1. Key challenges for the sociology of education: theoretical, methodological, and empirical issues*
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1. WHAT IS SOCIOLOGY OF EDUCATION?

In the last 25 years, interest in the sociology of education has increased tremendously in social sciences research, but also in the politically interested public spheres. This is indicated by the flood of research projects and publications dealing with topics in sociology of education as well as the increased demand of politicians for scientific reports on education as a social question. Additionally, research institutes have been founded and professorships have been established which focus on research questions typical of modern sociology of education (Becker 2017). Furthermore, it is obvious that researchers in educational science, psychology, economics and political science are increasingly interested in research questions belonging to the domain of sociology of education. Examples are educational trajectories, individual decisions on investment in education, development of skills in an individual's life course, policies regarding the educational system, and social inequality of educational opportunities (Solga and Becker 2012, p. 10; see in this volume: Blossfeld et al., Chapter 2; Erikson, Chapter 3; Weinert and Artelt, Chapter 7; Kriesi and Imdorf, Chapter 11; Birgit Becker, Chapter 13; Holtmann and Bernardi, Chapter 14; Dollmann, Chapter 15; Kleinert and Jacob, Chapter 16; Kogan, Chapter 18; Powell and Pfahl, Chapter 21; Lechner et al., Chapter 23; Hanushek and Woessmann, Chapter 25; and Nauck, Chapter 26). However, it has to be emphasized that sociology of education is not a novel science which analyses education (see in this volume: Hillmert, Chapter 5; Dominik Becker, Chapter 19) and educational systems from a sociological perspective (see in this volume: Skopek et al., Chapter 12; Neugebauer, Chapter 20). It has a long tradition which began around the end of the nineteenth and the early years of the twentieth century along with the establishment of sociology as an autonomous science. The establishment of the discipline also coincided with the institutionalization of the public educational system and mass education as a pivotal characteristic of the occidental project of modernization (Karabel and Halsey 1977; Arum and Beattie 2000).

Therefore, one could assume that sociology of education is a sociological discipline – maybe a special field of sociology – providing a clearly defined subject and a well-established programmatic core of questions, theories and methods. Obviously, this is not the case. In sociology of education, we actually find a rich collection of different theoretical, methodological and empirical approaches (Solga and Becker 2012; Arum et al. 2010; Ballantine and Hammack 2008; Scott and Marshall 1998). Today, modern sociology of education is not monolithic but a broad research area with loosely defined boundaries, embedded in sociology with relations to other social sciences (Levinson et al. 2002; Hallinan 2000; Halsey et al. 1997; Richardson 1986). We find neither a coherent paradigm nor a unique research programme (Saha 1997). Like sociology itself, sociology

of education is characterized by pluralism of different theoretical approaches or scientific programmes existing side by side as well as by different methods and empirical procedures used for the analysis of different subjects. It is a part of sociology and the interdisciplinary research in education. Sociology of education belongs to the empirical social sciences and, providing fertile research activities, it is one of the most innovative areas in sociology (Becker 2017).

However, what is sociology of education? How can we define this social science discipline? The answer 'sociology of education is what sociologists do in sociology of education' is tautological and therefore rather useless. On the one hand, it is true that a number of studies in sociology of education do not deal directly with questions of education but are related to research problems stemming from the sociological research in social stratification and mobility (Becker 2017; Solga and Becker 2012). On the other hand, we have to take into account that each of the definitions is arbitrary. Definitions are neither wrong nor true, but they can be useful or less pragmatic.

Considering the most recent research in sociology of education, we prefer the following definition of sociology of education as an empirical and social science discipline: sociology of education should mean the sociological research of economic, cultural, political and social-structural frameworks of formal and informal educational processes (e.g. educating, schooling, opportunities for learning, enrolment in the educational system, attainment of certificates, educational trajectories) as well as their individual and societal preconditions and consequences. It should also include research on the significance and development of educational systems, with special attention to social inequality and societal differentiation. The aim of sociology of education is to achieve a systematic description and explanation of (1) educational processes and their institutionalization in societal contexts including their consequences for individuals (e.g. skills) and for their life courses (e.g. returns of education); (2) educational institutions and their legitimating functions (e.g. credentials and ideologies of achievement); and (3) correlations between education and the social order (e.g. social stratification, social and system integration) (Solga and Becker 2012; see Borgna et al., Chapter 30 in this volume). Therefore, modern sociology of education involves the theoretical and empirical investigation of educational processes at different levels of a society. Attainment of education as a process and distribution of education as a state, as well as education as events and education as institutions, can be analysed regarding intended and unintended consequences. Furthermore, the direct and indirect consequences of social action related to education under specific societal conditions, including institutionalization in historically specific societal settings, belong to the domain of sociology of education.

Accordingly, education has a societal character, implying that each subject is socially constructed and defined in relation to education. The suggested definition of sociology of education includes the analysis of education from a social science point of view, which focuses on social action as well as the related social processes and mechanisms (Hedström and Swedberg 1996). This is why the societal framework of educational processes needs to be included in the analyses. These frameworks include the organization of education and the institutions of educational systems, the reciprocal relations of educational systems and the social order (such as the economy, the political system and culture), and the impact of the educational system and other entities such as family, companies or political parties on an individual's education. In contrast to educational sociology, sociology of education is

not limited to the theoretical and empirical investigation of the educational practice and the system of education (see Dominik Becker, Chapter 19, and Neugebauer, Chapter 20, both in this volume).

Such a broadly defined self-conception of sociology of education leads to a fuzzy distinction between other sociologies such as sociology of culture, sociology of economy, sociology of science, research in social stratification and mobility, sociology of childhood and youth or sociology of family. However, modern sociology of education is – similar to the research in social stratification and the life course – one of the broadest research areas in sociology (Breen 2004; Breen and Jonsson 2005; Mayer 2000, 2015). It overlaps with almost all of the research areas within sociology. Due to the importance of education and school and their role in regard to many social areas, it is difficult to separate sociology of education and its many paradigms from other sociologies (Saha 1997). The use of education as an explanatory or dependent variable in other sociologies – including research on social inequality, stratification, mobility, deviant and criminal behaviour, organization and employment, demography and life course and so on – shows the importance of education as both a causal variable and an outcome (achievement, success, performance etc.) (see also Weinert and Artelt, Chapter 7 in this volume). On the one hand, this stresses the interdisciplinary character of modern sociology of education. On the other hand, it becomes obvious that current sociology of education (in practice) has neither a consistent research programme (e.g. topics, issues, data sets and methods) nor a single theoretical paradigm. De facto, this discipline is characterized by a pluralism of different theoretical approaches, methodological premises and avenues as well as scientific programmes (Solga and Becker 2012; see Schneider, Chapter 8 in this volume).

However, from this point of view, the current sociology of education is not just a 'hyphenated sociology' among other special fields within sociology. In our understanding, it has strategic significance for sociological theory and model building as well as for the empirical analysis of social and societal facts. Therefore, in light of the question of which type of sociology of education we want, it has to be stressed that the suggested definition is related to the scientific programme of methodological individualism or structural individualism (Hedström and Ylikoski 2010; Udehn 2002; Coleman 1990; Boudon 1987; Weber 1922). According to this paradigm, every social fact can be understood as an intended or unintended consequence of purposive social actions (Coleman 1986; Lindenberg 1977) which are influenced or modified by structural constraints on different societal levels (Lindenberg 1990). Actors can be individuals, groups of people, organizations (corporative actors) or the state (Coleman 1990). In this respect, modern sociology of education corresponds with sociology defined by one of the founding fathers of sociology, Max Weber (1922, p. 1):

> Sociology (in the sense in which this highly ambiguous word is used here) is a science which attempts the interpretive understanding of social action in order thereby to arrive at a causal explanation of its course and effects. In 'action' is included all human behaviour when and insofar as the acting individual attaches a subjective meaning to it. Action in this sense may be either overt or purely inward or subjective; it may consist of positive intervention in a situation, or of deliberately refraining from such intervention or passively acquiescing in the situation. Action is social insofar as, by virtue of the subjective meaning attached to it by the acting individual (or individuals), it takes account of the behaviour of others and is thereby oriented in its course. (Translated by Blunden 1998)

Social action is action of social characters shaped by interests, ideas and social institutions. Social structures and orders form the contexts of action; that means that action takes place in a social context, in a social space and against the backdrop of social experiences. Such societal units ('society') are – just as other social facts – the result of choices and actions of social actors. In contrast to other (supposed 'hard') sciences, sociological explanations deal with social action and its consequences. Since their 'objects' are 'subjects' capable of acting and who have a subjective sense of their actions, the sociological explanation becomes an extraordinarily difficult endeavour. In contrast to the natural sciences, the social sciences are faced with an 'interpretative dimension' (i.e. subjective expectations and valuations) (Meulemann 2001).

2.   LEADING QUESTION AND RESEARCH TOPIC

Beginning with the leading question by Max Weber, namely, 'how do the institutions and orders of the modern welfare state impact the social character of individuals?', additional questions arise: Which issues should the modern sociology of education pursue? What are its core research areas? It is not easy to answer these questions. As observed by Max Weber (1921) in his speech on science as a vocation, and this is true for sociology in general and, in particular, for sociology of education, science is a difficult endeavour and an ambitious undertaking. Study and research in sociology requires passion and discipline, persistence and a sense of distance. Oriented towards this understanding of sociology, the sociology of education is an important pioneer in the theoretical and methodological development of modern sociology (Saha 1997; Solga and Becker 2012). Assuming that educational processes, understood as social action, are the main research object of the empirical sociology of education, then the sociologically relevant aspects of educational processes are either an intended or an unintended outcome of the purposive social action of individual or corporate actors (see in this volume: Blossfeld et al., Chapter 2; Erikson, Chapter 3; and Stocké, Chapter 4). This way, in line with Coleman (1990), individual actors are defined as human beings in specific social contexts (see Hillmert, Chapter 5, and Borgna et al., Chapter 30, both in this volume) while cooperate actors are entities such as the state, educational institutions or firms. This definition is advantageous since it defines sociology of education as not only a special sociology. Modern sociology of education is general sociology which mainly investigates education, educational processes and educational institutions.[1] Provided that social action and its societal consequences are the main research object of modern empirical sociology, it is taken for granted that social actors need a certain degree of education (in the sense of skills, knowledge and experience).[2]

When we investigate educational processes and their consequences for individuals and the social order, it might be useful to consider the main Weberian issue (Hennis 1987) for the following research topics: How do societal conditions result in specific educational processes? How and why do institutions of modern societies – such as education or the educational system – shape the social character of human beings? Related to this paradigmatic problem, the following questions are relevant: What relations exist between education and the process of human civilization? Why is there a relation between education and societal change? How do societal conditions and social institutions shape

educational processes, and what consequences do they have for individuals and the social order such as the economy, culture and the political system? Why are there correlations between education and the social structures of a society? How is education correlated with social inequality? And why is education correlated with social stratification and mobility?[3]

For serious and complete sociological explanations of different social facts, we also consider education as a societal condition: What is the role of education in a society and the existing ideas, interests and institutions? What are the social mechanisms behind the reproduction of or change of societal structures through education? What are the important social mechanisms inside the educational system? How do we explain the way individuals perceive the educational system or the social interactions between teachers and students?

In this respect, sociology of education is interested in the scientific research on social facts such as education, educational processes, and educational institutions. This endeavour comprises the description and explanation of societally relevant structures as the product of social action. If one looks upon sociological educational research, it becomes obvious that the previous interest in a 'pure' analysis of institutions and organizations has shifted to the analysis of educational attainment and its impact on status attainment and social mobility, from the perspective of structural or methodological individualism. In this approach, the focus of the research is on the educational actions of individuals and their embeddedness in social structures as well as the consequences for individuals, groups, organizations and the social order. In the last 25 years, seminal studies in the context of historical and international comparative analysis on education and educational systems have analysed the interaction of institutions and social action (Shavit and Blossfeld 1993; Shavit and Müller 1998; Shavit et al. 2007; Breen et al. 2009, 2010; Blossfeld et al. 2016). In line with Weber (1922), the institutions of the educational system provide the opportunities and restrictions of individual action related to education. Therefore, in the formation of theories and for empirical analyses, it is central to account for the interdependencies of institutions and individual actions.

Analytical Levels of Research in Sociology of Education

In the empirical research in contemporary sociology of education different research problems – such as educational processes in the educational system and educational trajectories from kindergarten to general and vocational schools as well as to universities and institutions of continued education – are pursued on different societal levels (Becker 2017; Solga and Becker 2012; Bidwell and Friedkin 1988; Floud 1964).[4] According to McClelland (1967), Lindenberg (1977), and Coleman (1986, 1990), for the formation of theoretical explanations and the construction of analytical models, it is useful to start with the premise that the social facts to be explained (aggregate characteristic) are the aggregated consequences of social actions of social actors (individual characteristic). The individuals are themselves influenced by social contexts (collective characteristic) and the individual situation (actor) (see Figure 1.1).

On the one hand, there is no collective hypothesis in the social sciences which explains the causal link between collective characteristics and aggregate characteristics on the macro level (without any recourse to the individual or meso levels). Individual characteristics need to be considered by context and both individual-level hypotheses and
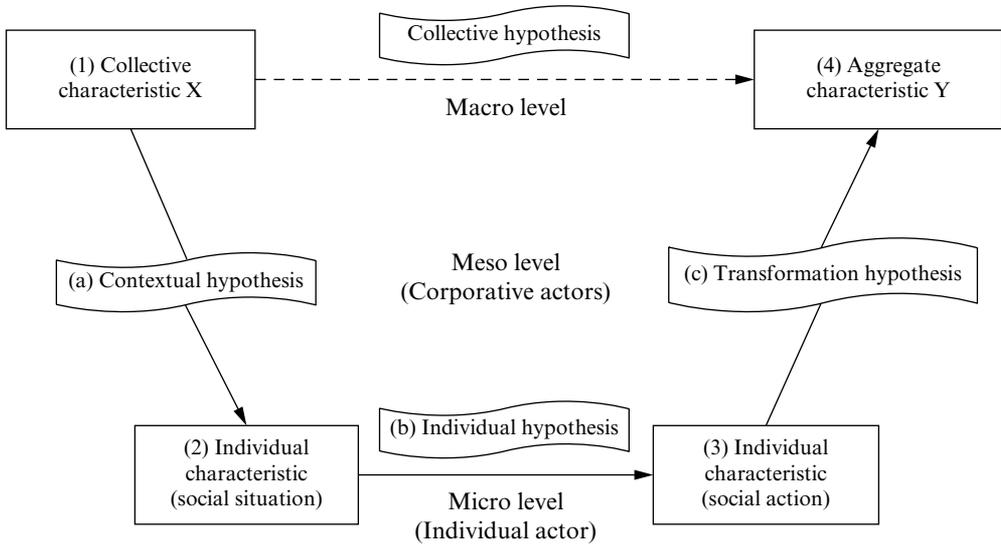
Figure 1.1   Analytical levels of research in sociology of education

transformational hypotheses need to be considered in order to find conclusive answers to research questions in sociology of education. On the other hand, we need substantial theories which allow for the derivation of contextual hypotheses, individual-level hypotheses and transformational hypotheses (Coleman 1986) including empirical information on social mechanisms (Hedström and Swedberg 1996).

(1) On the *macro level*, the significance of education is analysed in the context of societal developments – for example regarding economic, political, cultural and social development (Meyer and Ramirez 2005). On this level, we are also interested in the effects of the social origin, the determinants and the implications of educational ideas, theories and policies (Weber 1922; Karabel and Halsey 1977): What is the role of education in the process of civilization? Is education a precondition or a consequence of modernization? Closely related to this perspective of modernization theory is the functional perspective (Durkheim 1984): What is the aim of education? Who should be educated by which means for which ends? Additionally to the integrative role of the educational system, education as a civic right (Dahrendorf 1965; Roemer 1998) shall also be discussed. These discussions include the different functions of education as either a collection of instrumental skills or a cultural good which fosters the emancipation of human beings. Alternatively, by being crucial for the distribution of goods and positions in a society, education can be understood as a precondition for the attainment of welfare entitlements and social integration (see Blossfeld et al., Chapter 2 in this volume). According to this view, the social closure of higher education, the social legitimation of socially unequal access to higher education and the principles of the allocation of educational returns remain *key challenges* of modern sociology of education (see in this volume: Reimer and Thomsen, Chapter 17; Powell and Pfahl, Chapter 21; Weiss, Chapter 22; and Gebel and Heineck, Chapter 24). These issues raise questions about the social definitions of achievement and their role regarding social inequality of educational opportunities and attainments
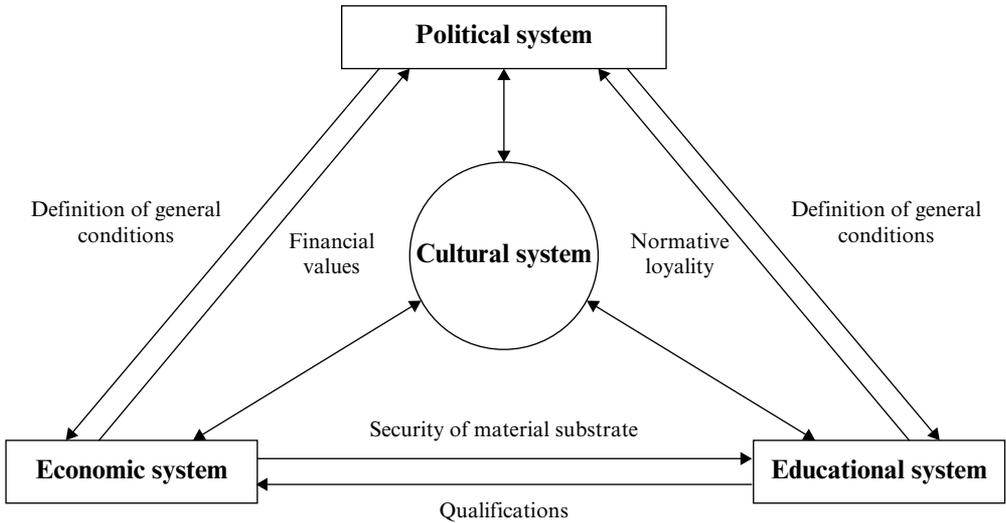
Figure 1.2   Social orders and their relation to the educational system

(see Powell and Pfahl, Chapter 21 in this volume). These moral values and ideologies concerning education (access to education, distribution of credentials, returns to education), which contribute to the structure and organization of the educational system, might be the consequences of ideas, interests and institutions derived from the cultural system (Figure 1.2). The cultural system itself is interrelated with the political system; it shapes the moral values (e.g. on human rights or democracy) of the political system and thus contributes to the ideological basis for the economic system (e.g. principles of free enterprise). Furthermore, there are different consequences of education for the social structure (e.g. a population's educational level or the impact of education on demographic processes regarding fertility, mortality and migration; Becker and Jann 2017) and the scale of social inequality of educational opportunity. This provokes the question of the role of education for changing life courses. The introduction of compulsory schooling, mass education and the prohibition of child labour as well as the connection between achieved credentials and life chances has contributed to the rise of modern standards of living. These developments were related to (1) an increase of overall life expectancy and individuals' anticipation of life time; (2) the status passages defined by the welfare state (such as childhood and) and individuals' sense of their biography; and (3) the highly institutionalized transitions in the life course and the planning of individual life courses (Mayer and Müller 1986).

Finally, the process of societal development is addressed from the point of view of the ideological basis of the structure and the institutionalization of education and the educational system (Meyer and Ramirez 2005). What exchanges are there between the economic, political and cultural systems, one the one hand, and the structures and tasks of the educational system and its output in terms of skills and credentials, on the other hand? What role does the internationalization or supra-nationalization of educational systems play for countries with mass education?

(2) On the *meso level*, we mainly focus on the exchange between the educational system and the economic system (e.g. labour markets) as well as on the definition of the function of schools and their role in the political system (e.g. ministry of education and research) (Figure 1.2). On the one hand, this means that the empirical analysis of social stratification (e.g. inequality of education and educational returns), mobility across work life and generations (e.g. intergenerational and intragenerational mobility) and returns to education (e.g. class position, income, earnings, status, prestige) are meaningful contributions to the research in sociology of education (see Kogan, Chapter 18 in this volume). On the other hand, educational policy is also an interesting issue for the modern sociology of education (see Müller-Benedict, Chapter 29 in this volume). Furthermore, the exchanges between the cultural and educational system have to be investigated intensively. The educational system contributes to cultural reproduction (see in this volume: Erikson, Chapter 3; Skopek et al., Chapter 12; and Holtmann and Bernardi, Chapter 14). The educational system facilitates the preservation of language, writing and moral values; it contributes to individuals' personal development and social identification as well as to the development of rationality and the sciences in modern societies (e.g. Weinert and Artelt, Chapter 7, or Kristen, Chapter 27, both in this volume). On the other hand, it socializes individuals and promotes individual competences and the ability to make decisions and judgements (e.g. Blossfeld et al., Chapter 2 in this volume).

Through the exchange with the cultural system, the educational system contributes to the social integration of individuals as well as the system integration of the social order. This results in additional questions which have been neglected in traditional sociology of education. An example is the question of what happens when educational systems have conflicting principles? Three such principles are especially noteworthy: the achievement principle (meritocracy; Hadjar and Becker 2016; see Bills, Chapter 6 in this volume), the principle of equality of opportunity (justice; see Erikson, Chapter 3, and Nauck, Chapter 26, both in this volume) and the principle of promotion (equalization; see Skopek et al., Chapter 12, and Holtmann and Bernardi, Chapter 14, both in this volume). Furthermore, we ask: What is talent? What is effort? What is achievement? What is merit? Who defines the quality of an achievement? What is a 'good' and wishful result that should be rewarded in contrast to a 'bad' and undesired achievement? Who decides who is talented? Who defines which talents and skills are necessary for society in terms of social and system integration or for labour markets or for societal development? Who defines which type of educational system (including the elaboration of curricula and qualification of teachers) is efficient in the realization of such aims?

Furthermore, on an analytical level, other questions are raised (see in this volume: Skopek et al., Chapter 12; Dominik Becker, Chapter 19; and Neugebauer, Chapter 20): How do (formal and 'hidden') curricula or different types of instruction emerge and how do they change? Why are these structures so different across societies? How does the educational system work as a labour market for teachers, professors and administrative employees? What exchanges exist between schools and families? What happens at schools on a social level? What social interactions exist between teachers and their students? What impact do the resources of a school have on the teaching in school classes and the educational opportunities of young students?

(3) On the *micro level*, we analyse the societal conditions of individual educational behaviour (see in this volume: Blossfeld et al., Chapter 2; Erikson, Chapter 3; Stocké,

Chapter 4; Holtmann and Bernardi, Chapter 14; Gebel and Heineck, Chapter 24): How, why and when do individuals make decisions on different transitions in their educational trajectory? What are the benefits of their investment in education and how are returns of education distributed among social groups? What educational aspirations do they have? What is the role of education for the personal development of individuals and their life chances? How does individual achievement develop over the life span? How are opportunities of skill formation distributed across the life course and the social classes? How does education shape the social structure of life courses? How does education affect events in the life course, such as marriage, family formation and divorce, and their timing? In addition to the analysis of structure and duration of the education of individuals across their life course, these research questions deal with the individual consequences of education and achievement. On the one hand, social-structural descriptions of lifestyle differences across educational groups are dominant. The correlation of education and life expectancy is a prominent empirical example (Becker 1998). On the other hand, it is assumed that education is a main causal factor for specific events and states in the life course resulting in unequal distributions of life chances. There are several examples for this claim: cumulative education and training across the life course (Mayer 2000; see Kleinert and Jacob in this volume) or cognitive effects of education on political socialization, attitudes and participation (Hadjar 2008).

(4) To connect these different, ideal-typically distinct, analytical levels is an additional key challenge for the sociology of education. We assume that the processes on each of the societal levels are interrelated and that it is a task of sociology of education to describe and to explain the structural regularities of these interrelations in a systematic way. Historical and international comparison is one of the most promising ways for realizing this task. Another way is the longitudinal analysis of the educational trajectories of individuals in different birth cohorts (see Blossfeld et al., Chapter 2, and Schneider, Chapter 8, both in this volume). This implies that each of the research questions and the empirical projects have to consider all analytical levels. The following questions emphasize this claim (Hadjar and Becker 2009): What are the expected and unexpected consequences of the educational expansion in different historical periods and across different societies? Did the successive upgrading of the educational level of individuals and the population as a whole lead to a devaluation of educational certificates? Do we observe a fading relationship between education, earnings and social status? What are the effects of educational policy and the social openness of the educational system?

At this point, we are able to deliver some answers on why sociology of education should be treated as an empirical science and why it is an interesting field of study as well as a sophisticated area of sociological research. The answers result from social facts such as that education and the attainment of certificates are prerequisites for access to scarce goods and positions in a society. Education and educational certificates are individual and collective preconditions for participation in different social areas. The social inequality of educational opportunity and success is not primarily a result of individual talent, effects and luck. Participation in education takes place throughout the life course and life courses are shaped by education and educational systems (see Prenzel and Sälzer, Chapter 28 in this volume). The supply of and the demand for education constitute a significant mechanism of social exchange in modern societies (see Hanushek and Woessmann, Chapter 25 in this volume). Education is a highly valued institution and educational

systems are important organizational units in modern societies (see Skopek et al., Chapter 12, and Prenzel and Sälzer, Chapter 28, both in this volume). Therefore, we have to analyse empirically why there are such institutions and organizations in modern societies at all.

3.   KEY CHALLENGES FOR MODERN SOCIOLOGY OF EDUCATION

Additionally, there are three key challenges for the sociology of education as a social science discipline:

1.   Enlightenment (scientific clarification by sociological description and sophisticated analysis of societal conditions)
2.   Gain of knowledge (knowledge acquisition by sociological explanation of social facts by the systematic formation of theories and models)
3.   Problem solutions (application in terms of sociological prediction, social technology, policy counselling).

   (1) *Enlightenment* from the perspective of sociology of education means the delivering of knowledge on societal conditions and the change of social structures (with an emphasis on the role of education) from a social science point of view. It is the task of describing interesting phenomena precisely using objective (longitudinal) data: What is the educational expansion and what does it look like? The precise description of educational policies or the enrolment in the educational system over the past periods delivers information on whether the educational expansion is an empirically objective fact or a product of wishful thinking, a myth or an 'alternative fact'. If the empirical data provides information on realized reforms of the educational system (e.g. extension of educational opportunities) or increased participation in higher education, then we are able to show that the educational expansion is an empirically based fact (see Hadjar, Chapter 10, and Reimer and Thomsen, Chapter 17, both in this volume). However, per se, descriptions of social facts are not sufficient, although they are necessary (Coleman 1990). Descriptions are not sufficient for explanations but they do contribute to the explanation of social facts.

   However, in sociology we sometimes witness that descriptions are equated with diagnoses (e.g. Beck 1992). Given that relevant life chances depend on attained certificates, societies are often labelled 'achieving societies' (McClelland 1967) or 'credential societies' (Collins 1979). However, it has to be taken into account that a diagnosis of the time is not a scientific explanation. Making such diagnoses is not the task of sociology of education since they are misleading classifications of no service to scientific enlightenment (see the debate on the so-called risk society and process of individualization: Becker and Hadjar 2015).

   (2) By scientific *explanation* of social facts, we mean a systematic gain of knowledge on societal correlations. In sociology of education, we are mainly interested in the sophisticated explanation of social facts – that is, attaining a substantiated sociologically interesting answer to a question about the reason for these phenomena. Why does social inequality of educational opportunity still exist in spite of a significant educational

expansion? Why do most migrants have fewer opportunities in the educational system than natives? (See e.g. Nauck, Chapter 26, and Kristen, Chapter 27, both in this volume.) Why are there persistent class-related disparities in school achievement? However, we are also interested in revealing the processes and mechanisms that result in the facts we seek to explain (Hedström and Swedberg 1996). What factors of the educational expansion contribute to declining or increasing inequality of educational opportunity? How and why do families and schools affect students' achievements and educational attainments?

A sociologically relevant explanation is an empirically based answer to a 'why' question. An explanation is not only an answer that is logically derived from arguments; it must correspond to a social reality that could be measured objectively. This procedure is not equal to the search for final truths in a teleological sense. According to Popper (1973), in sociology of education, we look for interesting and illuminating truths, that is, for theories that deliver solutions to interesting research problems. Sociological research needs conclusive theories, which is why we need 'good' data, and 'good' statistics. If we assume that schools are one of the causes of social disparities in achievements (see in this volume: Zangger and Becker, Chapter 9; Skopek et al., Chapter 12; Holtmann and Bernardi, Chapter 14; Dollmann, Chapter 15; Dominik Becker, Chapter 19; Neugebauer, Chapter 20; Prenzel and Sälzer, Chapter 28), then we need a consistent system of theoretical arguments providing information on the causes, consequences and mechanisms that lead to the social fact being explained.

(3) The socio-political relevance of sociological knowledge reflects the relations between scientific analysis and prognosis, political counselling, the development of social technologies or the planning of solutions in regard to social problems. For example, if social disparities in achievements are revealed by empirical analysis, it is possible to take adequate actions as long as the finding is defined as a problem to be solved by social policy. When we are aware of a causal relationship and its social preconditions, it allows us to modify the causes in order to avoid the undesired consequences (see Zangger and Becker, Chapter 9 in this volume). To enable rational policy counselling, the development of social technologies or the making of prognoses, we need realistic descriptions and empirically based explanations of the problems to be solved (see Müller-Benedict, Chapter 29 in this volume).

4.   THE FUTURE OF SOCIOLOGY OF EDUCATION

Modern sociology of education is confronted with several key challenges. First, in their practice, researchers in the field of sociology of education analyse the societal – that is, the economic, cultural, political and social-structural – frameworks of educational processes, the institutions of the educational system, and the individual and social consequences of education. Researchers in sociology of education focus on the formation of profound theories, the construction of useful empirical models and the empirical investigation of educational processes on different societal levels. It is the aim of sociology of education to describe educational processes and their institutionalization in social contexts systematically as well as to explain them exhaustively by identifying causalities and mechanisms. Empirical evidence could be used as a rational basis for educational policy or social policy. However, policy planning is not the task of sociology of education (Popper 1973).

A look at the history of this discipline involving the metamorphosis from educational sociology to a modern interdisciplinary sociology of education can be taken as a sign that this discipline may well be aware of key challenges in future research. The turn in both the formation of theoretical explanations and the empirical analysis (Solga and Becker 2012) – that is, the shift from normative questions about economic development (e.g. Treiman 1970) and societal reforms (e.g. Dahrendorf 1965) in the direction of a non-normative analysis of social facts in regard to the education of individuals, the educational system and educational ideologies – is particularly indicative for this assumption. However, it is evident that the problem of educational inequalities – particularly the inequality of educational opportunities (inequality of educational outcomes seems to be attracting less interest recently) – has traditionally been *the* key issue of research in sociology of education (Coleman et al. 1966; Boudon 1974; Bourdieu 1977; Collins 1979; Gambetta 1987; Shavit and Blossfeld 1993; Erikson and Jonsson 1996; Breen and Goldthorpe 1997; Becker 2003; Erikson et al. 2005; Jackson et al. 2007; Stocké 2007; Breen et al. 2009). This key issue has dominated or modified other research areas in sociology of education. Undoubtedly, mechanism-based explanations for educational inequalities are still an interesting issue, but it is just *one* of many others. Therefore, it will be another key challenge to recreate the pluralism of research questions in the future of sociology of education.

In our view, this volume on sociology of education might be a starting point for researchers and students in sociology of education to accept the key challenges. Regarding analytical levels, recent research in sociology of education has several gaps. For example, to strengthen the macro-sociological view, the analysis of educational policy and educational institutions and their correlation with social stratification, the stratification of the educational system and the allocation of graduates in the hierarchy of firms has to be fuelled beyond the OED model suggested by Blau and Duncan (1967). Another interesting issue is the impact of evidence based empirical analysis in sociology of education on both educational policy and individuals' common knowledge. On the meso level, there are gaps in research on school organization and teachers. Finally, on the micro level, we know less about skill formation and life-long learning across the entire life course (see Weiss or Lechner et al. in this volume). In order to accept the key challenges, some efforts have to be made for the integration of social science theories and research paradigms regarding education. A number of sophisticated theories and models, innovative empirical studies as well as historically and internationally comparative publications are available. They motivate us to continue with the development of modern sociology of education. This current research handbook on sociology of education could be a valuable starting point.

NOTES

1.   As a consequence, the delimitations between other special sociologies such as sociology of family, sociology of science, sociology of culture, research in social stratification and mobility, labour market research, sociology of childhood and youth or other social sciences become obsolete. The different aspects of educational processes could be reconstructed by the social actions in different societal settings, which might have consequences for other social structures and processes.
2.   From a sociological point of view, education is defined as a state, an individual cultural asset, and a process of individual acquisition of culture. Education as a state is the characteristic of individuals who have

available knowledge, competences and skills (see Weinert and Artelt, Chapter 7 in this volume). These attainments are not limited to formal qualifications that serve as human capital on the labour market; education also includes the knowledge of social processes and the competence to deal with social conditions. The process comprises the systematic impartation and acquisition of knowledge, cognitive and motor abilities, and skills in institutional settings such as schools. In this sense, education in the sense of *Bildung* or *schooling* has to be distinguished from education (*Erziehung* or *educating*) in terms of the purposive impartation of values, moral principles, norms and convictions (e.g. upbringing of children) as well as from socialization. Socialization can be understood in terms of unsystematic and non-institutionalized processes of learning which shape an individual's ability to think and act towards social expectations.

3.   Scott and Marshall (1998) raise similar research questions when they define sociology of education as an empirical social science which investigates how public institutions and individual experiences influence education and its outcomes. In their perspective, sociology of education investigates the public school system of modern industrial societies, the expansion of the educational system and enrolment in education.

4.   The following differentiation of analytical levels in the sociological research has been suggested by Floud and Halsey (1958, p. 170): the relation of the educational system to other social systems such as economy, demography, culture and social stratification will be analysed on the '*macrocosmic level*'; the sociology of educational systems is placed on the '*general level*'; the school and the classroom as a social context will be analysed on the '*microcosmic level*'.

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