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INTERNATIONAL PERSPECTIVES ON EDUCATION
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HOW UNIVERSITIES TRANSFORM OCCUPATIONS AND WORK IN THE 21ST CENTURY: THE ACADEMIZATION OF GERMAN AND AMERICAN ECONOMIES

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For the late Robert D. Reisz, whose thoughtful ideas and enthusiastic collaboration helped launch this book.

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LIST OF ABBREVIATIONS

ABET	Accreditation Board for Engineering
AE	Architectural Engineering
BABAG BEK	Bachelor of Arts Bundesarbeitsgemeinschaft Bildung und Erziehung in der Kindheit (roughly: Federal Association for ECEC)
BDP	Berufsverband Deutscher Psychologinnen und Psychologen e.V. (Association of German Professional Psychologists)
BIFOA	Betriebswirtschaftliches Institut für Organisation und Automation (Business Administration Institute for Organization and Automation, an applied research institute on organization and automation at the University of Cologne; it played a seeding role for both business information systems and entrepreneurship education)
BIS	Business Information Technology
BS	Bachelor's degree
COM	European Commission
DtA	Deutsche Ausgleichsbank (German State bank for the provision of securities to private bank loans for SME)
ECEC	Early Childhood Education and Care
EDP	Electronic Data Processing
EE	Entrepreneurship Education
FiL	Fachverband für integrative Lerntherapie e.V. (FiL, Professional Association for Integrative Educational Therapy)
ICT	Information and Communication Technologies
Ifm	Institut für Mittelstandsforschung (Institute for the Research of Small- and Medium-Sized Enterprises)
Ifo	Leibniz Institute for Economic Research at the University of Munich
KIM	Kölner Integrationsmodell (Cologne Integration Model, proposal for the development of an architecture for application systems in Germany)
MAE	Masters of Architectural Engineering

MAT	Mensch/Aufgabe/Technik-System (German term in business information systems explicating three components on which information systems depend: human, task, and technology)
MS	Master's degree
OECD	Organisation for Economic Cooperation and Development
PhD	Doctor of Philosophy
PISA	Programme for International Student Assessment
R&D	Research and Development
STEM	Science, Technology, Engineering, and Mathematics
UAS	Universities of Applied Sciences
WiFF	Weiterbildungsinitiative Frühpädagogische Fachkräfte (Further education initiative for personnel in ECEC)
WR	Wissenschaftsrat (German Science and Humanities Council, academic advisory body crafting policy recommendations for higher education)

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CHAPTER 1

ACADEMIZATION: A NEW PERSPECTIVE ON OCCUPATIONS

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ABSTRACT

Advanced education is often thought to respond to the demands of the economy, market forces create new occupations, and then universities respond with new degrees and curricula aimed at training future workers with specific new skills. Presented here is comparative research on an underappreciated, yet growing, concurrent alternative process: universities, with their global growth in numbers and enrollments, in concert with expanding research capacity, create and privilege knowledge and skills, legitimate new degrees that then become monetized and even required in private and public sectors of economies. A process referred to as academization of occupations *has far-reaching implications for understanding the transformation of capitalism, new dimensions of social inequality, and resulting stratification among occupations. Academization is also eclipsing the more limited professionalization processes in occupations. Additionally, it fuels further expansion of advanced education and contributes to a new culture of work in the 21st century. Commissioned detailed German and US case studies of the university origins and influence on workplace consequences of seven selected occupations and associated knowledge, skills, and degrees investigate the academization process. And to demonstrate how universal this could*

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become, the cases contrast the more open and less-restrictive education and occupation system in the US with the centralized and state-controlled education system in Germany. With expected variation, both economies and their occupational systems show evidence of robust academization. Importantly too is evidence of academic transformations of understandings about approaches to job tasks and use of authoritative knowledge in occupational activities.

Keywords: Higher education expansion; professionalization; knowledge society; occupations; rationalization; academization of work

1. INTRODUCTION

Advanced education is often thought to respond to the demands of the economy, market forces create new occupations, and then universities respond with new degrees and curricula aimed at training future workers with specific new skills. Presented here is comparative research on an underappreciated, yet growing, concurrent alternative process: universities, with their global growth in numbers and enrollments, in concert with expanding research capacity, create and privilege knowledge and skills, legitimate new degrees that then become monetized and even required in private and public sectors of economies. A process referred to as a*cademization of occupations* has far-reaching implications for understanding the transformation of capitalism, new dimensions of social inequality, and resulting stratification among occupations. Academization is also eclipsing the more limited professionalization processes in occupations. Additionally, it fuels further expansion of advanced education and contributes to a new culture of work in the 21st century. Commissioned detailed German[1] and US case studies of the university origins and influence on workplace consequences of seven selected occupations and associated knowledge, skills, and degrees investigate the academization process. And to demonstrate how universal this could become, the cases contrast the more open and less restrictive education and occupation system in the US with the centralized and state-controlled education system in Germany. With expected variation, both economies and their occupational systems show evidence of robust academization. Importantly too is evidence of academic transformations of understandings about approaches to job tasks and use of authoritative knowledge in occupational activities.

The contributions in this book proposing academization of occupations share a common perspective on the effects of growing participation rates in universities and related postsecondary institutions, accompanied by the dual mission of these institutions to integrate training with an extensive capacity to generate new knowledge and accompanying ideologies about all things. Beyond merely increasing the share of an academically educated work force or development of narrow technique, the expansion of higher education induces a fundamental transformation of the world of work: The higher education expansion corresponds with a growing number of job positions and employment possibilities catering to the competencies of an educationally educated workforce. Additionally, many of these workers

have on average advanced general skills, and they also take specialized knowledge supported by more theoretical and abstract perspectives about their jobs. This is occurring predominantly through expansion of application-oriented degree programs in Germany and undergraduate majors and minors and graduate degrees in the US that are grounded in inter- and trans-disciplinary curricula in scientific or specialist expertise. This is a repeated phenomenon that results from the widely recognized cultural charter of the university to create and teach new knowledge. This is not to suggest that the academization perspective argues that advanced education makes for some kind of "super worker" in idyllic occupations or even greater effectiveness in jobs. The case studies will demonstrate, the process of greater academization of occupations does not come without some conflict with traditional ways of doing jobs, including greater complexity in occupations that may not be related to overall efficiency and possible arbitrary privileging of new ideologies about tasks and skills. Also, exposure to higher education does not have uniform influences on students, leading to some unexpected paradoxical trends. Yet, the process of academization is nonetheless transforming beyond market forces and was not predicted by traditional sociological and economic analysis of work and its social organization.

There are several reasons why the sociology of occupations requires a new perspective. First and, in our judgment, foremost is the lack of theoretical and empirical integration of the impact of the nearly two centuries long education revolution making formal education a central social institution of postindustrial society (Baker, 2014; Parsons & Platt, 1973; Vanderstraeten, 2015). Although aspects of education training for work have always been central to sociology of occupations, these tend to be mostly about just credentials and training instead of about the potential for a robust institution of education to influence origins and dimensions of occupations. Second, with its intense focus on individual characteristics of workers and inequality of race, class, and gender, only a small amount of the field has been applied to structural qualities of systems of occupations and historical change after industrialization (Abbott, 1993). The sociology of occupations has not kept pace with the impacts of a growing institutional autonomy of education nor the postindustrial dynamics of capitalism (Turner, 2006). Lastly, the study of professions and professionalism have dominated the sociology of occupations, and although predictive in the past, professionalization theory has not fared well under changing conditions. Academization is not intended to be an all-encompassing theory of occupations, but it does provide a much-needed new perspective on the worn-out notions of overeducation, credentialism, supposed unresponsiveness of systems of higher education, and on the traditional perspective on professionalization of occupations.

At the same time, economic studies of labor markets and some applications of human capital theory to occupations have similar limitations. For the most part, origins and content of occupations are not problematized within a simple supply and demand framework. Also, the economic perspective assumes a one-sided relationship between education and jobs, with the former responding to the latter. This notion is then simply extended to growing advanced education: market forces create new occupations and then universities respond with new degrees and curricula

aimed at new workers with skills. Against such an assumption, this book provides an alternative reading. The relationship between institutionalized providers of advanced knowledge – higher education institutions – and the world of work is characterized by a complex and multidirectional process that takes its origin in the university. And particularly over the past 50 years, the proportion of the world's youth attending universities and related forms of postsecondary education have reached unprecedented levels, which means that compared to earlier generations of workers, high proportions of future workers will have had exposure to advanced education, witnessed and influenced by knowledge production, and have been inculcated into an extensive academic culture.

The traditional sociology and economics perspectives fall short largely because of the challenge that four empirical trends present in the contemporary study of occupations in these countries and elsewhere. A description of these trends, their challenge to traditional theory, and how an academization perspective helps to explain each follows a definition of academization and a summary of the case studies. But to summarize the trends: First is rapid expansion of higher education leading to significant increases in the pool of workers with advanced education. And, of course, this expansion paralleled the growth in universities and other postsecondary schools in both countries. Second is the fact that this did not result in an oversupply of educated workers driving down wages. Instead, there is a trend of a counterintuitive rise in demand with a higher wage premium for these workers in labor markets of postindustrial economies. Third is the underappreciated capacity of higher education institutions for knowledge production, particularly in science, technology, engineering, and mathematics (STEM) and behavioral–social sciences. And fourth is the under realization of a much-anticipated prediction of extensive professionalization of occupations. Although there are other new transformations of work and dimensions of occupations, an academization perspective can explain why at least significant parts of these four trends are occurring.

2. EXPLORING ACADEMIZATION OF OCCUPATIONS

Put succinctly, *academization is a process by which more aspects of occupations, job content, and preparation are permeated by the full range of institutional products of formal education*. As mass advanced education increases, the number of occupational fields of action and jobs in work organizations tailored to college graduates also increases, but academization also represents a profound transformation beyond expanding enrollment. Advanced education actively socially constructs or reconstructs the culture of work in postindustrial society through its many products (Baker, 2014). First is knowledge production from its vast research conglomerate in STEM, behavioral, and social sciences, coupled with its legitimation to determine the best approaches to all types of human activities (Geiger, 2017). Second is its unique charter to create degrees and academic programs and curricular content based on new knowledge and epistemological privileging of rational, empirical methods (Frank & Gabler, 2006; Frank & Meyer, 2020). Third is the

range of mass higher education effects on students in enhancement of cognitive skills, attitudinal, cognitive frames from academic disciplines, worldviews, and their sensibilities (Pascarella & Terenzini, 2005). As education and its universities become a mature social institution, its capacity and social charter autonomously influences other social institutions such as the economy and occupational structure (Abrutyn, 2009). Academization is a process that can run parallel to or integrate with market forces, public sector requirements, and technological change but with independent, observable consequences. Along with the occupational cases in this book, mounting evidence point to a generative process changing the world of work, including creation of new occupations, changes within existing occupations, and the relationship between occupations and educational authority.

The collected chapters in this volume on the academization of occupations are the first of their kind and are meant to both explore the dimensions of the idea and critique its theoretical strengthens and weaknesses. Each uses a historical lens on how products from the greater institutionalization of the university and higher education shaped a particular occupation. Annemarie Matthies' analysis of the occupations related to business information technology in Germany (known as information systems in the US) traces the growing confluence of post-World War (WWII) industrial interests and state planning within the higher education sector on the growth of related technical and management degrees and research in German universities. The case also demonstrates how in many ways a robust academization process was underappreciated, even though it was robust enough to contribute to a wide social construction of the value of information in economic and managerial activities. In a related case on business, Alexander Mitterle examines the long struggle but then rapid and mostly achieved academization of the idea of entrepreneurship (*Existenzgründung* or *Unternehmensgründung*) as central to economic progress with the accompanying belief that entrepreneurs can be, and should be, trained at the university. Focusing on Germany and using the comparative context of the American business school, the case finds that recursive developments between universities and state policy starting in the 1970s created not only new degrees and professorships but also fostered and rationalized the idea of entrepreneurship as a key component for the German economy. Shifting from business to education, Maryellen Schaub, Yuen-Hsien Tseng, and Yuan Chih Fu describe the long steady incorporation into American higher education of the training and conceptions of the occupation of teaching of very young children from nurturing care-giving to responsibility for cognitive and social development. To demonstrate the direct influence of the university research conglomerate, this chapter includes an analysis of the expansion of early childhood topics into over 18,000 scientific journal articles from 1956 to 2021. In the contrasting case of early childhood teachers in Germany, Annett Maiwald concludes that academization contributed to a habitus of distance from direct interaction with children, a diversification of tasks in daycare centers, and hierarchical processes of professional role differentiation. Christoph Schubert's chapter on educational therapists in Germany, who provide a range of services from psychotherapy to academic tutoring to school-age children, illustrates how academization is pushed by university-based scientific developments and the activities

of various professional organizations in this emerging occupation. Not yet state sanctioned, nevertheless this occupation is at the cutting edge of shifting families' redefinition of difficult and public academic challenges of their children to psychological issues amenable to therapy. David Baker's analysis of the occupation of architectural engineer demonstrates how academization of existing degrees and research fields in American universities created a hybrid of architectural design and engineering without extensive market or state forces over the 20th century. The chapter also examines how university training shapes on-the-job approaches and concepts about built structures and their use. Finally, Monique Lathan's and Manfred Stock's case on mathematics shows how academization expands a traditional university subject into more economic functions and occupations. Mathematics, of course, has been at the foundation of many human activities for thousands of years, but this case describes recent tightening between the subject and new advances in its application to a greater number of endeavors, and this originates in large part in the university research conglomerate.

As the cases reveal, the three main types of institutional products of advanced education are resources that can be tapped into in different combinations and at slower or faster rates of diffusion across universities and jobs. Many demonstrate how academization is enhanced by institutional entrepreneurs within and outside of higher education, and in some cases situated in two institutions at once. Most often, these are historical individuals, but sometimes, they can be organizations such as academic departments or faculties at specific universities. In the American cases, the state plays a modest role, while in the German cases, it is an integral factor that once interacting in the academic process can have considerable influence. Several cases show a recursive dynamic with ebbs and flows in the incorporation of dimensions of academization processes. Some of the cases were able to bring their analysis from academization to actual job content and importantly to the habitus and attitudes that inculcates actors in occupations. Read as a whole, the cases discredit older notions of contentless credentialism, overeducation, runaway professionalism, and a singular focus on power, all common in prior study of education and occupations. Academization has layered, complex consequences from prestige ranking and remuneration to market monetizing of occupations, to specific, skill attainment, job content, and the cognitive approaches of the workers in more academized occupations. Lastly, many cases note that the academization process unfolded without much explicit recognition of it. This is likely because theorizing about academization goes against the usual assumption that education as an institution follows other institutions by arguing instead that a maturing education revolution creates greater institutional autonomy that in turn has major social constructive power (Baker, 2024).

3. ACADEMIZATION: CREATING CLASSIFICATIONS AND CONSTRUCTING NEEDS

Academization can be considered from an abstract sociologically perspective in several ways. Take, for example, one of the key institutional products of academization and the cultural power of the university to transform occupations – the

degree program. The expansion of applied degree programs in Germany and majors, minors, and graduate degrees in the US (hereafter just "degrees" from academic programs when discussing the general situation in both countries) reflects a logic of academization that implies a material and social classification. The degrees awarded on successful completion of academic programs do not just represent and classify the curricular study programs nor just the corresponding expectations in terms of a graduate's abilities, competencies, and skills in a material sense. More significantly, they classify programs as an adequate and appropriate basis for performing specific practical tasks, providing services, and solving practical problems (Baker, 2014; Stock, 2005). As such, academic degrees also classify responsibilities for specific occupational fields and the working capacity of the graduates produced by universities. Although older sociological thinking about the growing centrality of academic degrees as occupational credentials dismissed it as a valid process because it could be shown that some occupations used these as entrance boundaries. Similarly, some economic reasoning also dismissed this phenomenon as a kind of credential inflation without corresponding skill enhancement. Both arguments, however, do not stand up well to increasing evidence that a combination of educationally enhanced cognitive functioning and specialized knowledge, gained by degree competition, is far more than boundary maintenance by contributing to human capital stock, productivity, wage differentials, and an education-oriented reordering of the occupational hierarchy and hence the stratification system in the US (Acemoglu, 2012; Baker et al., 2024; Goldin & Katz, 2008; Hanushek et al., 2015; van Noord et al., 2019). Degrees also classify and reclassify areas of professional responsibility and, hence, also employment positions. Such classifications do not primarily stem from the world of work and do not relate to professional experience; instead, over the long course of the university, they emerge from an academic process of knowledge production, redefining cultural ideas, and institutionalizing these with new areas and degrees in both countries examined here (Baker, 2011; Stock, 2017).

The significantly contrasting country cases also add important sociological breath to the argument by highlighting the institutional forces from within national education systems that can influence dimensions of academization of occupations. Following the liberal arts tradition of Anglo-Saxon universities, the US exemplified a loose relationship between degree content and job positions, while in Germany, this relationship is more tightly coupled compared to other developed countries (DiPrete et al., 2017). The traditionally self-regulating nature of the US higher education system shows a strong reactivity toward student (market) demands – as visible in the enormously expanding enrollment numbers in business degrees since the 1980s – but lacking centralized structures of correspondence between distinct degrees and job positions, curricular development derived primarily from advancements in the respective research fields as well as the contestation of degree-based hierarchies through differentiations and niche building (*cf*. Rawlings et al., 2012). In the German case, a close integration of university degrees and state jobs means that curricula are highly regulated and standardized through enrollment regulation, enforcing formal inelasticity to changing demands. Rising demand – also visible in business administration degrees – led

to overcrowding and an informal responsiveness to changes in research trends (*cf*. Mitterle, 2018). Resulting from the Bologna process, some of Germany's restrictive regulations were abolished in the early 2000s, and in their place, new degrees on a large scale were crafted and differentiated although still in regard to projected occupational fields more than student demand.

In each country, degree classifications are combined with social classifications derived from the stratified educational structure. The historical basis for this is the social mechanism of the authorization system rooted within education as an institution (Matthies & Stock, 2020). This mechanism defines academic qualifications and occupational fields (such as public posts) as corresponding to each other in material and social terms, thus institutionalizing the corresponding expectations in relation to the material orientation of degree programs, the definition of positions within organizations (Stock, 2016), and the allocation in Germany and popularity in the US of graduate positions.

The academization process also includes a rationale of constructing and expanding demands and need for new jobs and occupations. As several of the cases show, the academic world is increasingly classifying issues and human problems as requiring authoritative intervention of both high and low technological dimensions (e.g., psychotherapy and engineering). Also, an expanding academic community constructs demand for new skills and services in specific occupational fields. This is accompanied by growth in the number of graduates and is superimposed on a logic of upgrading based on current knowledge systems. The institutionalization and legitimacy of these knowledge systems can primarily be attributed to the fact that the school and university system, which is based on academic curricula, has developed into a system of education for all children and youth within an autonomous institution. Thus, knowledge and competencies that can draw on scientific (i.e., all kinds of science including behavioral and social sciences) evidence are valued more highly than those that are derived from generalizations based purely on experience or outdated knowledge. When graduates with academic qualifications are available and lay claim to occupational areas of responsibility, this devalues the knowledge base of those who have previously occupied these roles. In terms of both construction of new occupational and work categories to meet new social needs, the academization argument reconceptualizes the relationship between university education and employment away from outdated historical social and material classifications.

3.1. Empirical Trend 1: Growth of Postsecondary Education

The first of the three empirical trends motivating theorizing about occupations and work with the academic argument is the exceptional increase in supply of postsecondary education and demand by ever larger portions of families and their children. This, of course, is a worldwide phenomenon gaining speed particularly since the middle of the 20th century and is based on an earlier expansion of upper secondary education, particularly in Western democracies (Reisz & Stock, 2007; Schofer et al., 2021). The expansion is a primary structural condition for academization, and the growth in demand for more educated workers