Chapter 10
The Transition to Adulthood Matters

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Abstract Three ways that researchers can continue to move forward in the study of the transition to adulthood are offered by Schoon (Chap. 9): (1) address the considerable and increasing heterogeneity in the timing and sequencing of social role attainments; (2) attend to the influence of socioeconomic background, childhood, and adolescent behaviors and orientations that influence social role attainment heterogeneity; and (3) consider indicators of adulthood in addition to the Big 5 markers (i.e., school completion, work acquisition, residential independence, union formation, and parenthood) that signify more or less successful transitions, such as life satisfaction and positive well-being. We describe how researchers can use multilevel latent class models to analyze the heterogeneity of adult role attainment across time. These models can help look at how the timing and sequencing of role attainment has changed, especially as roles such as school completion and parenting are occurring progressively later in life. Multilevel models can include childhood orientations, behaviors, and backgrounds, as well as other markers of successful transitioning, to help further explain the heterogeneity in life course experiences for different groups at different ages.

The Transition to Adulthood Matters

It is clear that the transition to adulthood matters to scholars in diverse disciplines. For instance, the transition to adulthood is a "demographically dense" period of the life course, with relatively high rates of union formation, parenthood, and residential mobility (Rindfuss 1991). Scholars of social stratification have for decades

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emphasized the importance of school achievements and orientations that occur during this transition period as mediators of socioeconomic origins and destinations (Sewell and Hauser 1975). Social scientists have also long shown how problem behaviors peak and then rapidly decline during the transition from adolescence to young adulthood (Quetelet 1984). Moreover, researchers frequently study the timing of a number of important "firsts" that occur during this period, such as first jobs, first time residing away from parent(s), first arrest, first sex, first marriage or cohabitation, and first births. In fact, so much research has been done on this topic that a Google Scholar search for the phrase "transition to adulthood" yielded close to 18,000 results just in the past 10 years.

A clear and compelling blueprint for moving forward in the study of the transition to adulthood is offered by Schoon (Chap. 9). Her recommendations include: (1) paying greater attention to the ordering and sequencing of school, work, and family role attainments as this transition period both lengthens and diversifies, (2) addressing the influence of childhood and adolescent achievements, backgrounds, and orientations that shape the character of subsequent transitions, and (3) broadening the markers of transition beyond the Big 5 (i.e., completing school, acquiring a job, leaving home, getting married, and having a child) and consider whether transitions that appear problematic constitute success in other ways.

The purpose of this chapter is to show how multilevel latent class models can be used with available longitudinal datasets to address many of the recommendations posed by Schoon (Chap. 9).

The *Way* Young People Transition to Adulthood Matters

As mentioned previously, a number of scholars would say that the transition to adulthood matters. It is the *way* that young people transition to adulthood that matters, argues Schoon (Chap. 9). That is, she argues for researchers to pay attention to the ordering of social roles during this period. There are a number of ways to reach adulthood, typically meaning a young person attains some or all of the Big 5 markers of adulthood. According to Schoon, researchers should attend to patterns of co-occurrence of these multiple social roles and to the diversity in how these social roles are attained.

Capturing diversity in role attainments is easier said than done. First, it requires longitudinal data so researchers can assess role changes among the respondents over time. Ideally, respondents would be followed from early adolescence to adulthood in order to capture both early, "on-time," and delayed transitions. It would be helpful if the data had a life history calendar so researchers do not miss role changes that occur during years when respondents are not completing surveys. It would also be ideal to make use of longitudinal datasets that are based on nationally representative samples. Longitudinal datasets based on community samples might not capture the full complexity of role attainments as well as diversity in role attainments by population subgroups.

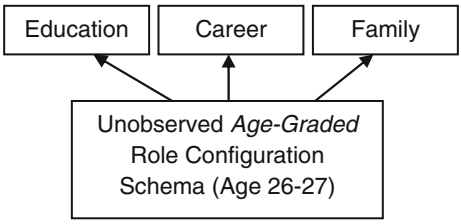

Fig. 10.1 Conceptual illustration of single-level latent class models

Second, as Schoon points out, researchers need to use special methods to model the ordering and sequencing of social roles. Latent class methods, in particular, have been used by a number of scholars to show probabilistic combinations of social roles at a given age. These methods provide estimates of how certain roles fit together in a dataset. Figure 10.1 provides a simple illustration of how education, career, and family roles represent latent classes, or unobserved role configuration schemas at ages 26–27. Several examples of research using this single-level latent class methodology are provided by Schoon (Chap. 9), highlighting similar configurations of roles at ages 25–27 in England, Finland, and the USA (Maggs et al. 2012; Osgood et al. 2005; Salmela-Aro et al. 2012; Schoon et al. 2012). These studies document several probabilistic profiles of role attainments in young adulthood, such as a *fragile family* latent profile (young parents with low educational qualifications) and a *slow starter* profile (respondents who have high educational qualifications and reside with their parents in young adulthood).

Latent class models serve as a useful tool for assessing combinations of social role attainments at a given age. Importantly, heterogeneity in social role attainment is likely to increase during the demographically dense young adult years and then decline as adults settle into various roles. Thus, the profiles in single-level latent class models may easily fluctuate depending on the age roles are measured as well as the roles included in the model. The heterogeneous latent classes highlighted by Schoon (Chap. 9) are limited in that they capture social role attainment by a relatively early age (approximately ages 26–27), assess a relatively small set of social roles (parenthood, marriage, education), and do not consider earlier role configurations or movement over time among roles. Moreover, by capturing only a snapshot of role configurations at a given age, these methods do not illustrate the *way* young people transition to adulthood.

Latent class models can also be used with longitudinal data to examine changes in role configurations over time. In particular, multilevel latent class models can be used to understand how successive combinations of social roles and behaviors come together in distinct configurations over time. These models create a set of latent variables capturing the within-age configuration schema (that is, the combinations of statuses or behaviors at each age) and a set of latent variables capturing the across-age life path schema (that is, the patterns of movement between such configurations over time). Unlike most studies of latent profiles with cross-sectional

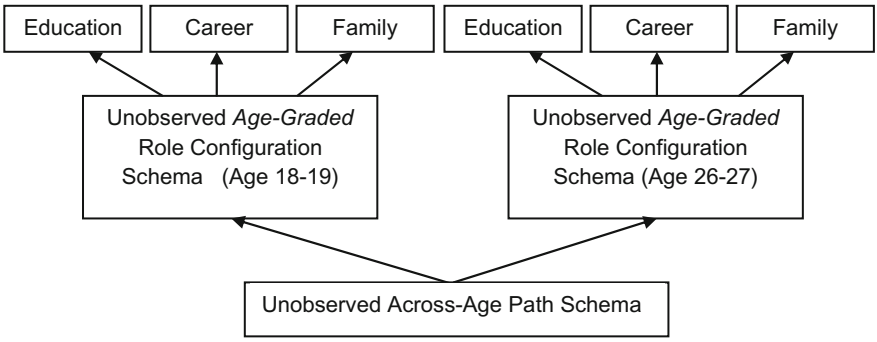

Fig. 10.2 Conceptual illustration of multilevel latent class models

data, using multilevel latent class models with longitudinal data has the advantage of addressing the timing and sequencing of role attainment. Importantly, this sequencing includes the ability to revert back to an earlier status, such as resulting from divorce, job loss, or moving back in with parents. Furthermore, the models have the advantage of including a missing category for each variable at each time, allowing for the inclusion of all original respondents at every survey wave in longitudinal studies.

A conceptual illustration of multilevel latent class models is provided in Fig. 10.2. In this example, measures of education, family, and work roles are observed in the dataset at two points in time: ages 18–19 and 26–27. The boxes in the middle represent unobserved combinations of roles at each age, and the box at the bottom indicates patterns of movement in these age-specific latent configurations over time.

Statistically, the model takes a joint probability and equates it to a series of more easily modeled conditional probabilities (see Macmillan and Eliason 2003). The joint probability that we wish to model is that of the observed roles, the latent schema at each age, and the latent configurations of those schemas over time. That joint probability is equal to the product of three values. The first value is the product of the conditional probability of the observed roles given the latent age-specific schema, similar to a typical single-level latent class model except with the inclusion of an effect for time. These values tell us the probabilities of the various observed roles within the age-graded schema over time. The second value is the product of the conditional probability of the latent age-graded schema given the latent across-age pathways. These values indicate the probability that each age-graded schema falls into a latent pathway over time. The third value is the probability of falling into one of the latent pathways across all times, describing their likelihood in the population.

These non-parametric models can be estimated in several statistical platforms (e.g., Latent Gold, Mplus) via typical maximum-likelihood methods. For each latent pathway, a researcher can assess how the sequencing and ordering of roles change

with age. Using a variety of fit statistics, the reader can assess the number of unique pathways in the dataset, as well as estimates of expected distribution of respondents in each pathway.

We have used this method in two recent papers. In the first paper, Vuolo et al. (2012) used Latent Gold (Vermunt 2003; Vermunt and Magidson 2005) to create agentic pathways based on fluctuations in educational aspirations, career certainty, and job search strategies from adolescence to adulthood. Using longitudinal data from the Youth Development Study (Mortimer 2003), we found that young adults were most likely to be employed and work in jobs with high wages during the Great Recession if they were *strivers* (that is, they demonstrated high aspirations, career certainty, and active job search strategies) during the transition to adulthood.

In the second paper, Vuolo et al. (2014) used multilevel latent class models to examine how youth transition from school into careers, again using longitudinal data from the Youth Development Study. The analyses revealed four unique school-to-work (STW) pathways from ages 18 to 31. These latent pathways, adapted from Vuolo et al. (2014), are shown in Fig. 10.3. The lines in each pathway show the probability of degree (i.e., high school degree or less, some college, associates or vocational/technical degree, or BA/BS degree or higher) and career attainment from ages 18 to 31. To ease interpretation, not all of the categories of career attainment are shown. Respondents in Pathway 1 initially have a very high probability of college attendance that drops suddenly after age 21. This drop corresponds with an increase in the probability of BA/BS degree attainment, as well as an increase in the probability of obtaining a career job. The probability of attaining a career job from ages 18 to 31 is similar for respondents in Pathway 2. What distinguishes Pathway 2 from Pathway 1 is that respondents in the former

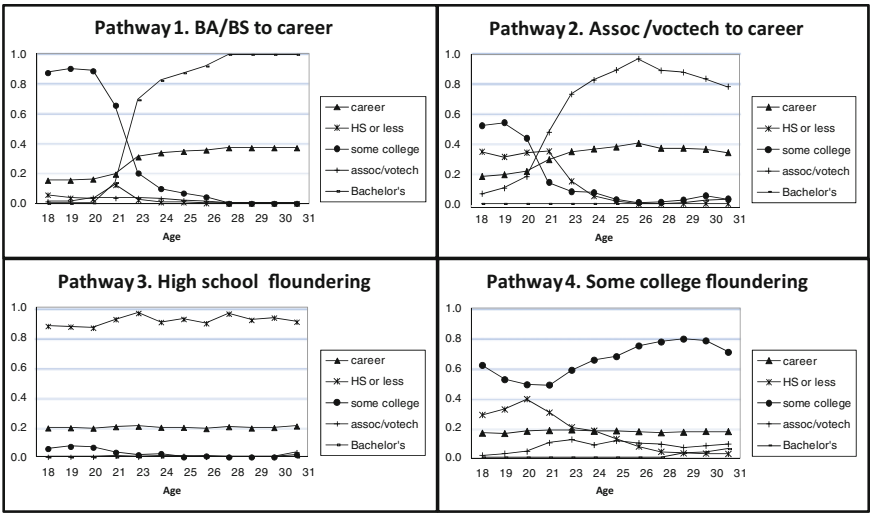

Fig. 10.3 Latent school-to-work pathways from ages 18 to 31. Adapted from Vuolo et al. (2014)

have a high probability of receiving an associates or vocational technical degree instead of a BA/BS degree. The remaining pathways result in a consistently low probability of obtaining a career job. Respondents in Pathway 3 have a high probability of not pursing postsecondary education, whereas respondents in Pathway 4 have a high probability of attending but not finishing a college degree.

Looking at heterogeneity in the life course has advantages, particularly when using multilevel latent class analysis. First, the analysis sharpens comparisons among groups. For instance, in the previous example, we find that there are two ways that young people can attain a career job through postsecondary education (via a Bachelor's or Associate's/Vocational degree), as well as two ways that they can flounder. These latent class profiles can be used to assess whether one particular role sequence is worse than the other. Perhaps respondents in Pathway 4 (i.e., those with some college who flounder) may be worse off financially due to high school loan debt than those with a high school education who flounder (i.e., Pathway 3). Second, by establishing multiple combinations or groups, some with and without certain roles, we can assess whether certain roles are more important than others. To return to the previous example, respondents in Pathways 1 and 2 both had relatively high probabilities of finding a career job, but if life satisfaction or positive well-being is higher in Pathway 1 than Pathway 2, then perhaps educational degree attainment is likely the main culprit driving these disparities instead of career attainment.

The Way Young People *Nowadays* Transition to Adulthood Matters

The way young people transition to adulthood matters, and it is changing, as Schoon (Chap. 9) points out. As mentioned previously, the markers by which we define adulthood are happening later (such as finishing school, getting a job, forming a family). For instance, in 2011, the National Center for Health Statistics reported the average age of first birth at 25.6 years, with non-Hispanic white women having a mean greater than twenty-six (26.4) compared to non-Hispanic black women who had the lowest average age at 23.4 years (Martin et al. 2013). Further, the National Center for Education Statistics reports an increasing percentage of students over the age of 25 in higher education and that this percentage has recently increased at a higher rate than the percentage of students 24 and under. They also suggest that the rate of enrollment for students 25 and over will increase by 20 % by 2020 (Snyder and Dillow 2012). These recent trends in age of motherhood and educational attainment indicate that certain adult roles may not occur on a typical timeline, young people may be prolonging such transitions, or young people are exiting and entering various roles over time. These trends further indicate the need to look at role attainment longitudinally.

Increasingly, the transition to young adulthood is not just about the Big 5 markers. Young people may be raising a child in cohabitation instead of marriage,

or they may be working two part-time jobs instead of one full-time job. In addition to these alternative markers of adulthood, Schoon (Chap. 9) proposes the need to consider subjective markers when assessing more or less successful transitions, such as satisfaction or well-being. Traditionally, unsuccessful pathways are marked by a particular timing, sequence, or combination of roles. For instance, role transitions than occur too early (e.g., leaving secondary school) or too late (e.g., remaining in the parental home) can be considered problematic. Transitions that occur out of sequence can also be a cause for concern (e.g., returning to school after a period of full-time work; having a child out of wedlock), as can particular combinations of roles (e.g., having a child without work, romantic partner, or educational degree). The argument here is that some role combinations can seem problematic when in fact they are associated with positive adjustment.

Another way to move beyond measuring success in adulthood as a certain constellation of role attainments or resources is by assessing measures of adult problem behaviors. Are they committing crime, drinking heavily, or showing poor mental health? Given the especially high rate of incarceration and criminal justice supervision in the USA, success could mean staying out of trouble. For example, Pettit and Western (2004) found that Black men are seven times more likely to have a prison record over some other life events (e.g., military or higher education). Other research using single-level latent class models has focused on the transition away from delinquency as a marker of adult transitioning (Massoglia and Uggen 2010). Thus, desistance and avoiding incarceration could be used as a marker of a successful transition to young adulthood, while also adding to the heterogeneity in experiences by different groups at different ages.

Multilevel latent class models can include alternative measures of adulthood. For instance, time-varying measures of cohabitation and part-time work can be included along with the typical Big 5 markers of adulthood. Measures of incarceration, probation, parole, and avoiding crime could be included in the creation of latent pathways. Multilevel latent class models can also be used to assess whether the pathways to adulthood matter for subjective outcomes, such as life satisfaction and well-being.

The Way Young People Nowadays Transition to Adulthood Matters *for Adult and Child Outcomes Above and Beyond Selection*

If we assume that the way young people nowadays transition to adulthood matters, how much does it matter for adult and child outcomes above and beyond selection? How much does it matter after you account for social background factors as well as childhood experiences and orientations? As Schoon and Silbereisen (2009) note, decades of research have shown that the path from school to work to family is influenced by family socioeconomic (SES) background, race/ethnicity, gender, and school achievements. Heterogeneity in these pathways to adulthood can be explained by socio-demographic background, as well as other factors measured in

childhood. SES origins set the stage for more or less successful educational attainments and career outcomes in the process of occupational attainment.

One way to address these selection issues is to look at how childhood orientations, behaviors, and family backgrounds influence pathways to adulthood. Using a modal assignment rule for each respondent in the sample, the latent variables (or latent life paths) can be used in regression models as outcome or predictor variables. A study of how social background, as well as childhood behaviors and attitudes, shaped the four unique School to Work (STW) pathways from ages 18 to 31 by Vuolo et al. (2014) was discussed previously. High academic orientations, high socioeconomic background, and steady investment in paid work during high school help adolescents to avoid subsequent floundering during the STW transition.

Preexisting background factors, measured before the pathways, have a strong influence on the sort of pathway followed into adulthood. Research has demonstrated that adult outcomes related to well-being, including health status, depression symptoms, and self-esteem, resulted from individuals' well-being in adolescence before pathways occurred (Amato and Kane 2011). Other factors including parental education, socioeconomic status, family disruption, academic performance, and adolescent parenthood have been shown to influence which pathways individuals followed, and this selection differed between gender and racial and ethnic groups (Oesterle et al. 2010; Macmillan and Copher 2005). Thus, longitudinal data looking at individuals' background characteristics, including social, structural, and behavioral factors, are important to analyze in order to determine the actual effects of different pathways.

Of course, identifying the precursors of pathways to adulthood does not control for all selection influences, especially when one is interested in the consequences of pathways. In a regression model, one could include measures of childhood factors and latent class assignment when predicting outcomes. (Again, latent classes are typically assigned modally.) More often, quasi-experimental designs, such as fixed-effects models (with or without instrument variables) or propensity score methods, control more rigorously for selection influences. Fixed-effects models, which address how within-individual changes in predictor variables correspond with within-individual changes in outcomes, typically do not work well with multilevel latent class models (where each respondent is assigned a latent profile over the whole period), although the age-specific schema provide researchers with one potential outlet to combine the two methods. To compensate for this, propensity scores can be used to "balance" respondents who followed different latent profiles, especially if the dataset includes a number of childhood and adolescent control measures.

Conclusion

This chapter demonstrates how multilevel latent class models can be used to address many of Schoon's (Chap. 9) suggestions to push forward our study of the transition to adulthood. Multilevel latent class models can capture variation in the

way young people are transitioning to adulthood. As we have illustrated here, research is beginning to use these models to show how family structure, socioeconomic background, and childhood orientations and behaviors strongly influence the pathways young people follow in young adulthood. Research must now consider whether the way young people nowadays are transitioning to adulthood matters for adult adjustment and attainment, as well as intergenerational associations between the pathways followed by parents and the adjustment and attainment of their children.

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