CHAPTER 8

Educational Transitions, Trajectories, and Pathways

AARON M. PALLAS

Education is a prominent social institution in advanced societies, with primary responsibility for socializing the young to become productive adults. The movement of individuals through the education system is thus a central object of study in sociology, both as a phenomenon to be explained and as a determinant of subsequent outcomes throughout the life course. In this chapter, I examine the study of educational trajectories, including the transitions that punctuate these trajectories, and the well-traveled pathways that shape them. I begin by explaining why educational trajectories have only recently become a central analytic concept in the sociology of education, and discussing the linkages between educational pathways and educational trajectories. Drawing on the sociology of the life course's concern with age, aging, and historical time, I then examine the conceptualization and measurement of educational trajectories, and the analytic models that are used to describe them. Next, I summarize some recent research on educational trajectories in Great Britain and the United States. I conclude by charting some future directions for research on educational pathways and trajectories.

THE ORIGINS OF RESEARCH ON EDUCATIONAL TRAJECTORIES

A central focus of sociology is social stratification, defined as the presence of differentiated, and unequal, statuses associated with the various positions in a social system. Status can be

AARON M. PALLAS • Teachers College, Columbia University, New York, New York 10027.

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ascribed (i.e., assigned at birth by virtue of one's social characteristics), or achieved (i.e., earned through attaining some social position that is not simply awarded at birth). The statuses associated with various levels of educational attainment and with various occupations are typically described as achieved. Through the course of the twentieth century, a great deal of sociological research and theorizing was devoted to understanding the ways in which sons inherited status from their fathers, as well as social mobility, in which sons achieve higher or lower statuses than their fathers.*

Blau and Duncan (1967) fundamentally reconceptualized the study of social mobility in *The American Occupational Structure*. Drawing on methodological developments in quantitative social research, they were less concerned with describing the extent of social mobility in a given society (i.e., the United States) than in quantifying and explaining the linkage between social origins and social destinations. The pattern of social mobility described by mobility matrices, relating fathers' occupational achievements to those of their sons, was the point of departure for the so-called "basic model" linking social origins (e.g., father's educational attainment and occupational status), educational attainment, and social destinations (i.e., the occupational status of a man's first job and his job in 1962).

Blau and Duncan's work is often cited as the clarion call for status attainment research, a tradition of research very prominent in American empirical sociology in the 1960s and 1970s, and nowhere more so than in the sociology of education. Researchers such as William H. Sewell and his colleagues at the University of Wisconsin (see, e.g., Sewell, Haller, & Ohlendorf, 1970; Sewell, Haller, & Portes, 1969), along with others such as Duncan, Featherman, and Duncan (1972), elaborated the relationship between social origins and educational attainment by emphasizing the social psychology of the status attainment process, developing what came to be known as the "Wisconsin model" of status attainment. The initial formulations of the Wisconsin model saw it primarily as a theory of socialization. The model's attention to the linkages among family social status, the influence of significant others, and a youth's own aspirations suggested that the primary mechanism for determining adult status was class-linked socialization, in which working-class youth were surrounded by parents, teachers and peers who had low expectations for their academic performance, and frequently internalized these expectations, leading them to lower academic performance, fewer years of schooling completed, and jobs with lower socioeconomic rewards. In contrast, the model viewed middle-class youth as benefiting from the high expectations that significant others held for them, leading them to strive for scholastic success, and paying off with more years of schooling and well-paying, prestigious jobs. The link between social origins and social destinations was rooted in studies of family and kinship relations.

The status attainment tradition, coupled with the tradition of human capital research in economics, has left little doubt about the effects of educational attainment on socioeconomic outcomes. First, individuals with more education are more likely to participate in the labor force (Bound, Schoenbaum, & Waidmann 1995). Second, the status attainment studies routinely find large effects of education on occupational status (Featherman & Hauser, 1978; Grusky & DiPrete, 1990). Third, individuals who go farther through school earn more than those who obtain less schooling (e.g., Jencks et al., 1979; Murnane, Willett, & Levy, 1995; Sewell & Hauser, 1980), even when controlling for family background and academic ability, each of which might influence both educational attainment and earnings. And finally, even beyond the immediate effects on earnings, educational attainment also is associated with

*Much early research only analyzed fathers and sons, and thus presented only a partial picture of the phenomenon of social mobility.

household wealth. Households in which the head is highly educated have greater net worth, looking across a range of assets and debts, than households in which the head is poorly educated (Land & Russell, 1996).

Most status attainment and human capital studies, however, have treated education as fixed at the highest level of schooling an individual has completed. The key advances in the study of educational trajectories did not occur until researchers shifted from kinship models to life course models that explicitly incorporated age, aging, and time as analytic concepts. This is primarily a matter of emphasis; studies of the life course continue to rely on kinship concepts, and social mobility continues to be defined in terms of the intergenerational transmission of social status, which draws attention to kin relations, especially the linkages between fathers and their sons. Glen Elder's (1992) characterization of *The American Occupational Structure* as a life course study helps to illuminate the shift. Blau and Duncan's work addressed *intra*generational mobility processes and careers; drew attention to the timing of life course events in studies of education and mobility; and suggested both cohort and generational differences in the occupational attainment process. Similarly, Featherman and Hauser's (1978) analyses incorporated historical time explicitly into the status attainment model. Many of these ideas have become central to how we think about the relationship between education and social life.

There was, however, a feature of *The American Occupational Structure* that worked against this shift from kinship ties to age and age-grading, and that is the mixed blessing of path analysis. The relatively small number of parameters in Blau and Duncan's "basic model," a consequence of the translation of occupational class categories into the metric of a socioeconomic index of occupational status, was appealing on the grounds of parsimony, and led many researchers following in their footsteps to concentrate their attention on explaining within-population variation in occupational status scores.

This focus directed attention *away* from occupational positions, which were always central to the father-to-son mobility tables used in the 1950s to summarize the amount of social mobility in a society, and *toward* the social status associated with those positions. Variability across the continuum of social status often was analyzed and discussed in ways that decoupled status from the hierarchical structure of positions in the occupational and educational structures. The renewed attention in the 1970s to an individual's position in relation to a structure of positions was a critical turning point in the study of educational trajectories. In the analysis of education, the emphasis on educational attainment, measured in terms of years of schooling, was supplemented by a concern with educational achievement, measured in terms of the acquisition of educational credentials.

The Increasing Role of Structure

A central critique of the Wisconsin model was its failure to account adequately for the context in which decisions about schooling and work are formulated. Kerckhoff (1976) initiated this line of thinking by questioning whether the status attainment model could profitably be viewed as a theory of allocation as well as a theory of socialization. He stressed the possibility that individuals are allocated by the education system and the economy to various social positions on the basis of their social background characteristics.

At approximately the same time, Spilerman (1977) reintroduced the concept of the career—an individual's sequence of jobs held across the socioeconomic life cycle—into the sociological literature. He distinguished careers from career lines, a sequence of jobs

common to the experience of many workers (cf., Spenner, Otto, & Call, 1982). Spilerman showed that career lines depend on structural features of the labor market, and thus drew attention to the ways in which opportunity structures shape individual careers. His analysis prompted Kerckhoff (1993, 1996) to extend the concept of career first to the educational career, a concept synonymous with the educational trajectory, and then to a conception that bridges educational and labor force careers.

Just as careers are equated with trajectories, so too do I define pathways as identical to career lines. Pathways are well-traveled sequences of transitions that are shaped by cultural and structural forces (Elder, 1985). Although trajectories and pathways may both be described by a sequence of transitions, analytically they are quite distinct. A trajectory is an attribute of an individual, whereas a pathway is an attribute of a social system. Pathways are of particular interest in their ability to illuminate structures—for example, constraints, incentives, and choice opportunities—that link different social locations within a social system.

Thus, whereas the initial formulations of the status attainment model placed the individual in the foreground and the opportunity structure in the background, more recent theorizing has placed the opportunity structure in the foreground and individual decision-making in the background. Considering both individual agency and social structure, however, provides a more complete accounting of status attainment than focusing on one to the exclusion of the other. In considering the implications of status attainment models for understanding educational trajectories, the key insight is that social background influences educational and occupational transitions, both by structuring the choices that individuals make, and by shaping the structures in which individuals can exercise choice.

All modern educational systems intentionally sort students into differing positions, whether within schools, between schools, or both. Natriello (1994) describes tracking, ability grouping, disability grouping (e.g., special education and compensatory education), age grouping, and interest grouping as the most common within-school stratification mechanisms. These mechanisms can structure educational pathways by opening some doors and closing others. In the United States, for example, there have been countless studies of tracking (i.e., between-class ability grouping) and ability grouping (i.e., grouping students by ability within classrooms), most of which have attempted to determine whether placement in a particular position facilitates or impedes future educational success (Gamoran, 1992; Loveless, 1999; Lucas, 1999; Oakes, 1985). Similarly, retention in grade is associated with a much greater likelihood of dropping out of high school before completion (Anderson, 1994; National Research Council, 1999; Roderick, 1993).

The primary challenge of studies of within-school stratification mechanisms—as is true for the study of educational pathways more generally—is distinguishing selection from influence. Individuals typically are sorted into educational positions on the basis of characteristics that by themselves might determine subsequent educational success or failure. For example, students are often retained in the first grade because they have not yet learned to read. Early reading difficulties predict later difficulties in school. If one were to contrast the later educational performance of children who were promoted with those who were retained in grade, one might conclude that retention *caused* the lower performance observed among retainees. It is not obvious, however, that the kinds of students who are retained in first grade would be any better off if they had been promoted instead (Alexander, Entwisle, & Dauber, 1994).

Although a full exposition of educational pathways is beyond the scope of this chapter, I note here some analytic tools that may prove useful in generating hypotheses about the links between educational pathways and educational trajectories. Drawing on the work of Allmendinger (1989), Gamoran (1989, 1992), Kerckhoff (1995, 2000, 2001), Kilgore (1993),

Müller & Shavit (1998), Sørensen (1970), among others, I identify eight features of educational pathways that can structure educational trajectories.

Scope refers to the extent to which a particular stratified location in the education system shapes a student's entire educational experience. In a wide-scope tracking system, being in the low track might govern placement in all school subjects. Conversely, in a narrow-scope tracking system, a student might be in a low track in English, but a high track in mathematics. *Selectivity* is the extent to which a particular stratified location in the education system consists of students who are homogeneous on one or more characteristics. Such homogeneity may pertain to the ascribed characteristics of sex, race/ethnicity, social class, religion, and native language, or to scholastic achievement. *Specificity* is the extent to which a particular stratified location in the education system dictates access to desirable future options. We can distinguish between educational specificity and vocational or occupational specificity. The former represents the ability of a particular educational position to grant access to a desirable subsequent educational position. The latter pertains to the constraints a particular educational position places on desirable occupations.

Mobility is the extent to which movement into or out of a particular stratified location in the education system is fluid or rare. Lucas and Good (2001) show that there is both downward and upward mobility across tracks in contemporary U.S. high schools. *Curricular differentiation* is the extent to which a particular stratified location in the schooling system exposes a student to a different quality, quantity, and pace of instruction than other students. Oakes (1985) and Page (1991) provide persuasive evidence that students in lower-track classrooms receive uninteresting and dated instructional materials, and are frequently taught by rote.

Electivity is the extent to which a student's own choice or preference determines his or her placement in a particular stratified location in the educational system. The greater a student's opportunity for choice, the more likely that the student's social background will structure his or her educational trajectories. *Stigma* is the extent to which a particular stratified location in the schooling system confers a devalued social identity on a student. Students in special education classes frequently are stigmatized, as are students who are retained in grade. Finally, *institutionalization* is the extent to which there is a widespread and shared public understanding about the meaning of a particular stratified location in the education system. For example, although the college-preparatory track in high school is widely understood to prepare students for the academic rigors of college, there is little shared understanding of the meaning of the general track.

EDUCATIONAL TRANSITIONS AS LIFE COURSE TRANSITIONS

As the sociology of the life course has matured, the study of educational transitions and trajectories has quite sensibly drawn on life course theory. Elder (1992) notes that the sociology of the life course emerged from the twin traditions of sociological research on kinship and on age and time. A kin-based model of the life course focuses on families and the ways societies reproduce themselves across generations. In contrast, an age-based model of the life course emphasizes aging and the ways in which age sorts individuals into positions that have varying levels of rewards.

Current perspectives on the life course blend these two models, and the concept of the social role, a set of behavioral expectations associated with a position in the social structure, is a common denominator. The social roles performed by individuals are a primary source of

identity, and are often associated with specific social institutions, such as the family, school, or work. Since most people are connected to multiple social institutions, they typically perform multiple social roles simultaneously, which may be mutually supportive or conflicting.

Until recently, sociologists studied educational trajectories primarily with regard to the transition from adolescence to adulthood. The student role is typically one of dependence, particularly in elementary and secondary school (Pallas, 1993). Since adulthood is characterized by financial and socioemotional independence from the family of origin, leaving school, along with working and forming a family through marriage and parenthood, have been key markers of this transition. But participation in education beyond the age of compulsory schooling is another matter, and sociological theory has not yet caught up to the expanding opportunities for education in the United States that are no longer highly age-graded.

Formal schooling (e.g., participation in credential programs) is increasingly becoming a recurring phase of the life course, and informal schooling is even less contingent on age. As Rubinson (1986) and others have argued, the U.S. educational system is much less stratified than the systems of many other industrialized societies, both in the West and elsewhere. That is, the U.S. system affords many more opportunities for investing in education beyond the age of compulsory schooling. Many postsecondary institutions have identified such "nontraditional" students outside of the 18–24 age range as potential markets for their educational wares. Evidence of the prevalence of nontraditional enrollment in higher education is provided by data from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) fall enrollment surveys, which show that the proportion of postsecondary students over the age of 25 has risen from 28% in 1970 to 41% in 1998 (U.S. Department of Education, 2001). The greatest increase has been in the older age groups. Approximately one in five postsecondary enrollees is currently over the age of 35.* There are no similar trend data for education taking place outside of institutions of higher education.

A life course perspective implies that educational trajectories ought not be studied in isolation from other social institutions and from the other social roles associated with participation in those institutions, because such roles are intertwined in complex ways. For example, many young people interrupt their schooling, leaving and re-entering the educational system multiple times, and others combine their participation in schooling with other activities, such as working, getting married, or becoming a parent (Kerckhoff, 1990, 1995, 2000, 2001; Marini, 1987; Rindfuss, Swicegood, & Rosenfeld, 1987). In part, this is because educational attainment has increased overall. The prolonged time in school has resulted in more frequent combinations of schooling with work and family roles, as the timing of entry into work and family roles has not changed dramatically. The timing and sequencing of educational transitions, juxtaposed with these other activities, is highly differentiated, varying cross-nationally, temporally, and across individuals in a particular country at a particular time (Kerckhoff, 1995, 2000, 2001; Pallas, 1993). A life course perspective views the role of student as dynamic, reversible and renewable, not as a static attribute of individuals.

From a life course perspective, an individual's age and both work and family roles are likely to influence the dynamics of educational trajectories. For example, employers may not wish to provide work-related education to employees who are seen as too old or too young to benefit substantially from such education. Also, the demands of caring for school-aged children may conflict with a parent's desire to participate in some forms of adult education. These are just two examples of the implications of age and work and family roles for educational

*These data do pertain to both part-time and full-time enrollees. The changing age profile of the student population has not been as striking among full-time students as it is among the overall population of postsecondary students.

transitions. Moreover, age and role effects on educational trajectories may differ by gender. For example, mothers are frequently the primary caretakers for their school-aged children. Thus, having school-aged children in the household may be more consequential for the adult education of women than for men. Conversely, the fact that men are the primary breadwinners in many households may result in a greater propensity for work-related education than that of women in the labor force.

DESCRIBING EDUCATIONAL TRAJECTORIES

Life course studies originating in the United States have paid relatively little attention to the challenges of describing educational trajectories. In the United States, an individual's position in the education system is reasonably well described by the number of years of schooling completed. It is certainly convenient to be able to summarize an individual's standing in a single number. But this vertical differentiation of educational statuses is not an adequate representation of the educational systems of a great many countries around the world. Even in the United States, the number of years of schooling completed does not convey precisely the educational credentials an individual has acquired. Fourteen years of schooling can, for example, represent successful completion of a 2-year technical college degree program, or 2 years of liberal arts coursework that falls short of any credential. Other educational systems rely more upon the horizontal differentiation of individuals into differing types of educational institutions, or into differing locations within the same institutions, than upon the number of years of schooling completed.

Only recently has a concerted effort been made to develop a classification system for educational attainment that might facilitate comparisons across countries and time periods. Müller (Braun & Müller, 1997; Müller, 1988; Müller, Lüttinger, König, & Karle, 1989) is credited with developing a system for an ambitious project entitled "Comparative Analysis of Social Mobility in Industrial Nations" (CASMIN). The classification system, known as the CASMIN classification after the project title, is displayed in Table 8-1. It is based on two primary criteria: (1) a hierarchy of educational levels, defined in terms of the length of the educational experience, its cost and quality, and the academic ability required to be successful, and (2) a distinction between "general" and "vocationally-oriented" educational experiences. This latter distinction is based on curricular intent rather than empirical linkages between educational qualifications and specific vocational outcomes. That is, the central distinction is between educational programs that are intended to teach the knowledge and skills needed for specific occupations and those intending to teach general knowledge.

Comparative research inevitably involves tradeoffs between the commonalities and uniquenesses of the cases under consideration. Classification schemes such as the CASMIN classification are intended to balance such tradeoffs. Nevertheless, the same classification that facilitates comparisons *across* countries can seriously distort comparisons *within* countries. This is the thrust of Kerckhoff, Ezell, and Brown's (2002) analysis of the applicability of the CASMIN classification to the United States case. They show that within the United States and other countries, the relationship between educational qualifications and occupational attainment is generally greater if the analyst uses *indigenous* qualifications—that is, qualifications that are recognized locally—than if the association is estimated with classification schemes such as CASMIN developed for comparative purposes. Thus, although the CASMIN classification is useful for some purposes, it presents difficulties when an analyst wishes to study the

TABLE 8-1. The CASMIN Classification of Educational Qualifications

Educational qualification	Description
1a	Inadequately completed elementary education: Completion of less than the compulsory level of schooling with no formal certification
1b	Completed (compulsory) elementary education: Completion of general education that corresponds to the minimum that society views as acceptable
1c	(Compulsory) elementary education *and* basic vocational qualification: Completion of compulsory elementary education plus basic vocational qualifications
2a	Secondary, intermediate vocational qualification or intermediate general qualification *and* vocational qualification: Programs in which general intermediate schooling is joined with vocational training or qualifications
2b	Secondary, intermediate general qualification: Includes general or academically oriented tracks at the intermediate level, but lacks completion of exit exams
2c-gen	Full *general* maturity certificates: Completion of exams at the end of secondary schooling in a general or academic track; usually provides access to tertiary education
2c-voc	Full vocational maturity certificate or general maturity certificate *and* additional vocational qualification
3a	Lower tertiary education: Completion of a vocational or practical program of study at the tertiary level that is generally shorter than higher tertiary education
3b	Higher tertiary education: Completion of a traditional, academically oriented university education

link between educational qualifications and occupational attainment. Kerckhoff et al.'s (2002) proposed revision to the CASMIN scheme yields estimates of the education–occupation association that more closely approximate the estimates stemming from indigenous credentials.

Although this is an important enhancement to the content validity of the CASMIN classification, it does invite closer scrutiny of the notion of indigenous qualifications. For example, Kerckhoff et al. (2002) describe the indigenous credentials of the United States as (1) less than high school; (2) some high school; (3) GED or high school equivalency; (4) high school graduate; (5) vocational, trade, or business school; (6) less than 2 years of college; (7) associate's degree; (8) 2+ years of college, no degree; (9) bachelor's degree; (10) postgraduate attendance, no degree; and (11) postgraduate degree (MA, PhD, MD, etc.). Although these are standard reporting categories in social surveys such as the longitudinal studies sponsored by the National Center for Education Statistics, the claim that these categories represent indigenous qualifications is asserted, rather than demonstrated with evidence. The categories may be indigenous to social scientists, but there is no assurance that these are the categories that populate the cognitive maps of U.S. employers or the general public. I am particularly skeptical about combining bachelor's degrees from highly selective institutions (e.g., the Ivy League) and less selective four-year institutions into the same category.*

Analytic Models for Studying Educational Transitions

The most commonly used analytic model for studying educational transitions draws on the distinctive structure of the U.S. education system. Mare (1980, 1981) conceptualized educational

*Kerckhoff et al. (2002) acknowledge that there may be multiple ways to classify a country's indigenous qualifications. They argue, however, that since the categories used by official agencies are stable and familiar, these categories are well-suited for cumulating research knowledge.

attainment as movement through an ordered sequence of educational transitions. For example, an individual who had attained a 4-year college degree had first made the transition from high school entrant to high school graduate; then from high school graduate to college entrant; and finally from college entrant to college graduate. Only those individuals who enter college can ever graduate; thus the probability of graduating from college is conditional on having entered it. Mare argued that educational attainment could be modeled as a set of ordered school continuation probabilities showing the probability of attaining a given level of schooling conditional on having completed the level immediately preceding it. These conditional probabilities could then be modeled as a function of individuals' social backgrounds and birth cohort membership.

Mare estimated this model on data from the 1973 Occupational Changes in a Generation survey. He sought evidence that the effects of social background on making particular educational transitions across successive cohorts were declining, as predicted by theories of modernization. His logistic regression estimates revealed that within cohorts, social background effects on educational transitions decline from earlier to later transitions.

Mare interpreted this decline as an artifact of differential selectivity across transitions. For any given educational transition, there are both measured and unmeasured determinants of the likelihood of a successful outcome. For example, data sets such as OCG are frequently lacking measures of individuals' academic ability and motivation. There is likely to be more variability in academic ability and motivation at earlier transition points than at later points. That is, there will be more variability in academic ability among high school entrants seeking to complete high school than among college graduates seeking to enter graduate school, because the transitions involved in completing college have weeded out many students of lesser ability (and, perhaps, motivation).

Since factors such as academic ability and motivation are correlated with students' social backgrounds, the failure to take account of their effects on educational transitions represents a form of misspecification that can distort the estimated effects of the measured variables included in the model. In subsequent work, Mare (1993) attempted to correct for this specification error by introducing information on brothers, controlling for unmeasured family-specific influences by assuming that all siblings within a family share the same unmeasured family background characteristics and genetic endowments. Although not definitive, these latent-class log-linear analyses suggest that the failure to account for unobserved heterogeneity could dramatically overstate the extent to which family background effects decline over successive transitions.

Cameron and Heckman (1998) critique the Mare (1980) model on several grounds. They demonstrate that the empirical pattern of declining social background effects across successive educational transitions depends on arbitrary assumptions about the nature of the selection bias stemming from unobserved heterogeneity in the data. An ordered discrete-choice model fits the data better, but yields a different pattern of social background effects on schooling transitions.

Beyond this methodological critique, Cameron and Heckman describe the Mare (1980) model as "myopic," in the sense that individuals facing a set of successive educational transitions are presumed to focus only on the next transition, rather than a longer sequence of prospective educational transitions. Their preferred model assumes that individuals choose the ultimate level of schooling that maximizes their net returns to schooling, and that all of the successive transitions are governed by this longer-term view.

Breen and Jonsson (1998) levy a different critique at Mare's (1980) model, pointing out that it assumes a sequence of binary decisions that fails to represent the more differentiated pathways traveled in many European countries. For example, consideration of the choice

alternatives of pursuing academic education, pursuing vocational education, and leaving school altogether obliges the analyst to group two of the categories together in contrast with the third. A multinomial logit model allows not only for multiple pathways, but also for an accounting of path dependence—the extent to which the probability of a particular transition depends on which path an individual traveled to reach that decision point. Breen and Jonsson hypothesize that the social background effects on the probability of entering higher education depend on the difficulty of the path traveled to reach that transition point. Estimating the model for a large sample of Swedish men and women, they find stronger social background effects on the probability of a successful transition when the route traveled to that point is the road not usually taken. This analysis promises to allow for more realistic models of educational careers and trajectories.

The Description and Distribution of Educational Trajectories

Although such models of school continuation decisions are very useful, they do not describe the shape of educational trajectories. The most widely recognized account of the shape of educational trajectories has been referred to as the Matthew effect, so coined by Merton (1968) in his account of how the logic of "the rich get richer, and the poor get poorer" applies to the system by which scientists allocate recognition to one another. Dannefer (1987) introduced the Matthew effect explicitly into the literature on aging and the life course. He expressed concern that the study of cohort differences was overshadowing heterogeneity within cohorts that might be due to the interaction of age and social structure, including variations across individuals in their structural positions in one or more stratification systems. By positing that initial inequalities are magnified over the life course, the Matthew effect, which is sometimes referred to as the cumulative dis/advantage hypothesis (O'Rand & Henretta, 1999), offers one account of how intracohort inequality is produced.

An alternative account, termed the "status maintenance" hypothesis, assumes that initial inequalities are carried along as individuals move through the life course, such that the within-cohort inequality present at any particular moment can be mapped onto similar levels of inequality both before and after that moment. A third explanation points to the possibility of a narrowing of the gap in the latter stages of the life course, as upon retirement, individuals are subject to the influence of state institutions that offset the inequalities produced by private markets.* This account is termed the "status leveling or redistribution" hypothesis (O'Rand & Henretta, 1999).

Empirical studies of educational transitions and trajectories are generally consistent with the presence of a Matthew effect in U.S. education. The evidence derives from a series of studies examining returning to school (e.g., Bradburn, Moen, & Dempster-McClain, 1995; Elman & O'Rand, 1998; Felmlee, 1988; Pallas, 2002) and three provocative studies by Kerckhoff and his colleagues (Kerckhoff, 1993; Kerckhoff & Glennie, 1999; Kerckhoff, Haney, & Glennie, 2001). I briefly describe these below.

Felmlee (1988) relied on human capital theory to frame her analysis, hypothesizing that women would view a return to school as a human capital investment that would have a subsequent payoff in the labor market in the form of greater future earnings. If women make the decision to leave work for full-time schooling on the basis of an accounting of the potential

*Crystal and Shea (1990) suggest that this shift may actually exacerbate income differences, and thus reflect a cumulative dis/advantage process.

costs and benefits of doing so, she argued, then their personal and job characteristics would influence the likelihood of making the transition from full-time work to full-time schooling. She speculated that because older women would probably not realize as great a return on investing in education as younger women, a woman's age would be an important determinant of the transition rate. And women of greater ability (defined in terms of IQ score) would likely obtain a higher rate of return to educational investment than women of lesser ability. Modeling the rate of change from full-time employment to full-time schooling (with no employment) over a 5-year period, she found substantial support for her predictions.

Felmlee (1988) also examined the potential implications of women's family roles for making the transition from full-time work to full-time schooling. She speculated that investing in education would be more costly for married women than for single, widowed, or divorced women, and that women with more children would be less likely to leave full-time work for full-time schooling. In her analyses, she distinguished between the number of children aged 0–5, and the number of children aged 6 and older. Women with children aged 0–5 were less likely to leave work for school, but the presence of older children did not depress the transition rate. Felmlee interpreted this pattern in terms of the costs of leaving work for schooling. It may be, she suggested, that women's obligations to support their children financially make it impractical to leave work for school, regardless of their husband's income. This might be, at least in part, a selection issue, in that women with young children who are working full-time may be under more family financial pressure than women with older children, whose full-time work may be more discretionary.

One difficulty with Felmlee's study is that the data derive from the National Longitudinal Survey of Labor Market Experience of Young Women, a national sample of women aged 14–24 in 1968. It is hard to conceive of this as a study of education across the life course when the women were aged 19 to 29 at the conclusion of the 5 years of data collection. Moreover, the study is located at a particular historical moment, and thus does not provide any evidence on whether there are cohort differences in patterns of work to school transitions. Bradburn et al.'s (1995) study addresses both of these limitations. These researchers drew on a panel study of 296 white women born between 1905 and 1933 who were initially interviewed in 1956 and followed up 30 years later, in 1986. All of the women in this sample were married and had children at the time of the initial interviews. By exploring subsequent participation in schooling, Bradburn et al. were in effect examining women's return to school following the transition to marriage and motherhood.

Bradburn et al. hypothesized that women with higher initial levels of educational attainment would be more likely to return to school than women with lower initial levels. But they also wondered if there might be a ceiling effect, such that women at the highest levels of education would not have the highest rate of return to school. Their results are generally supportive of their hypotheses, as women who had attended some college or graduated from college were more likely to return to school following first birth. Owing to the small sample, however, the stability (and plausibility) of the estimates for women with less than ninth grade educations or with some post-college is questionable.

Although the findings of these two studies are provocative, it is unclear whether they will generalize to the contemporary context. First, participation in schooling across the life course has expanded dramatically since these earlier studies. When returning to school was a rare (and perhaps non-normative) event, the women who elected to return may have had unusual personal strengths and/or opportunities that enabled them to overcome barriers to participation. Second, these studies of necessity construed educational transitions rather narrowly. Felmlee, for example, studied the specific transition from full-time work to full-time schooling.

Relatively few participants in adult education describe schooling as their primary activity. The range of adult education opportunities has expanded well beyond the scope of activities available in earlier periods.

One recent study makes use of data that pertain to contemporary contexts for studying educational trajectories. Elman and O'Rand (1998) drew on two waves of the National Survey of Families and Households to examine the impact of various work pathways on educational reentry between the ages of 42 and 62. They contrasted three theoretical approaches: status attainment, status maintenance, and cumulative dis/advantage. As I have discussed earlier, the focus of the status attainment approach is the influence of social origins on adult attainments, and the ways in which educational and early occupational experiences mediate those effects. The status maintenance approach emphasizes patterns of stability in achieved status across the life course, and assumes that individuals act to maintain and conserve their status. In contrast, the cumulative dis/advantage approach emphasizes the increasingly divergent trajectories that develop over the life course, in which initial advantages or disadvantages cumulate over time, resulting in greater inequality in opportunity and outcomes.

Elman and O'Rand conceptualize educational transitions and trajectories primarily in terms of retraining to maintain occupational status or enhance occupational mobility in the face of changing labor market conditions. They argue that the status maintenance and cumulative dis/advantage models predict that middle-aged workers with few educational and social resources will be less likely to retrain than those with higher levels of resources. They note, however, that individuals with high resources who have stable jobs may not elect to retrain, because individuals in stable careers have less incentive to change jobs, and hence a weaker motive for retraining. On balance, they hypothesize that non-white and female workers will be less likely to return to school in midlife, mainly because they are likely to have had longer spells of unemployment than white and male workers.

Elman and O'Rand summarize their hypotheses by stating that "those at midlife whose resources do not closely match their work experience are more likely to pursue educational activities at midlife" (Elman & O'Rand, 1998: 480). Obviously, testing these hypotheses requires detailed information on job histories and current job conditions. Although the National Survey of Families and Households has an array of data on work histories, the data on adult participation in education are not as extensive. School attendance of more than two courses or enrollment for more than six weeks is coded as educational reentry, but no data are gathered for individuals who have not completed a high school diploma or its equivalent, who represent a substantial share of the midlife individuals examined in the study. The survey thus is picking up relatively intense participation among those with relatively high levels of initial education.

Elman and O'Rand find that differing work pathways result in differing likelihoods of educational reentry. Those individuals with the most job continuity are the least likely to reenter school, whereas those with disrupted patterns are most likely to return to school in midlife. Regardless of an individual's work pathway, educational attainment and family configurations influence the likelihood of educational reentry. In general, those with college or advanced degrees were more likely to reenter school at midlife than high school graduates.

In my own work (Pallas, 2002), I have sought a Matthew effect that examines a broader array of educational experiences than simply enrollment in programs that lead to educational credentials. Drawing on the Adult Education Component of the 1995 wave of the National Household Education Survey, a nationally representative sample of 19,700 interviews, I analyze the probability of participating in three distinct forms of adult education in 1994: (a) programs leading to a postsecondary educational credential; (b) work-related education that is not embedded in a credential program; and (c) other structured activities or courses, which I refer to as "personal development" courses, since they are not primarily for the instrumental

purpose of enhancing one's stock of human capital and/or improving one's labor-market standing. I also analyze the probability of participating in *any* form of adult education (including the relatively rare forms of English as a Second Language classes and adult basic education). For each form of adult education, I estimated a logistic regression model predicting participation as a function of region of the country, sex, race/ethnicity, age, educational attainment, and family configuration. I then added a vector of socioeconomic measures, including household income, home ownership, and labor force position.

Table 8-2 summarizes the evidence reported in this study for a Matthew effect in education. The table entries are the estimated probabilities of participation in various forms of adult education for individuals with differing levels of educational attainment, holding constant other factors. The probabilities for individuals with less than 12 years of schooling are actual participation probabilities, whereas the probabilities for those with other levels of education are estimated based on the logistic regression equations. The probabilities in columns (1) in Table 8-2 show that for each form of adult education, those with the least schooling have the lowest probability of participation, and those with the most schooling have the highest participation probability. For example, respondents with fewer than 12 years of schooling had a 5% probability of participating in work-related education in 1994, whereas those who had attended graduate school had a 32% probability of participating in work-related education. In most cases, the gradient is quite steep, with respondents with a 4-year college degree or more education three to six times more likely to participate in adult education in 1994 than those who have not completed high school. This is as true for participation in personal development classes as it is for participation in postsecondary credential programs and work-related education. I conclude, therefore, that those who are already "rich" by virtue of attending college do get richer. The differences among those who have some college education are, however, generally much smaller than the differences between the college-educated and non-college-educated.

Table 8-2 also examines the extent to which the Matthew effect might be explained by the socioeconomic advantages—household income, home ownership status, employment status, and occupational type—of those who have accumulated more schooling to begin with. That is, I considered whether the total effects of educational attainment on participation in adult education could be accounted for by the association between educational attainment and socioeconomic status, on the one hand, and the association between socioeconomic status and participation in adult education, on the other. Table 8-2 shows that the effects of educational attainment on the probability of work-related education are substantially mediated by socioeconomic success. Comparing column (1), the total effect of educational attainment, and column (2), the effect net of socioeconomic status, it is clear that the probabilities are much less dispersed when socioeconomic success is controlled. The sixfold increase in the probability of participating in work-related education observed when contrasting individuals who had not completed high school with those who had attended graduate school (0.05 vs. 0.32) shrinks to a threefold spread when SES is taken into account (0.05 vs. 0.16). In contrast, educational attainment effects on participation in postsecondary credential programs are not mediated by socioeconomic status, and the effects on participation in personal development courses remain large even when socioeconomic status is controlled. Thus, we still have much to learn about both the personal and structural determinants of participation in adult education.

Deflections and Diverging Pathways

The studies cited above provide brief glimpses of trajectories that play out over the course of individuals' lives. Kerckhoff's (1993) analysis of a British birth cohort through age 23 provides

TABLE 8-2. Probability of Participation in Adult Education by Respondent's Educational Attainment

	Estimated probability of participation in							
	Postsecondary credential programs		Work-related education		Personal development classes		Any form of adult education	
	Total	Net of SES	Total	Net of SES	Total	Net of SES	Total	Net of SES
Rs educational attainment	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
<12 years of schooling	0.02	0.02	0.05	0.05	0.09	0.09	0.18	0.18
12 years of schooling	0.06	0.06	0.11	0.08	0.14	0.14	0.28	0.24
Some college	0.24	0.24	0.17	0.11	0.22	0.20	0.50	0.43
Two-year degree	0.22	0.22	0.23	0.14	0.25	0.22	0.55	0.46
Four-year degree	0.13	0.13	0.28	0.14	0.26	0.22	0.55	0.44
Graduate school	0.23	0.23	0.32	0.16	0.29	0.25	0.63	0.50

Note: Data are derived from Pallas (2002). Estimated probabilities are derived from logistic regression equations predicting participation in particular forms of adult education. Covariates for Equations (1) include region of the country, sex, race/ethnicity, age, and family status. Equation (2) also controls for household income, home ownership, employment status, and type of occupation.

the richest account of educational trajectories, largely because individuals' positions can be measured at multiple points over this time period. He exploited the fact that individuals' positions in the education system and occupational structure can be arrayed hierarchically, such that some positions are valued more highly, and lead to more desirable consequences, than others. Within primary and secondary schools, students may be enrolled in higher or lower ability groups or tracks. Across secondary schools, students may be in elite schools leading to a prestigious university education, or lower-status comprehensive or secondary modern schools leading to less-prestigious educational qualifications. Postsecondary qualifications can include university education, "further education" (i.e., technical colleges), and on-the-job training (including apprenticeships). Within the occupational structure, individuals may obtain more or less prestigious jobs, with more or less favorable firm characteristics.

Converting these varying positions in the social structure into a common metric—percentile rank within the distribution*—Kerckhoff traced the trajectories, or careers, of individuals from infant school to elementary school to secondary school to postsecondary schooling to the labor force. As individuals move through their educational careers, he demonstrated, individuals' trajectories are typically deflected either upward or downward. Those in favorable positions at a given career stage typically move up, whereas those in lesser positions frequently are deflected downward. But if the notion of career is extended from the education system to labor force experience at age 23, the pattern changes. Among men, the cumulative effects of the structure of the education system reverse, such that those in the highest and lowest positions in the postsecondary schooling distribution are deflected toward the middle of the distribution, rather than continuing to disperse. Among women, these cumulative education effects do not increase, but neither do they decrease, as is observed among the men in the sample.

Kerckhoff and Glennie (1999) used a similar method to examine the evidence for a Matthew effect in the United States. They trace the trajectories of a cohort of American tenth-graders over a 12-year period as they move from high school to college and beyond. Net of social background and prior academic performance, a student's location in the education system influences his or her achievement and subsequent educational attainment. Those in higher locations gain more, and those in lower locations gain less, than those in intermediate positions. This contributes to a pattern of cumulative advantage and disadvantage over the educational career, consistent with a Matthew effect. Although the U.S. educational system is often viewed as more open than the British system, the patterns of upward and downward deflections are similar across the two societies.

As more recent data from the British cohort became available, Kerckhoff and his colleagues sharpened the comparison between Great Britain and the United States (Kerckhoff, Haney, & Glennie, 2001). They constructed parallel measures of location in the education system for ages 16, 18, 22 or 23, and 28. Recognizing the "greater orderliness and predictability" of the British system (Kerckhoff et al., 2001: 500), they anticipated finding larger cumulative effects of academic locations in Great Britain than in the United States. Surprisingly, there is more variability in locations by age 28 in the United States than in Great Britain. These larger cumulative deflections in the United States apparently are a function of both structural and normative differences across the two societies. One such difference is that

*Kerckhoff arrayed the positions into a hierarchy, and then assigned the individuals in a particular position the percentile of the overall distribution associated with the position. For example, the conversion of a Trieman occupational prestige score into a percentile would be based on the percentile ranking of that score in the distribution of all occupational prestige scores in the sample.

most British students have obtained their highest educational credentials by age 23, whereas many U.S. students obtain postsecondary credentials after age 22.

FUTURE DIRECTIONS IN THE ANALYSIS OF EDUCATIONAL TRAJECTORIES

The universal acknowledgment of a connection between education and social mobility within societies has led researchers to consider several kinds of questions about educational trajectories. Some of these are descriptive: within a society, have educational trajectories and careers changed over time? And, does the shape of these trajectories and careers differ across countries? Others are more analytical: if there *are* variations over time within countries, or variations across countries, what attributes of these countries can explain this variation? (And if there *aren't* variations over time or across countries, why not?) Such studies (e.g., Shavit & Blossfeld, 1993; Shavit & Müller, 1998) treat the country as the unit of analysis, and attempt to correlate political, cultural, and institutional features of a given country to within-country parameters governing the shape of educational trajectories.

There have been great strides over the past 20 years in characterizing the features of national educational systems, the national occupational structure, and mechanisms linking the two together. The most often discussed features of the educational system are its centralization, that is, the extent to which control over schooling is centralized or decentralized; its standardization, which refers to the extent to which the quality of education meets uniform standards within a country; and its stratification or saturation, which refers to the proportion of a cohort that attains a given level of educational attainment within a system. We might also attend to the amount of curricular differentiation within a given level of the system—the sheer variety of educational qualifications that are available in the system, and when in the educational career this differentiation occurs. There may even be societal variation in the purpose of schooling, which can be viewed either as a feature of the education system itself, or treated as a feature of the linkages between education and the occupational structure. These features are often correlated, such that centralized systems are more likely to be standardized, and stratified systems are more likely to have differentiated curricula. Many of these ideas, and their implications for education and social stratification processes, have been developed and explored in the comparative studies reported in Allmendinger (1989), Ishida, Müller, and Ridge (1995), Kerckhoff (1995, 2000, 2001), Maurice, Sellier, and Silvestre (1986), Shavit and Blossfeld (1993), and Shavit and Müller (1998).

These systemic features have implications for the importance of social origins in determining educational trajectories and careers, and also for the transitions from school to work. There has been less attention to identifying the features of particular transitions that can broaden our understanding of how specific transitions can structure subsequent transitions and achievements. It is likely that the literature on within-school stratification will be especially useful in charting these features.

Some Lingering Tensions

I conclude by drawing attention to four tensions confronting scholars seeking to understand the dynamics of educational trajectories and careers. The first is a tension between the economic and non-economic value of education. The human capital tradition arising from

neoclassical economic theory has argued that workers are rewarded (in the form of wages and other job benefits) in direct proportion to their contribution to their firm's productivity. In this view, acquiring human capital, in the form of education, experience, and/or training, is the central way for individuals to enhance their economic standing. Hence, education is but a means to a more favorable economic end.

Not all educational transitions, however, can be understood as a means to greater economic success. To be sure, work-related education—particularly education that is required as a condition of employment—is primarily instrumental. A similar argument can be made for participation in credential programs, since most credentials have an economic value in the marketplace, either by granting individuals access to more rewarding jobs, or by enhancing their productivity in their current jobs. Conversely, education for personal development is primarily non-economic, since the value of such education lies within the individual, and not in its exchange value in a market.

With few exceptions (e.g., Antikainen, Houtsonen, Kauppila, & Huotelin, 1996; Edwards, 1993; Luttrell, 1997; Pallas, 2002), studies of educational trajectories have emphasized the decision to acquire education as an instrumental, economic phenomenon. This is an overly narrow view, particularly in the context of the growing importance of the self as an organizing feature of modern life (Meyer, 1986). It may be increasingly important to consider participation in education as an expression of the self, as well as to consider education's economic value.

The second tension, pitting parsimony against complexity, pertains to the challenges of summarizing heterogeneous systems. Having developed some ways of classifying educational systems that are useful, there is a tendency to employ the categories in ways that may mask the variability within a system. For example, it is common to describe a country's education system in terms of standardization and stratification, features that Allmendinger (1989) emphasized in her analyses comparing the educational systems of the United States, Norway, and West Germany. But one of Allmendinger's key insights is that within a country, the amount of standardization and stratification might vary across the primary, secondary, and tertiary levels of the educational system. Her analyses led her to locate Norway differently for primary schooling than secondary schooling. Although both the primary and secondary schooling systems in Norway are stratified, Allmendinger characterized primary schooling in Norway as unstandardized, and secondary schooling as standardized. And although there is little standardization at any level of schooling within the United States, she reported primary and secondary education to be relatively unstratified, and tertiary education to be highly stratified.

I refer to the third tension as the tension between politics and markets. Most research on educational careers treats political boundaries as isomorphic with market boundaries. There is a natural tendency to assume this, particularly in nation-states that have centralized and standardized education systems. But the standardization of the system does not necessarily imply that the arena in which educational qualifications are matched with employers' needs is national. We need to pay more attention to the boundaries of actual markets, as these are defined both by individuals' willingness to consider positions in various geographic locations, and by how employers circumscribe where they look for pools of prospective workers (cf., Breen & Rottman, 1998). Similar dynamics may be at play in matching individuals with educational opportunities.

And the final tension is between macro- and micro-perspectives on educational trajectories and careers. The dividing line between macro- and micro-phenomena is anything but clearcut, but it is fair to say that what is largely missing from the literature is attention to theories of individual action—that is, theories of the educational and occupational choices that

individuals make—that could produce the educational transitions and trajectories that have been the subject of this chapter. This is a point that Goldthorpe and Breen have made in a series of papers over the past several years (Breen & Goldthorpe, 1997; Goldthorpe, 1996). They set out to explain why class differentials in educational participation rates persist even in the face of educational expansion. Drawing on rational action theory, Breen and Goldthorpe developed a mathematical model of educational decisions. Although it has long been recognized that some individuals may benefit more from educational investment than others, the model provides new tools for understanding how individuals might incorporate the risk of failure into the rational calculation of costs and benefits that underlies a view of education as an investment in human capital.

What are still lacking are compelling theories of how social origins and institutional arrangements within countries shape individuals' beliefs about what kinds of choices are possible, with what likely costs and benefits, and what likely probability of success. Such theories may help us bridge the macro–micro divide that bedevils so much of the sociological enterprise, by linking subjective experience to large-scale social structures.

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