliency from early adulthood to midlife, which later led to higher life satisfaction at age 61 (Pals, 2006*a*, 2006*b*).

Similarly, Banks and Salmon (2013) found in young adults that for low-point narratives the direction of the relation between depressiveness and AR (explanations linking events and personality) depends on the valence of the involved self-aspects. AR buffers negative effects of biographically salient negative life events if it succeeds in finding that positive traits helped manage the event or that they developed out of the negative experience.

This finding can be nicely linked to the depressive explanatory style in which negative events are explained by one's own traits, and positive events are explained by reference to external factors. The use of this particular reasoning style in autobiographical narratives correlated with depressiveness in a nonclinical adult sample (Adler, Kissel, & McAdams, 2006), and, despite comparable overall proportions of AR, was more frequent in life narratives of clinically depressed adult inpatients compared to matched controls (Habermas, Ott, Schubert, Schneider, & Pate, 2008). Depressed patients also produced less linear, less narrative memory reports, creating a sense of a life that is so stable that it seems to have come to a stop.

Ruminative thinking is a central symptom of clinical depression. *Rumination* is obsessive thinking about negative aspects of one's life in a repetitive, circular way. Typically, it involves relating negative events and self-aspects to one's character and actions. Thus, formally, some ruminative thinking may count as AR. This showed in studies with early adolescents. The self-reported frequency of problem talk with a best friend correlated with depressiveness, and extensive, repetitive, and speculative problem talk led to social contagion of depressiveness (Schwarz-Mette & Rose, 2012).

The obsessive and repetitive quality of monological and dialogical rumination indicates that for AR to be helpful both for bridging biographical disruptions and for maintaining well-being it needs to be used in specific ways. First, AR may be more helpful if individuals choose to use it voluntarily and for limited time periods. The mere amount of AR in response to life narrative tasks provides information neither about the voluntariness nor the frequency of AR in everyday life. Second, repetitiveness and circularity are characteristics that suggest that reasoning lacks a narrative quality because narrative requires a linear imitation of temporal sequences. This quality can best be measured by analyzing actual thought processes or narrative transcripts, not with self-reported frequencies. Third, linear, progressing reasoning is easier if it analyzes specific events and not generalizations. Raes and colleagues (2006) found that reduced autobiographical memory, which is a typical symptom in major depressive disorder, is mediated by rumination. Depressed patients tend to get lost in a too vast generalization of negative events.

To sum up, we have argued that AR is an exquisite instrument for maintaining a sense of self-continuity in situations of biographical disruption by bridging this disruption. Once the new view of one's biography becomes part of the life story schema, self-continuity is re-established and explicit AR is no longer required. This is compatible with possible conditions for beneficial effects or correlations of AR that our interpretation of the scarce research literature suggests: to be beneficial, AR may require a mature competence for AR; a voluntary and limited use; a linear, narrative quality; its use for understanding specific events; and a use that results in some kind of positive resolution.

Conclusion

In the preceding section, we discussed evidence for the relation of AR to well-being because its relation to self-continuity has not yet been studied. However, we argue that voluntary, temporally limited, linear AR regarding specific events and resulting in a positive retrospective (and therefore also prospective) evaluation maintains a sense of self-continuity, especially in situations in which it is threatened by abrupt life change. Thus, discontinuity

in life may require autobiographical reasoning by oneself and with friends or therapists as a temporary measure to establish some explicit and positive form of self-continuity. Once the crisis or transition has passed, the activity of AR is no longer necessary because subjective self-continuity has been re-established. However, it seems that the result of this reflective activity of self-interpretation settles in the autobiographical knowledge base (Conway, Singer, & Tagini, 2004) at the level of the life story schema (Bluck & Habermas, 2000), so that later it can be readily retrieved when telling a life narrative or when biographically embedding important life events. This technique of compensating threats of self-discontinuity, we have argued, is more potent than the other more basic mechanisms that have been suggested by psychology to date because these presuppose the absence of change to varying degrees.

The relation of a sense of self-continuity to well-being, then, probably is not a straightforward one. Clinically speaking, a basic sense of self-continuity is a necessary precondition for feeling well, but not a sufficient one. Autobiographical reasoning may also contribute to other aspects of social identity, again as a precondition for well-being. A kind of reasoning that leads to positive re-evaluations of past negative events bolsters self-esteem and optimism. Autobiographical narrating and reasoning that is not contradictory but plausible supports self-consistency and self-continuity (Kernberg, 1984). And autobiographical narrating and reasoning that expresses the individual's agency (Adler, 2012) and responsibility without denying the limiting role of chance and powerful others (de Silveira & Habermas, 2011) supports a sense of being able to influence the path one's life is taking.

Finally, we acknowledge that our account has focussed on cognitive aspects of the autobiographical self-construction. We have only mentioned in passing the essential active role of others for the construction of a biography. Culture provides structure to autobiographies by providing a cultural concept of biography both with conventions of how to narrate a life and via a basic grid of normative life transitions that mark identity transformations (Habermas & Bluck, 2000), termed a "life script" by Berntsen and Rubin (2004). Institutional and informal social demands, such as doctor's appointments and job interviews, motivate individuals to engage in autobiographical self-construction. Also, intimate others shape the individual's life story not only by playing an essential part in life, but also by offering, repudiating, and validating identity attributions and biographical interpretations. In parent–child co-narrations of the children's lives, parents have the epistemological advantage of being able to tell the child's beginnings and to found character attributions on this privileged knowledge. Therefore parents' stories and attributions tend to become part of their offspring's life stories, if they do not explicitly repudiate them (Habermas, Negele, & Brenneisen Mayer, 2010; Zaman & Fivush, in press).

Conversely, we found in these co-narrations that adolescents have a moral advantage over their parents when telling their lives because they can blame them for most of what was to their disadvantage during their childhood (Habermas et al., 2010). This observation points to the moral aspect of self-continuity as provided by the life story. Narrating one's life basically requires assuming responsibility for one's past (Schafer, 1983). It also requires narrating the past in such a way that others who were part of it find themselves being treated respectfully and recognize sufficient resemblance to their own version of the past. However, doing justice to the social and moral aspects of self-continuity through the life story requires more than this chapter can offer.

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Tilmann Habermas

Tilman Habermas, Department of Psychology, Goethe University

Christin Köber

Christin Köber, Department of Psychology, Goethe University.

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Autobiographical reasoning in life narratives buffers the effect of biographical disruptions on the sense of self-continuity

Tilmann Habermas[a] & Christin Köber[a]

[a] Department of Psychology, Goethe University Frankfurt, Frankfurt a.M, Germany

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Autobiographical reasoning in life narratives buffers the effect of biographical disruptions on the sense of self-continuity

Tilmann Habermas and Christin Köber

Department of Psychology, Goethe University Frankfurt, Frankfurt a.M, Germany

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Personal identity depends on synchronic coherence and diachronic continuity of the self. Autobiographical remembering and autobiographical knowledge as well as the stability of bodily integrity, of social roles, of significant others and of physical and sociocultural environment have been suggested as supporting a pre-reflective sense of self-continuity. Stark biographical discontinuities or disruptions in these areas may destabilise the sense of self-continuity. To test the hypothesis that autobiographical reasoning in life narratives helps to compensate the effects of biographical discontinuities on the sense of self-continuity, life narratives of a lifespan sample with the ages of 16, 20, 24, 28, 44 and 69 (N = 150, 78 female) were investigated. Results confirm that if, and only if there have been biographical disruptions in the past four years, then autobiographical reasoning correlates positively with a sense of self-continuity. The findings contradict the thesis that mere remembering of past episodes is sufficient to maintain a sense of self-continuity under conditions of biographical change.

Keywords: Self-continuity; Autobiographical reasoning; Life story; Autonoetic consciousness; Personal identity.

The self (James, 1890), or psychosocial identity (Erikson, 1968), is experienced in two modes. It can be reflectively ascertained as having certain qualities (James' Me), and it can be experienced in a pre-reflective sense of familiarity with one's body, thoughts and activities (part of James' I), termed subjective sense of identity by Erikson (1968, chapter 1). For a coherent sense of self or identity, both a synchronic integration of present elements across different situations and a diachronic integration over time, self-continuity, are essential. In its diachronic aspect, the self is both judged to be the same or continuous over time, and it is pre-reflectively felt as continuous.

An optimal subjective sense of identity is only vaguely felt as well-being (Erikson, 1968). The importance of the diachronic aspect of the self is noticed best when it is disturbed. A disturbance of the pre-reflective sense of self-continuity (short: sense of self-continuity) is felt as a sense of estrangement from, and missing sense of ownership of one's body, thoughts, feelings and

Address correspondence to: Tilmann Habermas, Department of Psychology, Goethe University, Grüneburgweg 1 PEG, D-60323 Frankfurt a.M., Germany. E-mail: tilmann.habermas@psych.uni-frankfurt.de

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actions. This may be a temporary fluctuation as in times of stress and challenges to identity (Erikson, 1968), or a more chronic state as in depersonalization and identity diffusion (Kernberg, 1984). In these phenomena, only the immediate experience of self is estranged, while the reflective judgement of personal identity over time remains intact. A disturbance of the sense of self-continuity motivates the individual to attempt to reflectively repair it (Erikson, 1968, chap. 4). An additional disturbance also of reflective diachronic identity is socially more disruptive, because the person mistakes past actions and identities as not their own, as in dissociative identity disorders or often also in schizophrenia.

The question how diachronic identity can be achieved, given that individuals continue to change, has posed a challenge to philosophers and psychologists for centuries. Recently, the topic has again attracted psychologists' attention, both because of the increasing societal impact of longevity with associated memory loss and, in more extreme cases, a gradual loss of identity (e.g., Eustache et al., 2013), because of the turn of memory research from learning in the laboratory to autobiographical memory and its functions (e.g., Neisser, 1982), and also due to the renaissance of the life story in personality psychology (McAdams, 2006). Besides serving to prepare for future action, to establish and maintain relationships, autobiographical memory also serves to sustain self-continuity (Bluck, 2003).

Three main psychological mechanisms have been proposed to account for the pre-reflective sense of self-continuity (Habermas & Köber, 2014). The most popular mechanism is the mere act of remembering past experiences (Locke, 1634), which through the sense of vivid reliving from a first person perspective, termed autonoetic consciousness (Tulving, 2002), establishes personal identity between past experience and the remembering individual, corresponding to James (1890, I, pp. 239, 334) immediate sense of "warmth and intimacy" (Prebble, Addis, & Tippett, 2013).

Another memory-based mechanism for sustaining a pre-reflective sense of self is the sameness of the remembered self over time. Conway, Singer, and Tagini (2004) suggest that the remembered self is systematically distorted by automatically assimilating it to the present self-concept, increasing the similarity between the present and remembered reflected self, in order to maintain conceptual self-sameness. However, the limits of the assimilation of past to present self become obvious when differences become too large to be assimilated unnoticed by others.

A third mechanism is the relative stability of the individual's body, social relations, physical environment and routine activities. They secure a sense of familiarity in one's everyday activities. Thus, a rapid change of the body such as in puberty, a sudden loss of body parts or body functions as in amputation or as a result from a stroke, of intimate others as in bereavement, of major roles as in job loss or imprisonment threaten the sense of self-continuity. Such drastic changes may be termed biographical disruptions.

Klein (2014) recently argued that a pre-reflective sense of self-continuity is a "phenomenological given" without need of support. Although Bluck and Liao (2013) do not differentiate between a pre-reflective sense of continuity and the reflective recognition and construction of self-continuity, what they term chronological self-continuity appears to include a pre-reflective sense of self-continuity. They postulate that it is unlikely to be affected by changes in one's environment. In contrast to both authors, we follow a long tradition in descriptive psychopathology (e.g., Rzesnitzek, 2014; Scharfetter, 1980) and work on life disruptions which take complaints of feeling discontinuous with one's earlier self seriously. Thus, when the three mentioned habitual, highly routinized ways of sustaining a sense of self-continuity fail, less automatic and more intentional compensatory efforts are required.

If, first, the ability to recollect past experiences with a sense of reliving is diminished, as is increasingly the case in older age, this may lead to a lessening sense of self-continuity. Prebble and colleagues (2013) proposed that this lessening may be compensated for by autobiographical knowledge about extended events, lifetime periods and their chronology in life, as represented in the higher levels of the autobiographical knowledge base (Conway, 2005). This suggestion is supported by the increasing proportion of non-episodic parts in life narratives across adulthood (Habermas, Diel, & Welzer, 2013; Thomsen, 2009) and the maintained sense of self-continuity in older age (Troll & Skaff, 1997), paralleling the maintenance of autobiographical knowledge relative to autobiographical episodic remembering.

If, second, there is a strong change in self or even biographical ruptures, neither mere remembering nor autobiographical knowledge help to boost the sense of self-continuity. When past

selves cannot be simply assimilated to the self, and change is acknowledged, the contrast between past and present self tends to be exaggerated (Ross, 1989) and the past self is moved further into the past, favouring a positive evaluation of present versus past self (Wilson & Ross, 2003). These mechanisms favour self-enhancement over self-continuity. Two active strategies have been suggested to compensate for a decrease of a sense of self-continuity due to marked change in self.

A first claim is that specific kinds of arguments may bridge biographical change and disruptions. Chandler, Lalonde, Sokol, and Hallett (2003) proposed a developmental sequence of both essentialist arguments, which reduce apparent change to an underlying sameness, and of narrativist arguments, which bridge personal discontinuity by embedding it in a story about how the self has changed.

Complementing Chandler's highly elaborate arguments, we suggested several more spontaneously produced autobiographical arguments (Habermas & Paha, 2001). Autobiographical arguments are used in autobiographical reasoning, which is a process of thinking or speaking that links distant elements of one's life to each other and to the self in an attempt to relate the present self to one's personal past and future. This involves using the life as a frame of reference (Bluck & Habermas, 2000; Habermas, 2011). We built on Linde (1993) and integrated elaborations by Pasupathi, Mansour, and Brubaker (2007). The autobiographical arguments chosen for this study bridge change in life by motivating change and self-transformation, thus corresponding to Chandler's narrativist arguments and contributing to what we term causal–motivational life narrative coherence (Bluck & Habermas, 2000). Autobiographical arguments (Table 1) may help to bridge personal discontinuity by learning a lesson or abstracting a general insight from a specific event that may also cover other events, or by localising an event in a larger concept of normal development (developmental status). More powerful arguments explain or motivate change in life circumstances, in personality or in values by reference to life circumstances or to specific events. Thereby they establish the continuity of self as a reasonable individual who changes in ways that are motivated and make sense.

A second, stronger claim is that self-continuity requires actually narrating a life, bridging discontinuity by embedding the biographical disruptions and change in a biographical plot (Ricoeur, 1990). Studies suggest strategies of integrating the disruptive event into one's life (e.g., Silver, Boon, & Stone, 1983) and of narratively bridging the disruption (e.g., Bauer & Bonanno, 2001). We suggested that disruptive effects on the sense of self-continuity can be compensated by the use of autobiographical arguments in life narratives (Habermas & Köber, 2014), combining arguments and narrative embedding.

All three suggested mechanisms to maintain a sense of self-continuity rely on the life story, either as a skeletal knowledge base (life story schema; Bluck & Habermas, 2000; cf. Conway et al., 2004), as autobiographical arguments which refer to and use the life story (Habermas, 2011), or as actual life narratives. It is important to differentiate self-sameness from self-continuity. Self-sameness requires not having changed, while self-continuity requires actively bridging personal change so as to render personal identity continuous (Ricoeur, 1990). Thus at the level of self-reflection, an individual may both judge the self to have changed and to be still basically the identical person, which shows at the pre-reflective

TABLE 1
Autobiographical arguments: examples (slashes indicate propositions)

Developmental status	"At the time I wasn't aware of any of that,/after all I was still too young for that"
Biographical background	"I really had problems with my teacher,/she was my Physics teacher/and today, out of defiance, I'm studying Physics"
Formative experience	"My burn-out has led me/to no longer attach so much importance to money today"
Lessons learned	"After that I told myself,/when I fall in love the next time,/I must take care/that school doesn't suffer"
Generalized insight	"I was missing him for many months./Probably it's always like that,/when it's the first kiss"
Turning points	"All of a sudden the child was;/that turned my life upside down"
Event explains change in personality	"That journey changed many things for me;/at that moment I understood/what is meant by the meaning of life,/and since then I am a little more self-confident"
Event reveals unknown personality aspects	"When I came back to Vietnam,/I realized/that in the meantime I had estranged myself from my own Vietnamese culture"

level in a sense of self-continuity despite personal change.

Prebble et al. (2013) called for empirical studies of compensatory mechanisms that stabilise the sense of self-continuity. We chose the case of biographical disruptions to test compensatory mechanisms. We tested the hypothesis that in cases of biographical ruptures and discontinuities, the pre-reflective sense of self-continuity can be buffered by autobiographical reasoning, i.e., the use of arguments that bridge change by embedding it in a larger life story context. We defined biographical ruptures as major external changes in life. Mechanisms for the case of a decreasing ability for autobiographical recollecting, discussed by Prebble and colleagues, remain to be tested.

METHOD

Participants

This study includes all participants from the third wave of a longitudinal study of life narratives with four young adult age groups, a middle aged and an older adult group (cf. Köber & Habermas, 2014). Both genders were about equally distributed across six age groups, with mean ages of 17.03 years (SD = .48; 13 women, 10 men), 20.58 years (SD = .39; 15 women, 12 men), 24.61 years (SD =.41; 11 women, 15 men), 28.90 years (SD = .67; 13 women, 10 men), 45.08 years (SD = 3.02; 11 women, 11 men) and 68.73 years (SD = 2.65; 15 women, 14 men). To stay true to the original age distances, we term the age groups ages 16, 20, 24, 28, 44 and 69.

Eight years before the present investigation, the youngest group had been sampled from the higher achieving half of third graders from an elementary school, while cohorts 2, 3 and 4 had been present or former students of a Gymnasium, i.e., a German secondary school leading to the qualification for university entrance ("Abitur"). Its mixed social composition, mainly middle class with a substantial proportion of lower-class backgrounds, was comparable to that of the elementary school population. The two older age groups were recruited four years before the present investigation in the university's neighbourhood via flyers and among continuing education university students. The drop out for the four younger groups across eight years was 15.4%, and for the older two cohorts across four years 12.4%. The sample is well educated: the vast majority has achieved "Abitur" after 12 or 13 years of schooling. The study was approved by the local institutional review board, termed ethics committee in Germany. Parental consent was obtained for minors. Participants were fluent in German and received 40 Euros for participating.

Material

Autobiographical arguments in life narratives. Participants wrote their seven most important specific memories on index cards and put them in chronological order. This served to make sure that life narratives also contained specific events. Participants were then asked to narrate their life for about 15 min without being interrupted, including the seven most important memories. They were asked to tell their life such as to explain how they had become the person they were at present. Interviewers only encouraged to continue, but asked no questions (for more detail, cf. Habermas & de Silveira, 2008). Life narratives were transcribed verbatim and divided into propositions, i.e., into comprehensible main or subordinate clauses. Two coders independently divided 40 life narratives into propositions and agreed on 98.6% of propositions. Each of the two coders divided half of the remaining life narratives into propositions.

Life narratives collected in the present study were coded together with those collected in the preceding waves. Reliabilities were calculated on the independent coding of 32 life narratives, balanced for age, gender and measurement time. Agreement was measured at the level of propositions. Thus if the same code was coded in the same proposition, this counted as an agreement, but if the coding of the proposition differed, as a disagreement. Once a good agreement was achieved, one coder coded all the remaining life narratives. As an extra safeguard, an additional Cohen's kappa was calculated from 16 random life narratives taken from the ones coded only by one coder.

In total, we coded eight change-related autobiographical arguments (Habermas, 2011; Table 1) on the basis of detailed manuals (English translations are available from the first author), five of which had been already used for the first wave (developmental status, biographical background, lesson learned, generalised insights, formative experience; cf. Habermas & de Silveira, 2008). In addition, we also coded *turning points*,

indicating a time of transition with enduring changes in life (K = .933, additional K = .915 for these six autobiographical arguments). Furthermore, we coded whenever a change in personality was explained by a specific event (Habermas & Paha, 2001) with a new manual, complemented by explanations of revelations about one's personality by specific events (Pasupathi et al., 2007; K = .742, additional K = .590).

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, α = .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 (α = .71; responses were scaled from 1 "not true at all" to 6 "absolutely true").

Procedure

Participants came to the lab to be interviewed and then fill in questionnaires. A few participants were interviewed at their homes, if they had moved to a different city. We only report the measures relevant to this study.

RESULTS

Autobiographical reasoning was computed as the percentage of all propositions coded with an autobiographical argument. Outliers were corrected for all continuous variables by reducing them to the whiskers of boxplots. We first report mean age differences and correlations among variables, before testing the hypothesis. The three variables (objective change in life circumstances, pre-reflective sense of discontinuity, autobiographical reasoning) did not differ significantly between women and men. Therefore, gender was not included in the analyses. Pearson product–moment correlations were used.

For descriptive purposes, we plotted z-standardised values of *objective change in life* and *sense of self-discontinuity* by age (Figure 1). Objective *change in life* in the past four years peaked in the 24-year-olds, with a clear cross-sectional decrease over the older age groups. The older the participants were, the lower were their values in *sense of self-discontinuity* except for the oldest group. Absolute means for *objective change in life* ranged from 1.53 (69-year-olds) to 2.31 times (24-year-olds), and for *sense of self-discontinuity* from 2.27 (44-year-olds) to 3.38 (16-year-olds; across age groups M = 2.04, SD = .57 and M = 2.85, SD = .84, respectively).

Objective change in life correlated little with subjective sense of self-discontinuity, r = .26, p < .001 (Figure 2). The proportion of autobiographical arguments in life narratives did not correlate substantially with either measures of change: with objective change in life by r = .11, *ns*, and with subjective sense of self-discontinuity by r = −.11, *ns*.

To test the hypothesis that after biographical ruptures, autobiographical reasoning compensates for a decrease in a sense of self-continuity, we calculated correlations separately depending on the degree of change in life. Because biographical rupture is a strong change in life, we expected that only those in the uppermost range of change in life would show the expected correlation. Therefore we split the participants into four equal groups by the degree of change in life and calculated separate correlations (Figure 3). As expected, after considerable objective change in life (upper quartile) autobiographical reasoning correlated negatively with a sense of self-discontinuity, r = −.43, p = .008; if little had objectively changed in life (lower three quartiles)

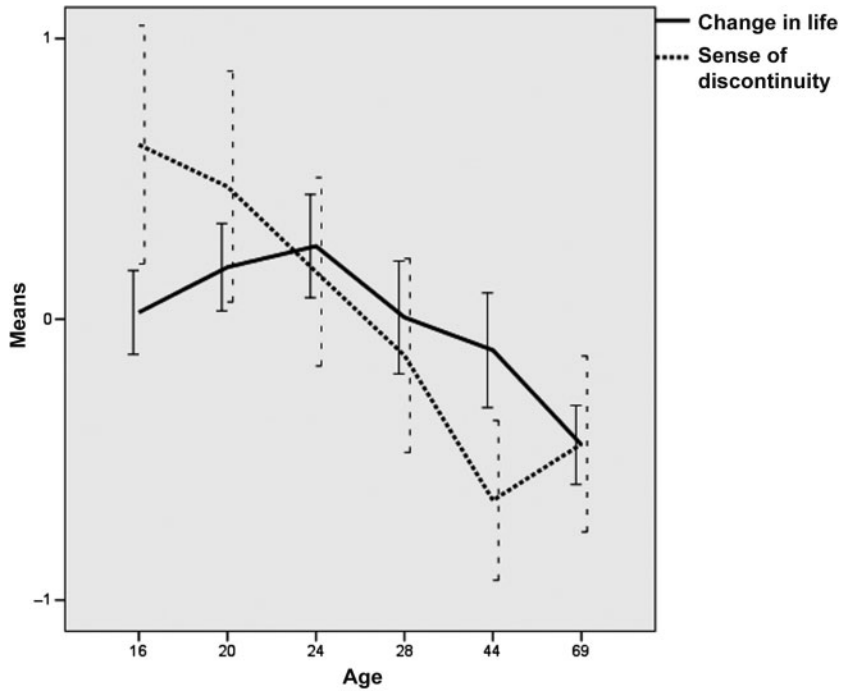

Figure 1. Means (z-standardised) and confidence intervals (95%) for change in life and sense of self-discontinuity by age groups.

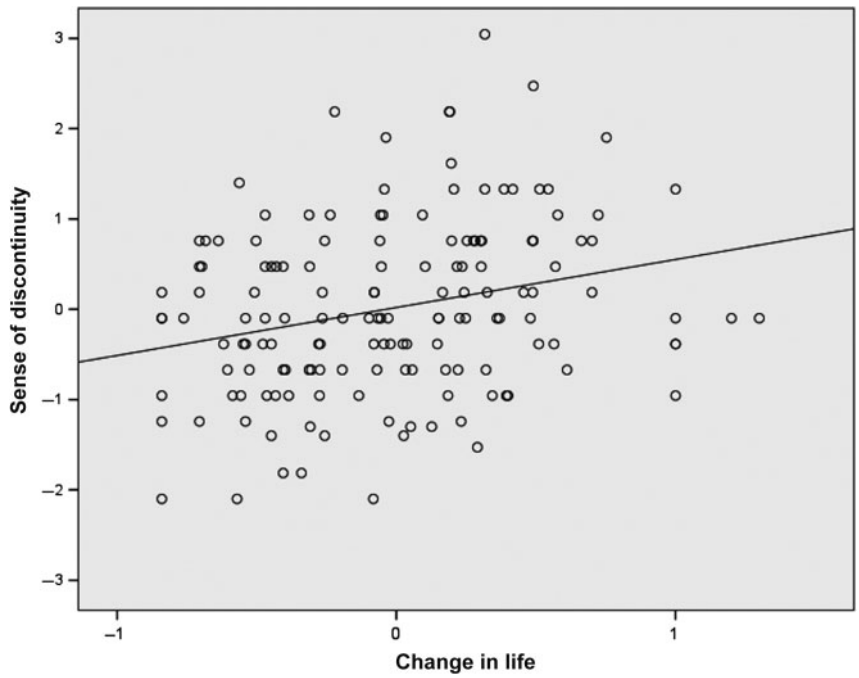

Figure 2. Scatterplot of change in life with sense of self-discontinuity.

autobiographical reasoning did not correlate with sense of discontinuity (r = .03, −.11, −.01, all *ns*, for first to third quartile). These correlations translate into a prediction of variance, from the lowest to the highest quartile in change in life, of 0.1%, 1.5%, 0% and 18.5%.

As could be expected from Figure 1, the quartiles of change in life were quite unequally distributed across the six age groups, $\chi^2 = 49.7$, $df = 15$, p = .00, Cramer's V = .33. Whereas the two middle quartiles were more or less evenly distributed across the age groups, the lowest quartile was

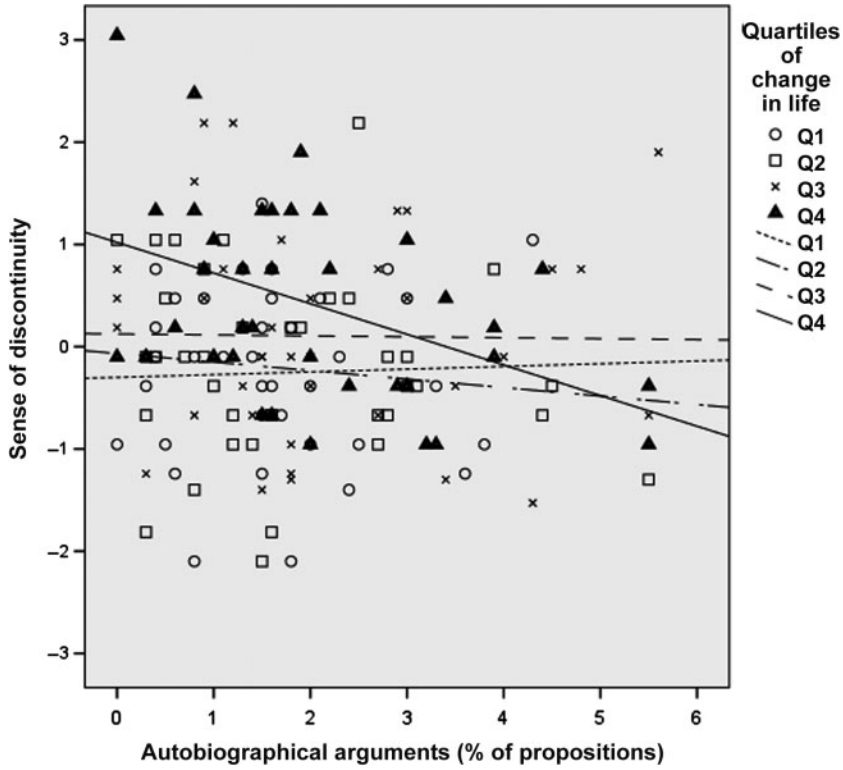

Figure 3. Scatterplot of proportion of autobiographical arguments in life narratives with sense of self-discontinuity by quartiles of change in life.

constituted mainly by the oldest group (in ascending age order N = 3, 2, 2, 4, 6, 20), whereas in the highest quartile the second and third youngest groups dominated (N = 5, 11, 11, 5, 3, 2). There were too few participants to rerun hypothesis tests within each age group. To indirectly control for (linear) age effects we reran the correlations between autobiographical arguments and sense of self-discontinuity in the four quartiles of objective change in life with age partialled out (r_p = .04, −.08, .09, all *ns*, and −.36, p = .030). The predicted variance decreased in the highest quartile somewhat from R^2 = .19 to R^2 = .13. However, the pattern between quartiles remained stable and the prediction in the highest quartile was still sizable.

DISCUSSION

Summary

This first attempt to measure the effects of autobiographical reasoning on a pre-reflective sense of self-continuity demonstrated that in situations of changing life circumstances such as intimate relationships, dwelling, occupation and health, the use of autobiographical arguments in life narratives compensates for effects on the sense of self-continuity. Results demonstrated that in the participants with the highest rate of change in life circumstances, and only in those, the rate of autobiographical reasoning correlates negatively with a sense of personal discontinuity, or positively with a sense of self-continuity. The subjective sense of self-continuity is central to philosophical notions of personhood and identity and is a clinically relevant phenomenon. Also, it prominently figures in discussions of the functions of memory for identity. Within the present study, it was tested as a function of contingencies of life and conscious efforts to create continuity in life in the context of the life story, linking events to changes in life circumstances and the self. This study confirms findings that successful coping with various life disruptions may involve biographical meaning making to integrate the event into one's identity (Park, 2010).

Limitations

Although the lifespan sample is, on the one hand, an asset of the study, on the other hand the unequal distribution of change in life

circumstances across the age groups made it impossible to test the hypothesis in each age group separately. Because most biographical disruptions occurred in the young adults, the correlation between autobiographical reasoning in life narratives and the sense of self-continuity in conditions of biographical change is valid only for young adulthood.

Short young and long old lives were narrated in the same amount of time (15 min), requiring much more compression by the older participants. It would have been more natural to offer more time the longer the narrated lives were. However, the instruction to narrate seven most important specific events should have counteracted the pressure on the older participants to summarise their lives. Also, the equal length of life narratives provided more standardisation for the proportion of autobiographical reasoning possible across age groups.

The items used to measure sense of self-continuity were taken at face value. In the future, they might be validated in a sample of individuals with depersonalization. Also, biographical disruptions did not include internal changes such as gradual physical and cognitive change as is typical of adolescence and old age, which might have contributed to the relatively small size of objective change in life measured in the youngest and oldest groups.

Finally, it might be argued that answering questions regarding the change of life circumstances and sense of self-continuity after narrating one's life might have increased the negative correlation between autobiographical reasoning and sense of self-continuity, reflecting an *in actu* increase of sense of self-continuity by the actual narrating and reasoning. However this would in no way limit the validity of the findings, but actually strengthen them due to their quasi-experimental character. If the sense of self-continuity was strengthened by narrating and reasoning in the experimental situation, this would only imply that it could not be inferred that participants had used autobiographical reasoning to increase their sense of self-continuity before they entered the lab.

Implications

The findings confirm the usefulness of taking a biographical perspective onto remembering by studying the significance of autobiographical reasoning for the self in times of transition and possible crisis. More specifically, the study provided an empirical answer to the central question of how the self may succeed in maintaining self-continuity even in times of change. The findings provide evidence for Ricoeur's (1990) philosophical argument that when individuals change, diachronic identity can best be provided by narrative identity. This implies that the re-experiencing component of remembering (autonoetic consciousness) is not sufficient to provide a pre-reflective sense of self-continuity in times of change, refuting Locke's (1634) argument that memory sufficiently supports personal identity over time. Rather the findings provide evidence for models of personhood that involve interpretation and narration (e.g., McAdams, 2013).

The findings do not contradict the important role of mere autobiographical recollecting in times of personal stability. Also it is possible that the quality and vividness of autobiographical recollecting enhances the effectiveness of autobiographical reasoning in times of transition or may even be a prerequisite for the compensatory effectiveness of autobiographical reasoning. The findings only imply that in times of biographical change, neither mere autobiographical remembering nor autobiographical knowledge alone is sufficient to ensure a sense of self-continuity, but that this requires, in addition, an effort for autobiographical reasoning.

In the literature on functions of autobiographical remembering, three broad areas have been identified: instrumental for solving problems, social for maintaining relationships and identity-directed for maintaining the self (Bluck, 2003). The psycho-gerontological literature has provided descriptions of more detailed self-related functions such as indulging in bitterness, fleeing boredom and identity integration (Webster, 2003). Straight reminiscing, immerging in memories of the personal past, may strengthen the sense of being related to the personal past merely by recalling it into the present. Looking at old pictures, reading letters and diaries, watching old home videos serves this function. These practices may have a nostalgic quality, and do indeed strengthen a sense of self-continuity (Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008). Similarly the biographical disruption of moving to another town to start university motivates to increasingly use artefacts as souvenirs of distant others and past self (Habermas & Paha, 2002). In the context of the functions of autobiographical remembering

for maintaining a sense of self-continuity, the present study points to the need to distinguish between these forms of mere reminiscing and the more active and complex form of autobiographical reasoning that, in addition to remembering, actively creates bridges across personal change. Although some items of self-related scales in questionnaires of functions of autobiographical remembering such as the RFS (Webster, 1993) and the TALE (Bluck, Alea, Habermas, & Rubin, 2005) address attempts at autobiographical reasoning, they are mixed with other items tapping mere reminiscing. Furthermore, self-report measures are indirect measures of autobiographical reasoning. This study shows that in situations of biographical disruption, it is important to differentiate basic reminiscing from autobiographical reasoning, as the latter provides an independent contribution to buffering a sense of self-continuity. In addition, we suggest measuring autobiographical reasoning directly as done in this study.

Future directions

We point out three ways in which the present initial study could be followed up. Here we only measured autobiographical arguments that create continuity across change by motivating transformations, contributing to global causal–motivational life narrative coherence (narrativist arguments in Chandler's terms), but not autobiographical arguments that create a more abstract self-sameness across more superficial change, contributing to global thematic life narrative coherence (essentialist arguments in Chandler's terms). We focused on arguments that accept and motivate change, because this appears to be more adequate for dealing with recent sizable change in life. However, it could be that once biographical ruptures can be viewed from a certain distance, their effect on the sense of self-continuity might also be buffered by arguments that create a more abstract sameness across change, for instance by the use of metaphors. This would require developing adequate measures for coding this kind of reasoning in life narratives.

Furthermore, we only studied one of three situations that have been identified to pose a threat to the sense of self-continuity. Decrease and loss of episodic memory and psychopathological states of depersonalization should also be studied for the compensatory role of autobiographical reasoning. In old age, the sense of self-continuity may increase, as to some degree already indicated by the (relatively young) old adults in this study, due to a decline in autobiographical remembering and other areas of functioning. Reminiscing groups are widely used in care of the elderly and demented, not only to alleviate social isolation, but also to foster memory processes and diachronic personality integration (Birren & Svensson, 2013). It would be interesting to test specifically which mnemonic, argumentative and narrative processes possibly buffer a decrease of recollective capacities and its effects on the sense of self-continuity (Westerhoff & Bohlmeijer, 2012). In the field of psychopathology, schizophrenia, for example, shows both a loss of the sense of continuity and an impairment in episodic memory (e.g., Danion, Huron, Vidailhet, & Berna, 2007), and might be studied for possible compensatory mechanisms. Depression, on the other hand, is characterised by a sense of standing still and not developing, involving a slowing of the subjective experience of time and a decrease of the linearity of life narratives (Habermas, Ott, Schubert, Schneider, & Pate, 2008). It might therefore profit from increasing contrasts between past and present self, again linking them by autobiographical reasoning and narrating. Also in a more general vein, the significance of a sense of self-continuity, or the lack of it, for psychopathology and especially for well-being in non-clinical samples warrants empirical study.

Finally, this study measured autobiographical reasoning in life narratives, confounding the influence of autobiographical arguments, which according to Chandler et al. (2003) suffice to establish a sense of self-continuity, and the influence of embedding biographical ruptures in the narrative of a life. Future studies might try to separate the possible compensatory effects of autobiographical knowledge, autobiographical reasoning and life narration.

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Christin Köber