Survey Article

Conceptual and methodological innovations in research into educational inequalities*

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Abstract

This paper provides a survey of the key thematic and methodological milestones in research into educational inequalities. The article focuses on authors and concepts that introduced major innovations and contributed to significant advancements in the analysis and knowledge of educational inequalities. We have distinguished three periods, focusing on two key concepts in each. The first period is represented by the basic model of the process of stratification and the social-psychological model. The second period includes the educational allocation concept and the theory of maximally maintained inequality (MMI). Finally, the third period is described on the grounds of the multinomial transition model and the theory of effectively maintained inequality (EMI). Across these development stages, three of the above-mentioned concepts are presented as breakthrough methodological innovations while another three concepts are viewed as thematic (interpretational) innovations, closely linked to the development of quantitative methods used to analyse educational inequalities.

Keywords: educational research, access to education, educational inequality, measures of inequality

Introduction

Since the second half of the 20th century, merit-based educational status attainment has been one of the key questions addressed by researchers examining the educational dimension of social stratification. Undoubtedly, research in this field was initiated by the deep social changes that commenced at the time of the Industrial Revolution and gained momentum after World War II. Profound social and economic changes influenced the understanding of the role of education in society, while education began to be seen as a mediator between individual abilities and the resulting social position. At the same time, this development was accompanied by a shift in the distribution of the three key status attributes: education, occupation and income. In this context, educational

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achievement became more decisive than social origin.

Research into educational inequalities implicitly includes a definition of an equal and just access to education. In most cases, equal access to education is understood as equal access to education of comparable quality (i.e. with equal educational conditions and equal rules for achievements). Under such circumstances, any resulting inequality can be considered just, as it ensues from differences in individual abilities, efforts and performance; in other words, the resulting system can be called meritocratic (for a closer explanation of the present view of justice in education see e.g. Hutmacher, Cochrane, Bottani 2001). Thus, differences in academic achievements are limited to an unavoidable minimum on the grounds of personal abilities rather than socialization and higher or lower quality of schools. However, empirical studies can hardly hope to identify where the handicaps of social origin end and the sphere of specific abilities, capacities and talents begins.

In our article, we focus on the progression of solutions to this problem. Doing justice to all the researchers studying educational inequalities within the field of social stratification research would go far beyond the scope of this paper; therefore, we are focusing on the key milestones in the short history of this research. As there are some relatively major turning points marking crucial conceptual, statistical and methodological differences, we propose to divide the history of research into educational inequalities into three periods.1) The first period took shape in the 1960s and 1970s with the development of the basic model of the process of stratification (Blau, Duncan 1967) and the social-psychological model of the status attainment process (Sewell, Shah 1967; Hauser, Tsai, Sewell 1983). In terms of methodology, analyses of educational inequalities in this period were based on linear regression, developed in the form of a path analysis. The second period goes back to the 1980s and 1990s and was mainly influenced by the notion of educational allocation (Mare 1980) and the theory of maximally maintained inequality (MMI) (Raftery, Hout 1993). Methodologically, the analyses in this period were based on the sequential model of logistic regression of educational transitions. Finally, the first decade of the 21st century marks the third period. It is framed by the multinomial model of educational transitions (Breen, Jonsson 2000) and the theory of effectively maintained inequality (EMI) (Lucas 2001).

1. Theoretical and empirical approaches explaining the origin and reproduction of educational inequalities

There is a wide range of theories explaining how educational inequalities emerge and reproduce. Authors who can be considered advocates of the cultural reproduction theory view the established social inequalities as the cause and driving force of the subsequent school selection. According to these authors, reproduction of educational inequalities is influenced by various mechanisms, e.g. different ways of communication - in particular the degree of its abstraction (Bernstein 1975; Heath 1983), the acquisition of the working class counter-school culture (Willis 1977) and a class-determined inclination to the achievement ideology (MacLeod 1995). On the other hand,
authors who are considered supporters of the social reproduction theory see school and school selection as the cause of social inequality – in their view, these are government instruments to socialize children within the classes of their social origin. According to them, schools act, for example, in the interest of the state ideology (Althusser 1971) or in compliance with the theory of correspondence with a capitalist economy (Jencks 1972; Bowles, Gintis 1976), or simply encourage the intergenerational transmission of class-specific values (Kohn 1977). Both perspectives, i.e. cultural and social reproduction, emphasize linguistic abilities and cultural knowledge, which are transformed into personal merits at school and become the dominant prerequisite for school achievements (Bourdieu, Passeron 1964; Bourdieu 1973). Finally, according to a rather extreme school of thought, the result of school activity in a capitalist society can be regarded as passive consumption of social order, which can only be overcome by a deschooling of society (Illich 1971).

All these theoretical concepts form an important (though imperfect) instrument to explain the emergence and reproduction of educational inequalities. Empirical analysis of educational inequalities – measurement of educational inequalities in the respective social classes and societies and in a time framework – forms an indispensable prerequisite for identification of the mechanisms of educational status attainment. Since the second half of the 20th century, methods of measuring educational inequalities have undergone rapid developments and improvement – to date, several different methods have been applied in sociology of education. Thus, from today’s point of view, that the research in this field has seen a certain development. The individual measurement methods are related to each other, while each succeeding approach corrects the imperfections of its predecessor. However, sociologists did not completely abandon older approaches to analyzing educational inequalities after the new methods were introduced.

Below, we will try to provide an instructive outline of the developments in the field of research into educational inequalities and to highlight the key milestones regarding knowledge and development of the measuring instruments applied. With the benefit of hindsight, we would like to show that empirical research into educational inequalities must be considered an independent part of social stratification research with its own history, methodology and findings. For the sake of completeness, it should be mentioned that contemporary empirical analyses of sociology of education only focus on measurement and explanation of inequalities, addressing the questions of justice within the intentions of Weber’s value-neutral sociology only superficially, and leaving moral judgments to philosophers (most recently e.g. Swift 2003). Implicitly, the fact that not all inequalities are caused by socialization is taken into account: certain educational inequalities are influenced e.g. by differences in native intelligence (Fraser 1995).

2. First period of empirical research into educational inequalities

The first period of social stratification research dates back to the 1960s and 1970s. Thematically, this period focused on the identification of the social and economic factors influencing the education
attained. Out of all the concepts formulated at that time (Jones 1971; Kerckhoff 1974; Treiman, Terrell 1975; Hauser 1972; Featherman, Hauser 1978), two social stratification models are most typical of this period: the basic model of social stratification of Blau and Duncan and the social-psychological model of Sewell and Hauser.

2.1. Blau and Duncan – basic model of social stratification

Thanks to a clear emphasis on education introduced by P. Blau and O.D. Duncan (1967), the 1960s saw a turnaround in social stratification research. They assumed that the industrialization process raised the value of education and occupational qualifications and tried to show empirically the influence social origin has on the occupational status attained. Therefore, they studied the dependence between social origin, education and embarking on a career as well as their direct and indirect impacts on the job position attained. In their view, ascriptive factors should decrease and vanish as an historic relic. The application of the path analysis to break down the correlation between a father’s occupation and that of his son into partial causalities influenced by intervening variables (father’s education, son’s education and income) represented a major methodological breakthrough in their research. Blau and Duncan asked the following fundamental questions: How and to what extent do the circumstances of an individual’s birth influence the status attained? How does, in a certain phase of the life cycle, the (ascribed or attained) status influence the prospects for the following phase? Are the inferior job opportunities of some groups of people caused by their inferior education or by some other factors?

To this end, Blau and Duncan developed a ‘basic’ model to determine occupational status, consisting of five basic standardized variables: 1. father’s education; 2. father’s occupational status; 3. respondent’s education; 4. status of respondent’s first job; 5. status of respondent’s job in 1962 (time of research). While education was classified into categories 1 to 8 according to the number of school attendance years, occupational status was indicated by the socio-economic index (SEI) from 0 to 96, elaborated by Duncan as follows: SEI = 0.59*income + 0.55*education – 6.0. Theoretically, Duncan maintained that occupation is an activity that links education and income. He used this equation to predict the socio-economic status of all contemporary occupations in the USA; later on, his approach became the basis for deriving the International Socio-Economic Index of Occupational Status (ISEI) (Ganzeboom, De Graaf, Treiman 1992). Using the path analysis and linear regression methods, the authors identified the decreasing effect of the ascriptive factors (social origin) and estimated their relative significance in all age cohorts. Their main conclusions about the attainment of occupational status were as follows:

1. The status of the respondent’s present occupation is influenced by the level of education attained rather than by his first occupation.
2. The level of education attained by an individual has far more (direct and indirect) influence on the occupation attained than does his father’s occupation.
3. The influence of education on the final occupational position has increased in the past few years.
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decades. In all examined age cohorts, the correlation between education and occupational status is considerably higher for the respondents than for their fathers.

4. The son’s occupational status depends directly on his level of education and his father’s occupational status, and only indirectly on the level of education attained by his father.

5. The respondent’s income depends directly on his occupational status and his level of education, and only indirectly on his father’s educational and occupational status.

In general, Blau and Duncan documented that the average level of education had been increasing over time, while educational inequalities had been diminishing. However, their empirical examination only accounted for education in the form of accumulated years of school attendance. Besides this, they applied the linear regression method, which is unable to reveal changes in educational allocation (i.e. the social origin of school graduates). In reality, the decreasing influence of social origin on the level of education attained by individuals they documented was caused, besides increasing educational opportunities, mainly by changes in educational allocation principles.

2.2. Sewell and Hauser – social-psychological model

Whereas Duncan tried continuously to improve his model (the ‘expanded model’), e.g. by adding the variables of intelligence, income or number of siblings (Duncan 1968; Duncan, Featherman, Duncan 1972), the key invention of the social-psychological model was – as the name implies – including social-psychological characteristics in the basic Blau-Duncan model (i.e. aspirations, motivations, values, influence of primary groups etc.). This approach emerged at the time when the above-mentioned basic model was published. The authors of the social-psychological model did not counter the opinion that the school system was a selection and sorting mechanism based on the abilities of students, but pointed out the view’s limitations and elaborated on it by identifying further essential characteristics to it. Sewell and Shah (1967) and later Sewell, Haller, Portes (1969) argued that education of the same quality was not accessible by everyone, examining the impact this had on further educational opportunities, and moreover they emphasized the role of aspirations, cultivated mainly in the family. The social-psychological model ensued from an effort to establish a reality model to explain primarily the size and role of class differences in aspirations (i.e. their social conditioning), as a large part of these remained unexplained.

This model, *inter alia*, revealed the direct impact of an individual’s mental abilities on the degree of influence of the relevant environment, verified by the next, modified version of the model (Sewell, Haller, Ohlendorf 1970). The next version also revealed the direct impact of school achievements on educational aspirations and the education attained. In general, the model documented that educational and occupational careers are influenced by social origin and mental abilities (as already shown by the Blau-Duncan model) and that their influence is conditioned by social-psychological mechanisms. The model concluded that the contemporary educational system in the USA was open and contributed to reducing inequalities. The methodological improvements of the model known as the ‘Wisconsin Model’ (Sewell, Hauser 1972; Hauser, Tsai, Sewell 1983) addressed the questions of defining latent
variables and monitoring the measurement errors of the main variables and the correlations between them.

3. Second period of empirical research into educational inequalities

The second period of empirical research into educational inequalities dates back to the 1980s and 1990s. The concepts that were developed at this time responded to the methodological and thematic limits of the concepts of the first period, using major methodological-statistical advancements that occurred in social science in the second half of the 1970s (see Bishop, Fienberg, Holland 1975). This period includes two major concepts: educational allocation and the theory of maximally maintained inequality (MMI) in education.

3.1. Robert Mare’s concept of educational allocation

A drawback to the works of the first period was the application of the linear regression model to determine the highest education attained and unfamiliarity with the concept of odds when describing access to education. In this respect, Mare’s work (1980, 1981) and his innovative “transition” approach constituted a breakthrough. Mare separated two different views of educational inequalities, both theoretically and methodologically: inequalities in educational distribution (i.e. dispersion in the distribution of formal education) and the odds that children from various social classes would attain a certain level of education (allocation of education). As explained above, the methodology of research into educational inequalities assumed for a long time that the increasing percentage of people attaining higher levels of education hinted at declining educational inequalities (Blau, Duncan 1967; Featherman, Hauser 1978). However, Mare (1981) introduced a new concept: his transition model revealed the influence of social origin on the transition from one level of the educational process to the next. Obviously, as transitions differ in their significance, there are also differences concerning the level of influence of social origin. In Mare’s view, the logistic model of determining continuation of studies can be used to measure the attainment of a certain level of education by a set of probabilities to express the odds of an individual continuing with his or her studies to achieve a certain level, provided he or she completed the previous level. Such a differentiation of the educational process into levels separated by the respective transitions makes it possible to analyse the trends and differences at the individual levels without the influence of the overall proportion of individuals passing from one level to the next.

As proved by Mare, the influence of social origin on the highest level of education attained may decrease due to improving educational opportunities (i.e. provided educational inequalities are viewed from the perspective of educational distribution); yet at the same time, the impact of social origin on the odds that the transition between the individual groups will be successfully mastered may remain unchanged or even grow.

Mare (1993) also illustrated the vulnerability (and the limits) of the previous methods used to
measure the influence of social origin on the educational trajectory of an individual. According to Mare, unmeasured educational determinants (ambitions, motivation, aspiration, intelligence) may change the size of the observed effects of family origin and the way the implementation of these effects is explained. What is ascribed to the differences in the process of educational attainment was, in reality, caused by “unobserved heterogeneity”. Using several models, Mare demonstrated how significant the influence of heterogeneity may be, and how estimates that disregard the effects of heterogeneity can be improved by means of sibling data. In fact, siblings usually share common “unobserved heterogeneity”.

However, given the limitations of the available data sets, which usually include incomplete data on the respondent’s family background, Mare’s “sibling” approach to multicausality is difficult to apply.

3.2. Maximally maintained inequality – Raftery and Hout
Raftery and Hout (1993) formulated several hypotheses and joined them in the model of maximally maintained inequality (MMI). According to MMI, class barriers to access to education are a matter of supply and demand at any level of education. The authors based their hypotheses on the fact that although tuition fees were removed and other egalitarian reforms were implemented in Ireland in 1967, the effect of social origin on educational transitions did not change between 1921 and 1975 among cohorts; only overall class differences in educational attainment were reduced. The removal of tuition rather favoured families which would have their children studying under any circumstances, without improving access to secondary education for children from less advantaged social backgrounds.

So what does MMI mean? It states that the proportion of students undergoing the educational transition and the odds ratios of students from various social backgrounds in the given transition remained the same among different cohorts until such time as they were forced to change due to increased numbers of enrolled students. This applies: 1.) if a population increase coincides with a natural rise in the standard of living (social origin), because secondary school and university enrolment rates thus increase. In such a case, social origin-related transition rates do not change; 2.) if the education expansion causes enrolment numbers to rise faster than the demand. This brings about redistribution of study places among inter-class applicants and the inter-class transition rates increase, while preserving the class odds ratios; 3.) if the demand for the relevant level of education is met by the highest social classes, i.e. if the highest social class transition rate nears 100%. In such case, the odds ratios decrease – the association between social origin and education attained grows weaker. At the same time, the resulting reduction in educational opportunity inequalities is observed only if the expansion is not counterbalanced in any other way.

All of the above indicates that the MMI hypothesis is corroborated if: 1) higher social classes exhibit higher success rates in educational transition; 2) the total participation rate in education does not decrease; 3) occupational structural mobility favours higher-prestige or higher-status jobs. Importantly, transition rates and inequality rates (measured by odds ratios) will remain constant
unless changed due to growing enrolment numbers. This is related to another key conclusion: the educational dimension of social origin is at its strongest in the primary and secondary school transitions, weakens upon completion of secondary school and is insignificant in the secondary-tertiary transition, which means that class is the strongest factor in the first transitions. In light of this summary, it is easy to deduce that the post-War expansion of secondary education in Ireland reduced class differences not because class no longer influenced secondary school enrolment but because the student selection process became less selective. Last but not least, although the MMI hypothesis builds on the analysis of Irish data, its application in at least 13 other countries revealed that the MMI theory is, most probably, valid in a more general context (Shavit, Blossfeld 1993).

4. Third period of empirical research into educational inequalities

The third period of educational inequality research has not ended yet. It began in the early years of the new millennium. As in the second period, concepts designed in this period originated in response to the shortfalls and limits of the concepts of the previous period. The multinomial transition model and the effectively maintained inequality model (EMI) are the key concepts of the third period.

4.1. Multinomial transition model— Breen and Jonsson

Breen and Jonsson (2000) developed a crucial innovation of Mare’s transition model. In their model, Breen and Jonsson reflected on the fact that education systems often include formally equal parallel branches of study. Mare’s model relies on an implicit assumption of the unilinearity of educational trajectories. Breen and Jonsson, on the contrary, pointed out that not all individuals follow the same trajectory, but that there are parallel alternative paths of study (e.g. vocational or academic). In effect, they determine the probability of success in the subsequent transitions where graduates of the (formally) same level of schooling may never meet.

Breen and Jonsson thus replaced Mare’s logistic model with a multinomial model taking into account previous trajectories. According to Breen and Jonsson, the educational trajectory chosen by the student (i.e. the type of completed schooling) affects the probability of success in further transitions, including the probability of completing the school of enrolment. According to the authors, the multinomial model is also robust in revealing unmeasured heterogeneity. In their model, Breen and Jonsson found out that class origin affects the probability of success in the first transition (transition from primary to secondary school) and the second transition (secondary school completion) in a much stronger manner than Mare suggested, whereas they believed the effect on the tertiary transition to be less.

Mare’s model of sequential educational transitions was also a basis for theories explaining (empirically verified) persistent class differentials in the educational attainment process (e.g. Shavit, Blossfeld 1993). Indisputably, the most significant of these is the relative risk aversion model (RRA), which applies rational action (or rational choice) theory (RAT) and class theory (Goldthorpe 1996;
Breen, Goldthorpe 1997) to these phenomena. The relative risk aversion model focuses on educational decisions, by which, the theory tries to show, every individual attempts to achieve that level of education that allows him/her to at least maintain their present social class, if not to obtain a higher one. RRA also takes into consideration the effect of variously demanding educational alternatives, which represent different probabilities of success. Methodologically, the empirical verification of this theoretical model resulted in the use of Breen-Jonsson’s multinomial transition model (a reformulation and empirical testing of RRA model is possible to find in Breen, Yaish (2006)).

4.2. Effectively maintained inequality – Samuel Lucas

In his effectively maintained inequality (EMI) theory, Samuel Lucas reacted to the MMI theory, criticising it for assuming that, given universal access to schooling, there are no inequalities at a given level of education. Lucas pointed out the qualitative differences at the same level of education – focusing specifically on tertiary education – due to selection to various types of schools. In this respect, his theory may appear similar to Breen-Jonsson’s critique of Mare’s unilinearity of progress through the education system. Even though Lucas’ criticism is applicable to all levels of the education system, it is particularly valid as a warning against overlooking the negative side-effect of university education expansion (i.e. massification). Even after reaching the saturation point at this level of education, there is a major risk that the unequal chances for educational attainment are (or will be) replaced by unequal chances for enrolment at “better” universities. While contributing to a greater participation of lower-class individuals in schooling, the “differentiation” of educational trajectories accompanying education expansion also poses a risk that such individuals will only have access to schools of lesser quality, i.e. differentiation will turn into diversification (Brint, Karabel 1989).

Lucas claims that students deciding whether or not to continue with higher levels of education rely specifically on their last best achievement. In this case, we need to go back to what is suggested by rational choice theory (Goldthorpe 1996; Breen, Goldthorpe 1997) and the MMI model: students and their families make decisions concerning further studies on the basis of a cost-benefit analysis. The actual cost (in units of benefit) is higher for lower-income families and vice versa. Lucas disputes the conclusion by Mare and the authors of the MMI theory that the effects of social origin grow weaker in transitions to higher levels of education on saturation nearing 100%. Lucas argues that it is not enough to state that access to a given level of education is universal in terms of quantity, but maintains that the question of comparable quality of education in relation to social origin must be addressed.

EMI has thus sought to merge the sequential decision model with a model of students seeking transitions, i.e. examining the movement of students in the stratified curricula. It differs from the MMI theory in taking into account the fact that the decision concerning their further educational careers made before entering the tertiary level – in the final year of secondary school – depends on
their social background. Decisions made in lower transitions will “dilute” the actual effect of social background in higher transitions. Thus, EMI seeks to marry two dominant streams of research in educational inequality. 1) The first is educational transition research, which claims that social background effects decrease the higher the transitions are. 2) The second dominant school of thinking is education tracking research, which stresses the qualitative branching of the education system. As mentioned above, EMI strives for a convergence of these two dominant schools of thought in educational inequality research (Lucas 2001).

5. The three periods of educational inequality research: methodological perspective

It has been clear since the early days of social stratification research in the 1950s that parents cannot be automatically compared with their children and that the extent or change of educational inequalities cannot be documented purely on the basis of a simple difference between them.\(^4\) The structure of education has been changing – particularly due to government actions and measures – and the extent of educational inequalities has been changing in parallel. Simply by comparing parents and their children we can identify \textit{structural} (and sometimes \textit{enforced}) changes in education, which, however, co-exist with \textit{net} chances or opportunities of educational attainment, particularly in light of the child’s social origin. For a long time, it was a challenge for many a researcher of social stratification in educational inequalities to separate structural from net changes in such parent-child comparisons. In other words, it has been difficult to say whether established inequality in education is more a reflection of structural changes in the education system or a reflection of equal opportunities in education.

Blau and Duncan (1967), representing the first period of educational inequality research, declined to make the above distinction in the “basic stratification model”. They demonstrated that the difference between a father’s education and that of his child does not and cannot correspond with the structural educational shifts, because the sample of fathers either is not representative or is derived from children subjected to measuring (cf. also Duncan 1964). The different age of children at the time of survey makes it impossible to identify one generation of fathers. Furthermore, men with no children who are part of the generation of parents are left out of the survey, while fathers with more children would be over-represented in such a survey. The most important criticism, however, is the “transferred representativity” as presupposed by the simple comparison of the education of parents and children. The population of children is representative at the time of data collection, but the population of their fathers is not – it does not represent one generation. Duncan and Blau (1967) therefore suggest dealing with educational inequalities at the time when data is gathered (and avoid the retrospective in their analysis) while treating social origin and father’s education as a variable affecting the child’s educational attainment.

In terms of methodology, educational inequalities are analysed in a \textit{linear regression model}, becoming the base of the path analysis (Duncan 1966a; Duncan 1966b). The chief objective of this
analysis is to explore the effects of certain factors affecting not only educational attainment, but also occupational status and in particular how they relate to each other (when other factors are under control). Under this approach, variables are treated as cardinal – educational attainment is indicated by the number of years in school).

The path analysis was later elaborated into structural modelling methods (Jöreskog 1970; Duncan 1975; Bielby, Hauser 1977) and has expanded into other areas of social science research as well. Nevertheless, these techniques were typically used in the 1960s and 1970s in particular. And it was mainly because of its way of treating the variables as continuous (cardinal) that these techniques were abandoned over time. Even though this approach allowed for expressing the relations between variables using only a few parameters, the arguments that social variables are not cardinal in themselves (failing to meet the requirements of a normal distribution while being inexpressible as an arithmetic average, standard deviation or correlation coefficient) grew stronger and the path analysis and structural modelling methods were slowly phased out in educational inequality research in the 1980s and 1990s.

From the methodological point of view, the second period in social stratification research into educational inequalities is characterised by the use of the sequential model of logistic regression of educational transitions. Educational attainment was no longer perceived as a continuous variable and was not defined by the number of years spent in school. It is the bare fact of whether the given education exists or not that is relevant. Structural effects on educational inequalities are cleaned up by transforming the effects of odds and odds ratios. Moreover, the model takes into account the sequence of levels of education – that a lower level of education is always a prerequisite for a higher level of education. Educational attainment is thus defined as a sequence of transitions from one level of education to another. The objective is to model the effects of individual explanatory variables on the transition odds for these levels of education. This model builds on the fact that each level of education is characterised by a certain type of student and a method of student selection. Moreover, the model is suitable for a cohort comparison of individual transition odds. To some extent, it could be used as an indicator of the change in educational inequalities over time (Mare 1980; Müller, Karle 1993; Shavit, Blossfeld 1993).

Application of the sequential model of logistic regression of educational transitions in the 1990s revealed several limitations in this approach. Firstly, the model presumes that all individuals progress through the schooling system in the same way, assuming transitions from the lower to the higher levels of education only. Critics of this model (Breen, Jonsson 2000; Lucas 2001), however, point out that the difference between an apprentice training school and a grammar school, is difficult to account for in the sequential model of logistic regression. That is why Breen and Jonsson (2000) developed an alternative model for educational inequality analysis in the late 1990s: the multinomial model of educational transitions.

The second limitation of the sequential model of logistic regression of educational transitions is that the effects of the individual variables identified in this model can result from an unobserved
The question is whether the model describes the actual effects, or whether it describes effects distorted by other unobserved variables (Lucas 1996). In this context, the debate focuses particularly on the directly proportionate drop in the social background effect on individual sequential transitions. Recently, Lucas (2001) put forward a potential solution to this problem. He demonstrated that studying access to education on the grounds of observing transitions can be an adequate and legitimate approach, but that the model must also include explanatory transition odds variables which – similarly to the dependent variable – do not change over time. From the methodological and statistical point of view, both the multinomial educational transition model (Breen, Jonsson 2000) and the process of accounting for the time variability of explanatory variables in the sequential model can be considered a break between the second and the as yet unconsolidated third generation of social stratification research into educational inequalities.

Conclusions

The method of measuring unequal access to education has undergone tremendous development and has been shaped by many researchers seeking to design the best possible analytical tools. In our opinion, three major methodological innovations can be identified in the track-record of empirical concepts examining educational inequalities up to now, along with three major interpretation innovations linked closely to the development of quantitative methods employed in educational inequality analysis. In this text, we suggested distinguishing three crucial periods defining the three major stages of the development of empirical research in this area up to now. The third and latest period is ongoing and is still in flux. Therefore, current work is characterised by efforts to differentiate between various levels of quality in various branches of schooling, as made possible by the multinomial educational transition model.

Simple or multinomial regressions have also been used in recent attempts to prove EMI. The analyses address how horizontal aspects of college education play a stratifying role (Gerber, Cheung 2008), further, the differences in educational attainments and income between university and public and private colleges’ graduates in Israel (Shwed, Shavit 2006), parental influence on their children’s fields of study in the Netherlands (Werfhorst et al. 2001) and in Britain (Werfhorst et al. 2003) and also possible reasons for declining class inequalities in educational attainment in eight European countries (Breen et al. 2009). Last but not least, it is necessary to highlight a formal analysis trying to suggest future research directions in an attempt to find whether RRA or EMI apply in an explication of the social origin impact on children’s education (Lucas 2009).

Current research into educational inequalities is also attempting to distinguish analytically between the differences in chances for education based on social origin and ability to study (IQ) (on one side) and differing class decisions regarding educational career that flow from individual aspirations and from reactions to actual possibilities that arise for individuals to achieve a certain social standing (on the other). The analysis of these primary and secondary factors of social origin is, from a theoretical
point of view, a continuation of the fore-mentioned Breen-Goldthorpe model (relative risk aversion theory), which proceeded from Boudon’s conception of these primary and secondary factors of social origin.

According to Boudon, the effects of social origin can be divided into primary and secondary ones. While primary effects are materialised in the association between an individual’s social origin and school results (i.e. they involve both the genetic transfer of intelligence and the material conditions or socio-cultural factors affecting performance), secondary factors influence the student’s decision about his/her further educational career (at a specific educational transition), while using the resources that are available to him/her (Boudon 1974: 29-30). These decisions, which are independent of the academic results achieved, are also determined by social origin – they can be affected by parents, classmates and the school, as well as the social situation, i.e. structural (class) restrictions.

Empirically, it is a counterfactual analysis that is methodologically founded on binary logistic regressions undertaken for each individual social class. The analyses carried out so far have attempted to establish the share to which social influences fall under primary or secondary factors (see Erikson et al. 2005; Erikson 2007; Jackson et al. 2007; Kloosterman et al. 2009). Analytically, primary effects catch how social origins project into levels of academic performance and secondary effects record to what degree students with favorable social origins choose more serious tracks of study, that is the educational choices student makes on the basis of his/her performance depend on origin (where ambitions and aspirations enter into the game). In the first phase of analysis it’s about separating the dependence of academic performance on social origin from the dependence of subsequent educational choices on social origin (in the situation on the same academic performances). In the next phase, it’s about quantifying of primary and secondary effects and establishing their share in creating class inequalities in the access to education with the help of counterfactual analysis. This method, introduced by Erikson and Jonsson (1996) and later further developed (see Erikson et al. 2005), can be used to identify the relative importance of primary and secondary effects with the help of an integration procedure. Counterfactual analysis itself uses a hypothetical intervention when transition rates of one group of students are estimated given a performance level of another group of students and vice versa, i.e. the school performance distribution of students belonging to one social class is combined with the educational choice distribution of students belonging to another social class (for the details see Erikson et al. 2005 or Jackson et al. 2007).

For future research into educational inequalities to be up-to-date and for it to tellingly give evidence on the persistence of these inequalities in postmodern society from one generation to another, it will have to consider not only the social origin of individuals but also the educational institutions and these secondary factors. In this way, both our understanding and our method of doing social science research will again take another significant step forward. We can only look forward to these studies comparing (not only) individual European countries.
Notes:

1) Typically, four generations of social stratification research are distinguished; these four generations differ in data analysis methods, the nature of data, type of the research topics, hypotheses and research findings (Ganzeboom, Treiman, Ultee 1991; Treiman, Ganzeboom 2000). Although the history of research of educational inequalities and the history of social stratification research overlap in part, they are not identical. For this reason, the generation concept defined in social stratification research cannot be mechanically applied to research of educational inequalities.

2) The reason why the MMI theory became so acknowledged among researchers of educational inequalities can be put down to the fact that it offered the answer to the question why relative inequality (recorded by the transition model, that is the approach developed by Mare (1980)) did not drop even when the system of tertiary education expanded. In addition to other studies it is possible to find evidence for this lack of decrease in inequality especially in the work of Shavit & Blossfeld (1993).

3) In the context of the sociology of education, according to the rational choice theory, individuals are motivated to compare the costs and benefits, which are not identical for all classes. While, in the case of higher social classes, the losses caused by possible academic failure are not a major deterrent during decision-making, such losses are relatively more costly for lower social classes (the risks related to failure are higher), and, therefore, such decisions are motivated by efforts to avoid or significantly reduce the consequences of failure.

4) This part of the paper draws from the methods of research into educational inequalities done in the context of RC28 (Research Committee for Social Stratification and Mobility of International Sociological Association). It would be possible to similarly describe the methodology of other research groups (pedagogical, psychological, or socio-politically oriented scientists), whose models and approaches might differ from the models and approaches in the methodology of RC28. However, a description of possible differences is not the subject of this paper.

5) In social stratification research, odds and odds ratios are used to measure inequality in accessing class positions according to class origin of individuals. In educational inequality research, odds ratios are (similarly) used as indicators in measuring the inequalities of access to individual levels of education with respect to the initial class position. As proven by mathematical evidence, odds ratios are important in that they are affected by neither marginal frequency, nor by the total number of subjects (Powers, Xie 2000). This rate is therefore believed not to be affected by structural changes. Today, however, some authors dispute this odds ratio characteristic (cf. Swift 2004; Ringen 2000; Hellevik 2007). However, arguments presented by such authors have not been convincing enough to unseat odds ratios as the dominant method of analyzing unequal opportunities (in educational and class contexts) within empirical social research.

6) We have placed the RRA model within the context of Breen and Jonsson’s multinomial transition model, although it was originally put forward as a sequence of binary logistic regressions. This depends, however, only on the character of the concrete educational transitions as to how many categories must contain dependent variables (two or more). In 2000, multinomial regression was introduced into the research of educational inequalities, meaning either binary or multinomial regression could be used to verify RAT theory for specific data. It is possible to say then, that the RRA model and the RAT theory weave through both the last two conceptual and methodological phases.

References


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理論と方法