

The life trajectory interview for youth (LTI-Y): Method development and psychometric properties of an instrument to assess life course models and achievement

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Abstract: This paper describes the rationale, development, and psychometric properties of the life trajectory interview for youth (LTI-Y), an instrument designed to assess cognitive models of the life course and life course achievement. This method was developed over 13 months of pilot research, and applied with a population of 350 participants from the Great Smoky Mountain Study, a longitudinal epidemiologic study of mental health in Western North Carolina comprising 1420 youths (among them 350 Cherokee Native Americans). The LTI-Y is designed to address gaps in our understanding of the links between large-scale structural conditions and social processes and individual outcomes such as mental health. Scale consistency ($n = 350$) was good to high, while test-retest reliability in a limited sample ($n = 18$) was moderate to good, depending on the domain and dimension of data considered. Overall, psychometric properties indicate fairly stable and consistent life course strategies and priorities. Although developed and piloted with youth from Western North Carolina, the methods described could be applied to any population of interest.

Key words: achievement, life course, life expectancy, goals, social environment

Introduction

Rationale

This report describes the rationale and procedures involved in developing the life trajectory interview for youth (LTI-Y). As a complement to the ongoing collection of mental health data of youth for the Great Smoky Mountains Study (GSMS), this interview assesses individual and cultural models of the life course as well as personal life course status. GSMS is a longitudinal epidemiologic study of mental health risk among youth and families living in Western North Carolina that has characterized psychiatric status and identified risk factors from late childhood through adolescence (Angold, et al., 1998; Costello et al., 2001, 2003; Maughan, et al., 2000). In this subcomponent of GSMS, we aimed to put flesh on the statistical bones of our epidemiologic findings via ethnographic techniques that would also yield quantitative data relevant to epidemiological datasets. The LTI is designed to (1) elicit models of economic and social success, as well as life course achievement and derailment, (2) identify how individuals position themselves with respect to these models (both in terms of cognitive endorsement and “real life” approximation), (3) test how this relates to individual mental health trajectories across the lifespan, and (4) characterize participants' understanding of how individual behavior and extrinsic events may act to “derail” life course goals. Applied here with a targeted sample of 350 GSMS participants maximizing diversity in exposure to early developmental stress, the LTI-Y is designed to investigate how life course models mediate the relationship between early developmental context and later psychiatric outcomes.

The work was prompted by the need to engage how culture works “on the ground” to make a difference at the level of individual experience and behavior. The role of culture or ethnicity in outcomes of interest (e.g., differential well being, school performance, decision

making) has claimed intensifying scrutiny from social scientists and clinicians (Al-Issa et al., 1997; Dana, 2005, Kowalski et al., 2004). A challenge to investigation of this role has been a dearth of conceptual and methodological bridges between two levels of analysis, population and individual. Culture/ethnicity (the two are not synonymous, but often are used interchangeably) is a population-level concept comprising the distribution of beliefs, values, and practices, but also necessarily operates at the individual level where cultural knowledge is held, produced, and enacted. By contrast, conditions or outcomes of interest such as health, social competence, poverty, or aging are tagged at the level of individuals, though they necessarily are informed by structural, historical, and other factors at the population level.

A growing body of work aims to bridge this gap. Building on (Barth, 1975), Sperber and colleagues have argued for an epidemiologic approach to culture as regularities distributed in time and space (Sperber, 1985) produced through causal links to cognition and behavior (Sperber, 1996; Sperber et al., 2004). From a view of culture as shared, motivating, and meaningful, cultural consensus modeling (CCM) aims to map the distribution of cultural knowledge (Romney, et al., 1986, 1998; Dressler, 1991). An important application of CCM has linked individual cultural competence (knowledge of modal population views) and consonance (conformity to the population norm) to mental and physical health (Dressler, 1991; Dressler et al., 2000)

By contrast with such epidemiologic approaches, cognitive perspectives on the organization of cultural knowledge as working representations have shown that domains of culture are organized as related content maps (cultural models), cognitive schemas, and behavioral scripts that ground understanding, motivation, and action (D'Andrade, 1992; Shore, 1996; Strauss et al., 1997). From an independent developmental perspective, pathbreaking work

by Linda Burton demonstrated that ethnic differences in working models of the life course informed distinctive ordering of life events among socioeconomically disadvantaged urban African Americans (Burton, 1990). This work, along with life-span development theory (Hetherington et al., 1988; Lerner, 2002), has prompted the current focus on factors regulating acquisition or selection and pursuit of developmental models and goals across the life course (Dweck et al., 2004; Heckhausen, 1999). Meanwhile, work on logic under constraint has shown that underlying values and priorities emerge when constraints are placed on choice (Shweder et al., 1995). Life often involves difficult choices, so the capacity to make choices that “work” (are feasible and personally and socially acceptable) can be an important marker of coping capacity.

Several schools of thought have studied life course goals and how individuals achieve these goals across the life span. Lifespan developmental psychology emphasizes goal-related striving, including individual strategizing to maximize control and negotiate trade-offs among goals (Freund et al., 2000; Heckhausen, 1999). Crucially informative for the methods described here are the notion of developmental deadlines and the emotional consequences of meeting or missing such deadlines (Heckhausen et al., 2001; Wrosch et al., 1999), as well as processes of social comparison and their relationship with goal-striving and mood outcomes (Baltes et al., 1996; Wigfield et al., 2000). Hedonic psychology alerts us to the downstream mood-related consequences of various types of goal orientation, and also situates these relationships in cross-cultural context (Kitayama et al., 2000; Nickerson et al., 2003). Meanwhile, social cognitive theory situates the individual firmly as an active agent in developmental processes, and pushes for measurement techniques that assess individual symbolic representations of the social world (Bandura, 2001). To this field, we bring ethnographic techniques to extract domains and items

related goals and striving with high local cultural relevance (Allison et al., 1999), and a data collection strategy designed for integration with epidemiological and longitudinal studies.

The immediate question that informs the method reported here concerns how cultural epidemiology and the distribution of cognitive models map onto the developmental epidemiology of success and risk in the youth to adult transition. Earlier work suggests three crucial features of research on individual development and psychobehavioral risk: (1) A developmental life course perspective is necessary for understanding individual pathways of risk and resilience (Masten et al., 2004); (2) These pathways depend heavily on individual ability to “make meaning” out of life, and to interpret and integrate experiences into ongoing behavioral patterns (Brandtstaedter et al., 1999; Emde et al., 2000); (3) Cultural frameworks both structure and aid (or hinder) this personal integration process; hence, individual risk/resilience pathways are strongly embedded in sociocultural dynamics (Burton, 1990; Spencer, 2001). Accordingly, we have reworked cultural consensus methods (Dressler et al., 2000) to elicit cultural models of expected and desired life course contents (milestones; social and material goods) and of the factors that advance or impede their attainment, developing a method for use with a large longitudinal study of mental health.

Sample background

The sample in this study is drawn from a larger sample of youths aged 19-24 participating in the Great Smoky Mountains Study (GSMS), a longitudinal study of mental health in Western North Carolina. GSMS youth were originally recruited in three cohorts aged 9, 11, and 13. Of the 1420 total participants, 350 are Native Americans from the Eastern Band of the Cherokee Indian (EBCI), who are a saturation sample of all Cherokee in the appropriate age

ranges who agreed to the study. The remaining 1070 participants are a representative sample of youth living in the 11 counties of Western North Carolina. Potential participants were selected from the population of some 20,000 children using a household equal probability, accelerated cohort design (Schaie, 1965), and were oversampled for risk using a phone screening interview. A full description of the methods used in GSMS recruitment and data collection can be found in other publications (Costello et al., 1996).

For the past 11 years, participants have been interviewed either annually (to age 16) or every 2-3 years (ages 16-21) using the Child and Adolescent Psychiatric Assessment (CAPA) and Young Adult Psychiatric Assessment (YAPA) interviews (Angold et al., 2000; Angold et al., 1995; Messer et al., 1996), developed at the Duke Center for Developmental Epidemiology (<http://devepi.duhs.duke.edu/>). The CAPA/YAPA is an interviewer driven, response-based interview that can be effectively administered by trained non-clinicians, and assesses psychiatric symptoms and diagnoses for every DSM-IV disorder, as well as family and community risk, participant service use, and a wide range of demographic variables concerning employment, schooling, income, and neighborhood characteristics. Ongoing data collection with GSMS participants also includes biomarkers of puberty, stress, and physical health, and anthropometrics (Angold et al., 2003; Eaves et al., 2004; McDade et al., 2000; Rowe et al., 2004), as well as parental psychiatric status.

Methods

Method development

Pilot work involved a mixture of detailed one-on-one ethnographic life history interviews (n=22), focus groups (16 total, n=60), and pilot card sort procedures followed by debriefing

interviews (n=149). The method development process (Figure 1) involved two full-time researchers as well as input from local cultural “experts” (within and outside of professional social science and mental health intervention). Furthermore, both full-time field researchers had full ethnologic immersion in the study area: one researcher in the more rural Southern and Western reaches on the border of the Cherokee Reservation, and the other located solidly in the urban, peri-urban, and rural areas of the Northern and Eastern region.

Insert Figure 1 about here

A combination of existing theory and research concerning dimensions of the life course as well as extensive individual and focus group conversations with a population of youth age- and ethnicity-matched to the GSMS sample led to the delineation of four major life course domains: (1) **life course milestones**, twelve items considered “most important” to achieve for both men and women by local participants (e.g., get a career / permanent job, have and raise children); (2) **life course barriers**, 20 items considered most likely to disrupt or delay life course achievement; (3) **socioemotional resources**, composed of 20 community, family, and individual characteristics considered most important to “be happy and satisfied in life”; (4) **material goods**, 15 items considered the most important markers of “living the good life.” (See Appendix 1 for full list of cards in their original wording). Each of these domains was probed at two levels of participant response; once for the perceived views and priorities of the “average American,” and once for personal views and priorities. Several life course dimensions were also assessed. Participants provided estimates of the proper age of achievement and ranked difficulty of achievement for life course milestones. For milestones, socioemotional resources, and material

goods, they provided information on “ability to do without” by excluding items one-by-one until only the “essentials” were left, and they also ranked the “importance” of these remaining essential cards. For life course barriers participants provided ranked assessment of item relevance, negative impact, and personal concern (see below for a fuller description of card sort methods).

LTI-Y interview layout

The LTI-Y begins with an initial demographics section to establish rapport and to obtain an interim report (between main GSMS interviews) of participant marital, residence, employment, schooling, and parity status. Completion of this section took on average 15 minutes. For Cherokee participants only, the initial demographics portion was followed by a 10-minute section concerning money received as a result of profits from the Cherokee Casino (amount received, past and future planned spending patterns, etc). The Mood and Feelings Questionnaire (MFQ) (Angold, 1989), a structured assessment of dysphoric mood (completion time ~5 minutes) then directly preceded the centerpiece of the LTI-Y, the card sort procedure, which took approximately 50 minutes to complete (range 20 – 90 minutes). Finally, a series of questions elicited participants’ life course status on all of the items assessed in the card sort portion, which took approximately 20 minutes to complete. Progress through the interview was timed: generally, the entire LTI-Y took one and a half hours to complete (slightly more for Cherokee, who were asked to complete an additional section). Interview sections were not counterbalanced for order, as the interview was carefully designed to begin with basic questions (for rapport-building), maximize cognitive complexity in the middle of the interview, and diminish respondent burden towards the interview’s close.

Card sort procedure

Insert Table 1 about here

Life course milestones: Life course milestones were assessed along four key dimensions. The first was *age*, in which participants were asked to mark on each card “earliest acceptable age, ideal age, and latest acceptable age,” according to the “average American.” The next dimension collected was *exclusion*. Following the age-labeling task, participants were asked to consider all twelve milestones and to remove the “least important event to the average American...in terms of having a basic, straightforward, ‘bare bones’ life.” Respondents were then asked to continue removing cards, each time eliminating the least important event “until what you have left is the bare minimum...” Left with a “minimal model” of life course milestones, participants were then asked to rank these cards by *importance*. The final dimension assessed for milestones was that of *difficulty*. Presented with another set of cards listing the twelve life course milestones, participants were then asked to “put the cards in order from most difficult to least difficult, according to mainstream American opinion.” Finally, respondents completed the exclusion, importance, and difficulty tasks one more time, but this time “thinking about yourself, and your own needs and wishes, no matter what anyone else thinks.” This procedure elicited the personal or “self” layer of data for life course milestones.

Life course barriers: Life course barriers aimed to assess participant views about what could delay, block, or prohibit life course achievement. Data collected for life course barriers assessed the dimensions of *relevance*, *impact*, *exclusion*, and *concern*. The first dimension probed was

relevance. Participants were given all 20 cards together, and asked to rank them “for how common or often these things come up in folks’ lives.” To clarify this concept of community relevance, participants were given the following instructions: “The first card you pick will be the card that happens most often. It might not be the worst thing; it might not be all that bad—but it happens the most to people.” Next, participants were asked to rank all 20 cards according to *impact*, given the following instructions: “This time your job is to sort them [the cards] according to what causes the most damage. First, please pick out the most destructive thing out of all of these. This may or may not happen very often, but when it does happen, it is really a big deal. It really messes people up, has a big impact, and gets in the way of a lot of different things.”

Exclusion and *concern* were assessed for life course referred to the personal life course of the participant. Given all 20 barriers cards once again, they were asked to remove the one item “that applies least to your own life, either in the past, present, or future. In other words, this is something that is least likely to happen to you—it is really not on your list of concerns.” Participants were then asked to continue removing cards, each time excluding the card least applicable to themselves, “until all the cards on the table [not excluded] apply to your own life in some way.” Given this set of remaining cards that respondents had identified as relevant to their own lives, they were then asked to rank the cards according to personal *concern*. To help clarify this dimension and initiate the ranking procedure, participants were instructed to “pick the one that is the biggest concern to you. This could be something that messed you up in the past and is still affecting you, or it could be something that is affecting you in your life right now. In any case, this should be the card that is the biggest deal to you.” The rest of the cards were ordered by personal concern, ending with the card of least concern.

Socioemotional resources: The list of socioemotional resources included 20 items considered most important to be “happy and satisfied in life.” The two dimensions assessed for socioemotional resources were *exclusion* and *importance* (for both average Americans and the self). This exercise yielded a list of all the items participants felt average Americans could do without and still be happy and satisfied in life (in order from most to least expendable), and a list of all the items they felt average Americans would most want to retain in order to be happy and satisfied in life (in order from most to least important). Then, the same procedure was used to elicit participants’ personal priorities and desires.

Material goods: Similar to the socioemotional resources domain, only the dimensions of *exclusion* and *importance* were collected for material goods. Just as with socioemotional resources, responses produced a list of all the expendable items (ordered from most to least expendable) and a list of all the items considered most important for the good life (ordered from most to least important). As with the other domains, data were collected for both participants’ best estimates of average American and then their own personal views.

Life course status questionnaire

For every item in each life course domain (milestones, barriers, socioemotional resources, and material goods), a questionnaire assessed participant “real life” status, to gauge the extent to which their own lives matched models of the life course. To assess participant status regarding socioemotional resources and barriers, participants answered questions with Likert-scale response options (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) for each item. Items were taken verbatim from the cards as much as possible, but reworded in the form of an “I” statement. For example, “I have problems overspending or going into debt,” or “I

have status, power, and respect in the community.” For life course milestones and material goods, participants stated whether they had currently achieved each item (yes/no), whether they had achieved this item in the past (yes/no), or whether they expected to achieved this item in the future (yes/no/maybe).

Goodman ladder, projected life span

To complement assessment of life course models and patterns of achievement on the range of items generated by local participants, we also assessed global subjective life course status using the “Goodman ladder” (Goodman, 1999; Goodman et al., 2001; Goodman et al., 2000). This measure asks participants to rate themselves vis-à-vis other people with regard to SES and social popularity / centrality by marking a “rung” of a ladder representing the entire (imagined) range of variation. For the LTI-Y, we modified a basic version of the Goodman ladder to assess participant current SES, future projected SES, SES for family of origin, and participant social popularity / centrality.

Following the Goodman ladder, participants were asked to assess their future projected life span, with the following response possibilities: 30, 40, 50, 60, 70, 80, 90, 100, and “over 100.” Not only is projected life span expected to act as a significant moderator of life course planning, it is also expected to reflect a more global perspective on life chances, and pertains to behavioral patterns extant in GSMS data (i.e. risk-taking) (Chisholm, 1999; Hill et al., 1997).

Mood and Feelings Questionnaire (MFQ)

Mood is known to colour responses to psychological probes and questionnaires (Westermann et al., 1996). Current participant status regarding mood dysfunction/dysphoria was

assessed with the Mood and Feelings Questionnaire (MFQ), a 13-item measure to assess mood-related dysfunction for the past two weeks with well-documented and respectable psychometric properties (Angold, 1989; Messer et al., 1995). For example, participants were asked to respond to the statement “I didn’t enjoy anything at all” (true/ sometimes true/ not true).

Sampling

At the time of the LTI-Y interview, the three cohorts of GSMS participants were 19, 21, and 23 years of age (average age = 21.23 ± 1.71 [SD], min = 19, max = 24). The LTI-Y was administered to a subsample of 350 GSMS participants (see Table 2). This subsample was based on a 16-cell stratified design, using the four dichotomous dimensions of gender, ethnicity, family stability, and early poverty. This 16-cell sampling strategy was designed to maximize and evenly distribute variation in early developmental context (early poverty, family stability) across ethnicity and gender. As a result, some combinations of developmental context, gender, and ethnicity are seriously over or under-represented vis-à-vis their actual distribution in the community. Purposefully, then the LTI-Y is not based on a representative community sample. As such, LTI-Y subsample data analysis is unweighted.

Insert Table 2 about here

It is important to note that the primary aim of data generated by the LTI-Y subsample is to clarify mechanisms of influence among early developmental context, cognitive life course models, and psychiatric outcomes. This contrasts with GSMS data analysis to date, which uses a

representative community sample (weighted to adjust for oversampling of early behavioral disturbance) to make general epidemiological claims regarding community prevalence.

Age did not differ by ethnicity, gender, or exposure to early poverty, but participants with stable family backgrounds were slightly older than those without (mean difference = .64 years \pm .18 (SD), $p = .0005$, 2-tailed t-test). Proportions of exposure to family poverty and family instability are shown in Table 3. While 31% of Anglos had a history of early poverty, 59% of Cherokee showed such exposure (mean difference = 28.22% \pm 5.22 [SE], $p < .0001$, 2-tailed sample proportion test).

Insert Table 3 about here

The entire interviewing process (including test-retest) took 18 months, and required the work of three interviewers (the main author and two field interviewers). One of the field interviewers took part in the majority of the pilot phase as well as the entire LTI-Y interviewing phase, while the other was specifically trained only on the LTI-Y, and was hired for an 8-month span only to accelerate data collection among the Cherokee. Of the 1420 total GSMS participants, only Anglos and Cherokees were formally sampled. For anecdotal comparative purposes, one African American male and one African American female completed the LTI-Y and an accompanying life history interview. However, with fewer than 80 total African American participants in the sample, it was considered unlikely that a sufficient sample could have been recruited for comparative purposes with Anglo and Cherokee.

Of the 1316 GSMS participants available to sample, attempts were made to contact 611. The target sample size was 392, but we followed a strategy of “over-referring” participants to our

interviewers as GSMS participants are often difficult to track down. GSMS participants are often highly transient and frequently without readily available phone contact, due to both the nature of the geographical area and the nature of the participants (oversampled for risk). Thus, the eventual sample size of 350 represents 57% of the population that was contacted.

This subsample differs from the GSMS sample as a whole in that participants who have moved more than 100 miles from the GSMS study area (for college, employment, or other reasons) were not eligible for interview with the LTI-Y, an instrument that must be administered in person. This sampling bias might selectively exclude college-bound participants, those with family connections outside the local area, or those who left for work or other reasons.

Moreover, as indicated above, the LTI-Y sampling strategy follows a format that maximizes heterogeneity in developmental context across gender and class. This required contacting a higher proportion of “high-risk” (i.e. early poverty, unstable family) than exists in the GSMS sample at large. For these high-risk cells, more effort was required to reach individual participants, necessitating a more “distributive” recruitment strategy and overall lower recruitment percentages. However, we were generally able to contact and interview more high risk participants than exist in the full sample; for example 33% of Anglos and Cherokee in GSMS were exposed to early poverty, in comparison with 43% of the LTI-Y subsample.

Results

The following section describes scale/internal consistency and test-retest reliability for the LTI-Y. Descriptive results concerning initial data analysis can be found elsewhere (Brown et al., 2005a; Brown et al., 2005b). Scale and internal consistency analysis was performed with all 350 participants, and represents the internal consistency of responses within individual domains

and dimensions of measurement. Test-retest reliability was performed with a subset of 18 participants who completed the LTI-Y a second time within 6-15 days of the original interview. Because of the heterogeneous nature of data generated by the card sort procedure, several different analytical techniques were required to assess test-retest reliability (see below)

Scale analysis: internal consistency (n=350)

Of all the methods used in the LTI-Y, only two are amenable to formal scale consistency analysis: item exclusion and life course status. All other dimensions are forced-ranking tasks yielding non-independent data that can not be assessed by standard measures of scale consistency. Customary cut-offs for acceptable Cronbach's alpha and KR20 estimates of scale consistency are .70, although cut-offs of .5 or .6 are typically acceptable for measures that are not diagnostic in nature, and/or are new or exploratory (Nunnally, 1967). With the exception of the life course milestones (exclusion and status) and material goods (status), all Cronbach's alpha/KR20 estimates for both participant status and item exclusion were .70 or higher (Table 4). Notably, these figures are not high enough to establish unidimensionality of life course domains; future analyses will use factor analytic techniques to disembed subcomponents of domains.

Insert Table 4 about here

Another domain of data in the LTI-Y, personal status on life course barriers, is amenable to internal consistency analysis. Participants were asked to assess their status with regards to personal barriers in two different ways; once in a card sort and once in a verbal questionnaire format. This allows us to assess the agreement between card sort and questionnaire responses. As

the Likert-scaled questionnaire format is a more traditional way of assessing life experiences, this allows us another view of the validity of the card sort procedure.

The card sort is a newer kind of procedure, and one in which there can be more anonymity of response. For example, a participant might include “addiction” in his or her list of personal concerns for the card sort, but hide the card in a stack of other concerns, or simply hand this card to the interviewer face down, preserving anonymity of response and protecting against any loss of face or embarrassment. Meanwhile, the questionnaire probe “I have problems with addiction to drugs, alcohol, or anything else,” requires a direct response to the interviewer, which may incur some loss of face or embarrassment. Thus, it is important to assess two different kind of consistency here: (a) a barrier was indicated as a concern in the card sort but not in the verbal questionnaire (which may be a result of the increased anonymity allowed in the card sort), (b) a barrier was not indicated in the card sort but was responded to positively in the verbal questionnaire (which might indicating that the card sort was not “doing its job” in capturing individual barrier status). Importantly, errors of type (a) far out number errors of type (b); the mean number of type (b) errors was .95 ($\pm .07$ [SE], median =1), while the mean number of type (a) errors was 4.44 ($\pm .17$ [SE], median = 4). In other words, participants were far more likely to include a barrier card in their set of relevant concerns, but answer with a neutral or negative response in the questionnaire than they were to answer with a positive response in the questionnaire but fail to include this barrier in their list of concerns.

Test-retest reliability (n=18)

Sample characteristics

To assess the test-retest reliability of the life course inventory measure, 18 of our 350 respondents also completed a shortened form of the measure (excluding the preliminary demographics) within 6-15 days of performing the original life course inventory (minimum time span = 6 days, maximum = 15, mean = $10.94 \pm .64$ [SE] days). Eleven of the test-retest participants were Cherokee and seven were Anglo, with 13 females and five males. Respondent age ranged from 20 to 24, with a mean of $21.67 \pm .40$ [SE] years. Three interviewers collected the original and retest life course inventory data, two female and one male. Time and funding constraints prohibited a larger sample size for test-retest reliability assessments.

Overview, types of data

The LTI-Y produces three types of data: (1) card rankings (difficulty, impact, etc.); (2) card exclusion data, and (3) scales (i.e. Goodman ladder, projected life span, life course status). Each data type requires different statistics to estimate test-retest reliability. For card rankings (1), test-retest reliability will be reported using Spearman's rho. Although this statistic is insensitive to mean changes, these are not at issue in the ranked data using constrained sets of cards, as the mean is always identical (with the exception of importance rankings, in which participants ranked variable numbers of cards). Our test-retest sample size is not large enough to estimate reliability for card exclusion (2), as this concerns individual dichotomous items. Finally, scales (3) require the use of the intraclass correlation coefficient (ICC). ICC (1,1) was used in all cases because it represents the most conservative measure of test-retest reliability that involves the fewest assumptions about sample and rater characteristics, and operates on the strictest definition of reliability.

Ranked data

Ranked data include the importance dimension (milestones, socioemotional resources, material goods), as well as the dimensions of concern (barriers), difficulty (milestones), impact (barriers), and relevance (barriers). In the case of the importance dimension (and the concern dimension for barriers), only the items that remained after the exclusion procedure were ranked. As different participants retained different cards (and different numbers of cards), the resultant incomplete data matrix and decreased number of observations made it difficult to examine individual item test-retest reliability. This difficulty was resolved by stacking and combining observations across participants and items (this same strategy was used for all ranked data). Table 5 displays the results of test-retest reliability for the all ranked dimensions, using Spearman's rho.

Insert Table 5 about here

As can be seen in Table 5, ranked data for the self achieved higher test-retest reliability than ranked data for average Americans. Indeed, this pattern runs throughout most of the test-retest reliability analyses. The other-self difference is predictable when one considers that responses concerning average Americans rely on abstract projection, whereas those concerning self depend on (likely more stable) internal priorities

Scales

Portions of the LTI-Y elicited responses that were relatively independent of each other. These included participant status on life course milestones, life course barriers, socioemotional

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resources, and material goods (dichotomous or Likert-scaled questions, summed into scales), estimates of the minimum, ideal, and maximum ages for life course milestones (integers between 1 and 100), projected lifespan (independent scale with nine options), and the Goodman ladder (independent scales with ten response options). Intraclass correlation coefficients were all moderate to good (see Table 6), with the exception of future projected SES on the Goodman ladder (.106). However, the difference between current and projected future status (a measure of expected future advancement) did show a moderate ICC (.669).

Insert Table 6 about here

Conclusions

The Life Trajectory Interview extends the empirical reach of collaborative efforts among psychiatrists, epidemiologists, and social scientists. It represents one of the first attempts to link quantitative developmental epidemiology with qualitatively grounded data on individual models of life course construction and content. Indeed, to the best of our knowledge, this is the first attempt to collect detailed data on life course models (rather than goals or motivations (Eccles et al., 2002)) with such a large population sample. Consistently higher test-retest reliability of responses regarding the self than those regarding average Americans suggests that participants have more stable concepts of personal priorities than they do of the broader social world. Generally, the level of test-retest reliability shown in the sample indicates that participants do hold somewhat stable concepts of their trajectories through the life span (life trajectory models, or “LTM’s”). However, a larger sample will be needed to more formally assess test-retest reliability, particularly with regard to dichotomous data. Furthermore, relatively low scale

consistency figures suggest the presence of multiple dimensions within life course domains, which will be explored in future analyses.

The anonymity provided by the card sort procedure may be useful for eliciting report on sensitive life course processes that might otherwise suffer from underreport. A higher reporting of life course barriers in the card sort versus the questionnaire portion of the LTI-Y suggests that the card sort might actually be a more comprehensive and inclusive way to assess barriers of concern to respondents than a formal verbal questionnaire. Lifetime behavioral and risk data for GSMS indicates that this may be true for some of the items carrying a higher stigma, while it is not true for other items with less social stigma. For example, lifetime reports of unwanted pregnancies, bad peers, and criminal convictions (all of which carry a significant local stigma) show a stronger relationship to the more anonymous card sort responses, while life time reports of high school dropouts and major life events (both of which carry a weaker local stigma) show a stronger relationship with questionnaire responses.

Notably, the socioemotional resources domain was perhaps the most difficult to finalize, as it was originally conceptualized as two separate domains; (1) items important for the achievement of life satisfaction, and (2) items that helped to aid life course achievement. In fact, these domains were kept separate throughout the entire pilot stage. However, when the LTI-Y domains and items were finalized, it was found that the list of items for these two domains overlapped so significantly that the two domains should be combined into one. If not for the wealth of content and quantitative data yielded by a significant number of pilot card sorts, our research group would not have had the empirical grounds to confidently combine the two domains that we originally had viewed as separate.

The LTI-Y was designed for use with an adolescent / young adult population, and could easily be applied in a variety of settings with participants below the age of 25. However, it is important to keep in mind that this interview was developed primarily with Anglo and Native American (Cherokee) respondents living in a rural area of the South. Application with other ethnic/cultural groups, and/or in highly urban settings, might best be preceded by an investigatory pilot stage, whereby age, gender, and ethnicity-matched respondents outside the target sample are asked for general feedback about the interview, as well as items (or even domains) that may be missing or irrelevant. Currently, there are plans to develop the LTI-C (child life trajectory interview) for use with urban youth between the ages of 8-13, and an LTI-A (adult life trajectory interview) could easily be developed. The LTI also has the potential to be adapted to any international setting, and the use of icons instead of words would allow it to be applied with less literate populations as well.

Advantages of the LTI-Y are several. For one, the LTI-Y evaluates the translational gap between life goals or models and their attainment in the youth to adult transition. As the first comprehensive life course interview to probe both cognitive models of the life course and life course statuses, it gauges the degree of fit between internalized goals and actual achievement. Previous work has shown that status incongruity between internalized norms and actual circumstances is associated with increased risk for depression and hypertension (Dressler, 1991). Second, the measure assesses the congruence of personal goals and priorities with individual understanding of cultural norms. Divergence between endorsed personal goals and understood social norms may indicate deviance or pathology, as in the case of antisocial personality disorder (Cairns and Cairns, 2000). It may also be protective, by adjusting personal norms to the realities of individual circumstances, or by rejecting social ideals that may be harmful to vulnerable

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subpopulations (ideals of thinness in adolescent girls (Harkness et al., 2000)). By estimating convergence, the LTI-Y generates data to probe such issues.

The translational zone characterized by the LTI-Y (norm-to-actual, personal vs normative) lies at the intersection of group and individual-level processes (Adolph et al., 1993). As such, it addresses an important empirical gap and supports investigation of long-standing questions about the impact of prior, current, and perceived future circumstances or disadvantages on life achievement or derailment. For example, economic disparity in this already relatively economically depressed area has been linked to mental health risk for both Cherokee and Anglos (Costello, 1997; Costello et al., 1999, 2001, 2003; Foster et al., 2002). Alleviation of poverty furthermore led to reductions in pathology (Costello et al., 2003). Part of the goal of the LTI-Y was to identify how, when, and even “why” poverty leads to psychopathology, as well as to pathways by which reduction of poverty exerts its effects. In addition, the LTI-Y probes multiple dimensions (milestone, material and social content) and dynamics (barriers, affordances) comprising models of the life course, while previous measures have addressed one (or a few) cognitive dimensions of goals. Moreover, the use of constrained choice (exclusion of all items that can be “done without”) not only elicits priorities but also reflects real world necessity, yet constrained choice rarely has been used to study life goals. Finally, development of the LTI-Y through a community-based iterative process enhances its ecological validity and increases its potential to reflect everyday thinking.

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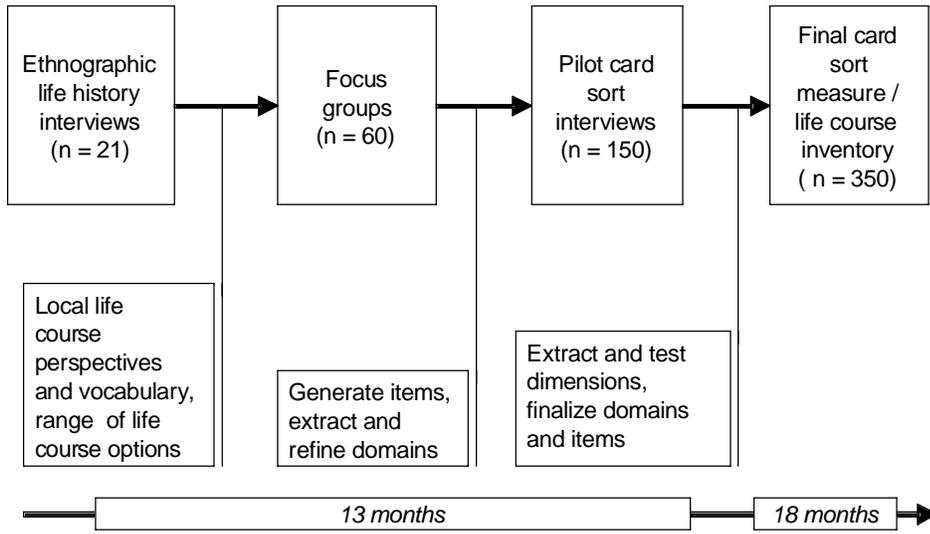


Table 1. Cardsort sequence (approximate total time, 50 minutes)

1. Life course milestones (n=12): items considered “most important to achieve in life”

- a. *Perceived priorities of Average American*
 - i. Age to achieve [youngest, ideal, oldest]
 - ii. Exclusion of items one-by-one until “bare bones life” remains
 - iii. Ranked importance of remaining “bare bones life” items
 - iv. Ranked difficulty to achieve, all cards
- b. *Personal priorities*
 - i. Exclusion of items one-by-one until “bare bones life” remains
 - ii. Ranked importance of remaining “bare bones life” items
 - iii. Ranked difficulty to achieve, all cards

2. Life course barriers (n=20): items considered most likely to block life course progress

- a. *Perceived opinions/experience of average Americans*
 - i. Ranked community prevalence/relevance of barriers
 - ii. Ranked negative impact
- b. *Personal experiences*
 - i. Exclude items that do not apply to self, from lowest personal relevance
 - ii. Rank remaining cards (relevant to self) in order of concern

3. Socioemotional resources (n=20): items considered most important for “being happy and satisfied” in life

- a. *Perceived priorities of “average Americans”*
 - i. Exclusion of items one-by-one until essentials for “happy, satisfied” life remain
 - ii. Ranked importance of remaining “essential” items
- b. *Personal priorities / preferences*
 - i. Exclusion of items one-by-one until essentials for “happy, satisfied” life remain
 - ii. Ranked importance of remaining “essential” items

4. Material goods (n=15): items considered most important for “the good life”

- a. *Perceived priorities of “average Americans”*
 - i. Exclusion of items one-by-one until essentials for “living the good life” remain
 - ii. Ranked importance of remaining “essential” items
- b. *Personal priorities / preferences*
 - i. Exclusion of items one-by-one until essentials for “living the good life” remain
 - ii. Ranked importance of remaining “essential” items

Table 2. LTI-Y sample characteristics

Ethnicity	205 Anglo	143 Cherokee
Gender	178 female	172 male
Family stability	198 stable	150 unstable (≥ 1 transition)
Early poverty	199 non-poor	149 poor (≥ 2 years)

Total sample size = 350, and includes one African American female and one African American male (not shown in this chart).

Table 3. Exposure to early poverty and family instability

	% Early poverty \pm SE	% Unstable family \pm SE
Anglo female (n=103)	37.9 \pm 4.8	47.6 \pm 4.9
Anglo male (n=102)	24.5 \pm 4.3	35.3 \pm 4.8
Cherokee female (n=74)	56.8 \pm 5.8	41.9 \pm 5.8
Cherokee male (n=69)	62.3 \pm 5.9	49.3 \pm 6.1

Table 4. Scale consistency (Cronbach's alpha / * = KR20, dichotomous data)

	Status	Exclusion	n (items)
Milestones	.615	.602	12
Barriers	.783*	.763	20
Socioemotional resources	.723* ¹	.725	20
Material goods	.601	.736	15
All domains	.847 ²	---	67
Likert-scaled only (socioemotional resources, life course barriers)	.830*	---	40
Dichotomous only (milestones, material goods)	.710	---	27
All positive domains (milestones, socioemotional resources, material goods)	.787	.824	47

* = Cronbach's alpha (otherwise KR20).

--- = irrelevant or incompatible combination of items.

¹ Cronbach's alpha analyses for socioemotional resources status automatically inverted one socioemotional resource, "hanging out / partying," suggesting that this item functioned more like a life course barrier than an actual socioemotional resource.

² When all items were combined, the milestone "have and raise kids" was automatically inverted (as were all life course barriers and the socioemotional resource "hanging out / partying"). This suggests that having children in one's late teens or early twenties is actually a marker of low general life achievement.

Table 5. Test-retest reliability, (1) ranked data

	Spearman's rho
Milestones (importance): self	.613
Milestones (importance): average American	.000
Milestones (difficulty): self	.741
Milestones (difficulty): average American	.586
Socioemotional resources (importance): self	.522
Socioemotional resources (importance): AA	.374
Material goods (importance): self	.734
Material goods (importance): average American	.414
Barriers (concern): self	.410
Barriers (impact): average American	.515
Barriers (relevance): average American	.535

Milestones: 12 cards / Socioemotional resources = 20 cards / Material goods = 15 cards / Barriers = 20 cards

Table 6. Test-retest reliability, (3) independent non-dichotomous data

	ICC ± Asy. SE
Status, life course milestones	.828 ± .109
Status, life course barriers	.740 ± .187
Status, socioemotional resources	.841 ± .126
Status, material goods	.764 ± .150
Ages (min)	.553 ± .160
Ages (ideal)	.557 ± .118
Ages (max)	.524 ± .115
Projected lifespan	.843 ± .122
Goodman: current SES	.532 ± .258
Goodman: future SES	.106 ± .267
Goodman: “climb” (future – current)	.669 ± .235
Goodman: parental SES	.520 ± .265
Goodman: popularity / centrality	.447 ± .277

Appendix 1. LTI-Y items by domain (verbatim from cards)

Milestones

- Driver's license
- Get college, technical, or vocational degree
- Get first car or truck
- Get first house (or trailer, modular home, etc.)
- Get permanent job / career
- Have and raise kids
- Have financial security (savings, investments, etc.)
- High school graduation or GED
- Marriage or live together with someone
- Move out of parents' house
- Settle down / be more responsible
- Start first job

Barriers

- Addiction (drugs, alcohol, etc.)
- Always going for the thrill / impulsive
- Bad experiences in school (with teachers, students, counselors, etc.)
- Being angry or overly emotional
- Community or family holds you back / discourages you
- Depression / anxiety
- Drop out of high school or college
- Fights / conflict / tension with friends, family, or community
- Get married or settle down too early
- Hang with the wrong crowd
- Have kids too early
- Jail / prison / trouble with the law
- Lack of jobs & lack of educational opportunities / resources
- Major loss: divorce, illness, heartbreak, accident, death of friend / family
- No motivation / Lazy
- Overspend / go into debt
- Partying too much
- Pressure to help family or friends
- Stress / time pressure
- Things that hold you back from college (homesick, traveling, money, stress, etc.)

Socioemotional resources

- Being honest, responsible, polite
- Close / best friends
- Common sense / think for yourself
- Community connections and support
- Determination, motivation, drive
- Fun / excitement
- Good / supportive / attractive husband/wife
- Government (or Tribal) programs
- Hanging out with friends / partying
- Having a passion or focus in life
- Health, fitness, and stress relief
- High self-esteem / secure in yourself
- Higher education
- Lots of life experiences
- Money and finances
- Plan ahead and have goals
- Respect your elders / know your cultural and family roots

- Status and power in the community
- Strong family support and family time
- Support from church, faith, and prayer

Material Goods

- 4-wheelers, boats, jet-skis, bikes, etc. (recreational vehicles)
- Big/nice house (pool, yard, deck, etc.)
- Computer with internet connection
- Dogs / pets
- Expensive sports / hobby equipment (athletic, music, hunting, etc.)
- Fancy car or truck (with modifications & accessories)
- Good cell phone and calling plan
- Home entertainment center (big screen, surround sound, etc.)
- Investments (stocks, bonds, savings)
- Jewelry (diamonds, gold, silver, etc.)
- Lake or beach house (vacation home)
- Nice clothes (Tommy, Aeropostale, Gap CarHartt, etc.)
- Own a business
- Own property / have good land
- Vacation and travel

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