# CHAPTER 1 GENERAL PEDAGOGY AND HISTORY OF PEDAGOGY

## A CASE FOR THE SOCIAL SCIENCES AND SOCIAL CAPITAL IN THE HIGHER EDUCATIONAL SYSTEM AND ECONOMY OF UKRAINE

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Abstract. The article is devoted to the study of social sciences and social capital in the system of higher education and economy of Ukraine. The article aims to solve two tasks: The first - is to discuss the, not simple, relationship between the natural and social sciences in stimulating technological innovations; The second - is to show how the new concepts of social and cultural capital are connected to economic development. The main results of the article are presented in a study of scientific works devoted to the relationship between the social and natural sciences and how this relationship relates to educational and economic development. The methodological basis of the research is the methods of comparative analysis of scientific research in the field of social and natural sciences, the authors of which investigated human, social and cultural capital. The article also examines the main scientific discussions on the role of social and cultural capital. These are relatively new topics that are increasingly recognized as important components of development. It is stated that the humanities and social sciences should occupy a prominent place in education because, paradoxically, these subjects stimulate technological innovation and economic growth in modern knowledge economies. This view coincides with the school of New Institutional Economics (New Institutional Economics) and the school of "human relations" (human relations) in the field of management, which emphasize social and cultural factors for the effective functioning of organizations and economic development. The technocratic or scientific management paradigm has reached the limits of its usefulness in education, innovation, and economic progress. This paradigm now needs to be supplemented by more open educational systems and organizations, whose functioning is enhanced by cultural and social capital.

**Keywords:** knowledge economy, STEM, social sciences, social capital, welfare state

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**Introduction.** In a globalizing world, many countries are increasingly concerned with their economic competitiveness. Accordingly, there is a common view that educational establishments should increase the STEM (science, technology, engineering, mathematics) weight within education and reduce the amount of social sciences. However, this view is an oversimplification. The humanities and social sciences retain (and perhaps even increase) their importance within the modern economy. A new paradigm of scientific innovation and economic development holds

that social capital and culture-bound characteristics of human organizations are essential components of economic development.

**Literature review.** There is a fundamental difference of approach to management, education, and economic innovation between technocratic "scientific management" and the more person-centred "human relations approach." The first emphasizes the STEM subjects in education; the second argues for the relevance of the humanities and social sciences.

A classic description of technocratic organizational and economic behaviour in the Soviet context was offered by Berliner [1], who observed a tendency to "innovation avoidance" and lack of incentive for innovation under central planning. More recently in this vein, Beissinger [2] similarly noted that Soviet industrialists believed excessively in technocratic or elitist management techniques in both scientific innovation and deployment of labour resources.

This technocratic frame of mind – characteristic both of Soviet practitioners and Western neo-liberals – is challenged by Allen [3], who asserts that advocates of technocratism and scientific management are misguided in their under-estimation of a humanities and social sciences component within education and innovation. Gulbrandsen and Aanstad [4] likewise argue that the efficacy of scientific management is over-estimated, while Stehr [5] notes that a wide combination of technological, managerial, economic, and human factors is necessary for a successful knowledge economy. This accords with the New Institutional Economics paradigm of economic development articulated by Nobel prize-winning economist Douglass North [6] and popularized by Acemoglu and Robinson [7], who emphasize the centrality of sound institutions and a supportive culture for economic progress.

A major scholar of social and cultural capital is Bourdieu [8], who describes how these two concepts may be used or abused within the educational system of a country. All of the above theories put together have contributed to the current ruling paradigm in educational and labour resource management called "human relations," well described by Daft [9], Mullins [10], and Brown [11]. Conceptual and practical variants in the economics of education and national development are surveyed in depth by Cohn and Geske [12].

**Aims.** The first purpose of this article is to discuss the, not simple, relation between the natural and social sciences in stimulating technological innovations. The second purpose is to show how the newer concepts of social and cultural capital are connected to economic development.

**Methodology.** The methodological basis of the research is the methods of comparative analysis of scientific research in the field of social and natural sciences, the authors of which investigated human, social and cultural capital.

**Results.** I suggest looking at humanities and social sciences versus STEM and human, social and cultural capital

## 1. The humanities and social sciences versus STEM

Ukrainian officials should be careful in choosing the sources for their policy ideas. Some ideas seem universal; some are old enough to seem national; but often the origins of ideas can be traced to the habits and justifications obtaining in the

USSR. The USSR was a country that placed an uncritical belief in the ability of managerialism and the natural sciences to solve socioeconomic problems. A case in point is the old debate over the right balance in education between the humanities and social sciences (HSS) on the one side and vocational-technical courses on the other.

This debate has its counterpoint in Western countries, where it is abetted by the ideology of economic neo-liberalism. Consequently, many countries have adopted narrowly techno-economic policies in their secondary and higher education [4, 13,]. In this view, a HSS educational component is considered, if not irrelevant to the modern world, then at least an expensive luxury that detracts public investment from education in the STEM sectors thought to be more necessary for technological innovation in a competitive world economy [3].

A contrasting view is that the HSS are central to technological innovation. The reason is that the realization of innovation is fundamentally a social process [3], and that a HSS component in education improves the organizational functioning within which innovation is achieved. In support of this reasoning, other authors assert that there is a "flawed belief" that scientific results are the primary input into innovation processes. In particular, commercialization of academic science through patenting, licensing, and creation of spin-off companies is an activity that receives too much attention compared to its volume and significance [14]. Similarly, Gulbrandsen and Aanstad [4] assert that general education and training of a nation's future workforce are more important for innovation than natural sciences research. contribution of education and training to innovation is indirect; that is, general knowledge enables secondary and scientific school graduates to be more creative in The authors note also that the main challenge of innovation processes "is rarely a lack of [natural] science ideas (they tend to proliferate) but the corresponding ability to put [innovations] into practice ... through good user linkages." Consequently, educational courses focused excessively on the STEM fields may have little economic impact.

Furthermore, innovation – defined simply as "something new that is put into practical use" – is commonly found in low-technology and service industries [4]. For example, traditionally low-technology industries such as agriculture, transport, and logistics have vast potential for the application of known computer technologies. Therefore the emphasis should be to encourage not only STEM, but also to encourage the social sciences, which improve the functioning of social institutions and help diffuse the technological discoveries already at hand.

Unfortunately, vocationalist policy trends intensify in a weak economy, and result in a narrowly technical sort of education that creates a labour force that is passive at work and inactive civically [15]. As the economy declines because of misconceived educational and labour policies, this causes a downward spiral that seems to justify yet more vocationalism. This is what graphically occurred with the Soviet All-Union educational reforms of 1958, 1984, and 1988. The decline in the vigour of Soviet general and science education, and in economic performance, was accompanied by the vocational policy triumph and then stagnation of the Khrushchev-Brezhnev-Gorbachev education measures [16].

Essentially, Soviet policymakers lost their courage and opted for a "small" view of education and human abilities. Soviet budgets and institutional efforts retreated from fundamental scientific research to applied research, and from general secondary education to a more narrowly vocational one. At the same time, the Soviet economy failed to make the transition from a primarily commodities-based and steel-making profile to a services- and knowledge-based profile. Accordingly there was no inter-sectoral shift of labour and investment in the 1970s and 1980s from commodities and steelmaking industries to more modern electronics and service industries [17]. There was also a downward shift of students away from intellectually more-demanding general and science education towards vocational education, creating less intellectual value-added. That is, the talents of youths which could have been realized in more ambitious, knowledge-based professions were wasted by a misconceived vocational-technocratic policy of inducing youths into downward professional mobility and under-employment. And, as we witness today, the Russian economy lags technologically and remains undiversified.

It is well known that Soviet spending and efforts in research and development (5% of GDP) significantly underperformed; and only very late did Soviet policymakers understand that the economy was hindered by an under-developed service sector – a sector that comprises about 70% of the labour force in the most advanced Western economies. Most of the reason for poor innovation was the rigidities and disincentives caused by central planning, but also poor organizational functioning and the proverbial "waiting for instructions from above" by passive junior managers and workers. The underperformance of Soviet research and development and of a labour force trained for deference to authority underlines the importance for innovation of personal initiative and creativity, which a HSS education encourages.

Accordingly, Allen [3] takes issue with what he calls "techism" – the view that a country's prosperity requires a redirection of resources towards more technical He states that techism comes in two forms. "Highbrow techism" education. emphasizes the need for highly educated scientists and engineers to promote the expansion of manufacturing and related businesses. "Lowbrow techism" accents the need for the technical skills taught in one- and two-year college programs. Allen says that while it is true that the demand for technically trained workers is growing, the same is true for graduates in teaching, the humanities, and social sciences. These latter fields, he says further, are in demand because the widespread utilization of computers and information technology has revolutionized the organization of business and government. The new-style organizations put a premium on employees who can work independently and relate models to real situations, work well with other members of a management team or with clients, and who can speak and write These skills are developed in HSS programs. effectively. Techism, which concentrates on the production of new technologies and on the small details of their operation, misses the organizational revolutions that accompany the adoption of new technologies.

Another writer, Neuman [18], describes what occurs *intellectually* as children and youths read and study in the HSS. She argues that the HSS prepare people for many skills such as contextualization, creativity, ability to imagine alternatives, empathy, understanding of foreign cultures, problem-solving, and other skills that are useful for the economy, particularly the fluid and globalized economy of the present day. Holding to this view, the top universities – the Harvards, Stanfords, and Oxfords – have resisted the vocationalism and commodification of education currently advocated by neo-liberals, that threaten to submerge less prestigious universities. The most prestigious universities have survived decreased neo-liberal state budgets and increased "quality assurance" bureaucracies, because even the detractors of HSS have recognized that these universities produce intellectual value that more regulated and vocationalized universities may no longer be able to do well [19].

In a similar vein, Allen's evidence shows that specific skills training, by itself, has little payoff in a knowledge-based economy; that is, specific skills are brought to life only if accompanied by general education. And as per Neuman's description of the intellectual process within HSS education, one of the outstanding features of the knowledge-based economy is the breadth of advanced education and the skills it requires. Thus the relevant issue is not whether an employee knows how to operate an Excel spreadsheet, but to deal effectively with customers and colleagues, write and speak clearly, and make informed judgements [3].

Information technology has cut the cost of information. Concomitantly, the falling cost of information has made the hierarchical organization of business inefficient. Expensive senior managers no longer have the time to deal with all the information that can be cheaply and usefully produced. Citing Herbert Simon, a Nobel Prize-winning economist, Allen observes that "The scarce resource is not information, it is the processing capacity to attend to information. Attention is the chief bottleneck in organizational activity, and the bottleneck becomes narrower and narrower as we move to the tops of organizations" [3]. Therefore, the most desired employees are those who can take initiative in decentralized organizations, where employee characteristics developed by the HSS come to advantage.

The result of the computer revolution has been threefold, relates Allen. First, as noted, there is an increased demand for people who can understand the information generated by computer systems and apply it to the real world. These kinds of general intellectual abilities are the kinds developed in HSS programs. Second, organizational structures have become flatter. Instead of multiple layers of managers doing routine information processing, there are fewer layers in the hierarchy and employees are charged with analyzing and acting on the greater volume of processed information available. There is greater demand for people who can take responsibility; and whose capacities are cultivated in HSS programs. And third, the new-style employees need greater interpersonal and communication skills, both to deal with customers of the firms and to work together in self-directing teams. Once more, a HSS background makes employees more effective. In sum, the evidence

produced by Allen contradicts the lowbrow and highbrow technik vision of the emerging modern economy.

Consequently the techist, neo-liberal paradigm of education and labour training is losing some of its persuasiveness [20]. In any case policy should be informed by empiricism and not driven by ideology or stereotype. Thus it would be an error for Ukrainian policymakers to repeat the techist mistakes of Khrushchev and subsequent Soviet leaders. Policymakers should avoid what Evans [19] calls the "overmanagement of knowledge" and should not try to force the national economy into areas it does not need to go. Most of all, policymakers should not de-skill and de-intellectualize the young graduates of Ukraine, who have the ability for higher attainment than these policymakers might believe.

## 2. Human, social, and cultural capital

Following from the discussion above, it is evident that in conditions of a knowledge-based economy a focus only on human capital is insufficient; for countries also need to be more cognizant of social and cultural capital for maximizing educational opportunities and economic growth. This is especially true in a globalizing world in which individuals and organizations need to work with many people having different cultures and languages.

The concept of human capital is well known, being simply an arithmetical sum of the people in a country who have a certain number of years of education, vocational training, and work experience. But there is a need to understand how human capital relates to the newer concepts of social and cultural capital, and how an optimal combination of the three is desirable for a knowledge economy. A knowledge economy comprises a new developmental paradigm that links the economy to culture, and embraces economic, organizational, technological, and social aspects at both the macro and micro levels [21]. This implies the primacy of social inclusion and social and cultural factors in economic development. It also implies a culture of autonomy and openness of educational institutions [22]; and active participation within schools and universities by teachers and faculty, and by students who will become workers [23]. Furco [24] thus advocates an "engaged campus" that brings together multiple main stakeholders, where social and institutional processes, again, are central.

Social capital can be defined as the sum of trust among people in a society, that keeps people from conflict with each other and makes collective life possible and prosperous [25]. If citizens are willing to make sacrifices for the common good and obey the law though they could gain from dishonesty, they can be said to be living in a high social capital country. The transaction costs of doing business and of enforcement of laws and contracts are lower in high-trust countries, allowing society to invest its resources for more productive uses. Social capital is a seemingly intangible or qualitative concept, but nonetheless is greatly desirable for economic progress, because a trusting and peaceful society is more productive than one that wastes its substance on conflict and guarding. Social capital has consequences that are economically real [25].

Many authors assert that culture and social capital (stemming from history and subsequently expressed in institutions) are crucial for economic development. For example, Weber [26] argued that economic development was more rapid in the Protestant than Catholic regions of Europe, because Protestantism encouraged an ethos of thrift and individual responsibility instead of conspicuous consumption and responsibility-avoiding communitarianism. Similarly, Moore [27] and Huntington [28] saw that broad cultural movements forced the demand for democratization in politics, with the result that public institutions and economies were modernized. Fukuyama [29] goes so far as to say that culture, with attendant social values, is *the* crucial instrument in human progress.

This train of thought leads to the school of New Institutional Economics, whose authors argue that particular kinds of culture and institutions are crucial for the good functioning of economic systems; but not all countries have fortunate historical legacies that enable this. That is, a society must be able to set in place and enforce a transparent set of rules and laws, undergirded by social capital, within which an economy may develop. Without fair and enforceable laws and good institutional functioning, the economic field is left to exploitive monopolists and political authoritarians, who are usually one and the same [6, 7]. Thus, culture-based institutions embodying social capital are at the centre of economic progress. Without good institutions, the economy cannot grow well.

Further, this paradigm is informed by a related "human relations" or "open systems" paradigm of organizational functioning. This is a paradigm that is personcentred rather than elitist and emphasizes how the aspirations of individuals should be encouraged and aligned with broader institutional goals. The human relations paradigm emphasizes the empowerment and incentivization of individuals, instead of coercion and close supervision, which are holdovers from the old "scientific management" characteristic of Taylorism and Fordism, which had a counterpart in the USSR [2].

As for cultural capital, this concept owes much to Bourdieu [30], who considered cultural capital to be primarily a possession of individuals. This definition should not be confused with cultural capital as a feature of societies. In the case of individuals, cultural capital is considered to be such characteristics as ambition, materialism, confidence, and personal contacts, which help their possessors achieve upward economic and social mobility. Bourdieu asserted that cultural capital was closely connected to "socially useful knowledge," which tends to be stratified along lines of social class.

In Bourdieu's view, individual cultural capital and socially useful knowledge have the nature of "offensive weapons," used by the powerful and well-placed in society to forestall economic competition from the lower social classes. For example, knowledge of Ancient Greek and Latin, a possession of early-modern-era European youths from the upper classes, was necessary for social advancement at the expense of bright but indigent youths from the lower classes, even though Greek and Latin had no relation to technological and economic progress. More recently, French replaced Latin, and English is now replacing French as socially useful. Bourdieu's

point is that educational systems tend to be undemocratic and teach subjects that are not necessarily good either for citizens or for the economy. This occurs because established elites often try to use the educational system as a way to preserve their privileges, instead of opening society to the talents. In order to guard against ossification of the educational system, the system should continuously be imbued with a democratizing impulse.

The third type of capital, human capital, is both a private and a public good. It benefits the private person who has it; and it benefits the public because it contributes to economic competitiveness made possible by a skilled labour force. Consequently, both individuals and society have an interest in developing human capital. In practical policy terms, this means that individuals, taxpayers, corporations, and state officials can usually agree easily that human capital is a good thing. This view cuts across the ideological spectrum of socialists, liberals, and conservatives [31].

Thus it is usually easier to obtain financing for the kind of education that increases human capital than for other types of education, such as for citizenship, the arts, social justice, ethics, foreign languages and customs, or for social improvements such as the ecology or human rights. However, these are the subjects that help promote the growth of civic peace, social trust, and effective public institutions.

Human capital lies at the centre of an ongoing controversy concerning the extent to which education does or does not contribute to economic growth. And if so, then how? Some writers believe that education historically had little influence on economic growth. From this perspective it was factors other than education – natural resources, convenient transportation routes, organization, or the energy and ambition of individual inventors – that led to economic growth; and that education coincided with, but did not cause, economic growth. In this view, education is simply a luxury or consumption item. The opposite view holds that education and human capital are essential to economic development, especially in post-industrial economies. Consequently, any county that fails to spend enough on education will decline economically; and no country is rich that does not spend on education [32].

Authors Diebolt and Fontvieille [33] addressed this controversy in a long-run study of France and Germany from 1830 to 2000. The first observation the authors made is that, along with steady economic growth from the 1830s to 1945, there was also a steady upward trend in public expenditures on education. But they did not perceive that education had much to do with economic growth. Instead, they perceived the main causes of growth to be the presence of a large amount of finance capital and the better organization of labour and production. The educational institutions that existed at the time were not applied to the tasks of promoting economic growth, and these institutions did not conduct applied scientific research. This from the beginning of the industrial revolution until the interwar period of the 20th century, the education and training systems of France and Germany developed on the fringe of the capitalist production system. The comparatively simple, mechanical technologies of that era did not require a particularly educated labour force to operate these technologies; instead, these technologies were enhanced by an obedient labour force working on disciplined assembly lines supervised by professional bosses and managers.

All this, Diebolt and Fontvieille say, changed after 1945. The Second World War had disguised for a brief time the interwar economic depression, which had been marked by decreased returns of profit to finance capital. The authors make the interesting point that all the great advances of the welfare state occurred during or after each long depression; and that historically each depression was characterized by increased expenditures on human development, in both its social and human capital dimensions. The purpose of these measures was to improve the quality of the labour force, and in this way to increase the profit returned to finance capital. The increased public social expenditures in the first instance concerned education, but also covered the social welfare system, including child care, support for mothers, disability insurance, health, and reduced industrial accidents. The resulting higher social development then imposed itself as one of the driving forces of economic growth.

In the two authors' account, several other things happened after 1945. The first, just mentioned, was the maturing of the modern welfare state and workers' rights. Old assembly line techniques, based on obedient labour forces paid low wages, were not able to compete with modern labour forces that were better educated and enjoyed the productivity-enhancing social features of the welfare state. The second thing that happened is that the nature of technology itself had changed. The new main technologies were not based on simple mechanical engineering and metals and energy industries, but on more complex technologies such as chemistry and electrical engineering [33]. Figuratively speaking, one can place a poorly-educated metalworker on an assembly line, intimidate the worker, supervise closely, and force him or her to work; but this is not possible with a brain-worker. A brain-worker cannot be forced to think. The modern worker responds not to external threats but to internal incentives, and to working conditions that are not regimented but encourage the worker's initiative and creativity. These are things that come from within the worker and are controlled by the worker. This notion has its direct analogue in education, known by the term "student-centred learning."

To reiterate, these two trends put together – the welfare state, containing enhanced human rights and cultural and social capital, and the change in technology – in turn caused something else, namely that education and human capital had become as important for economic growth as had traditional financial and industrial capital earlier. This requires a qualitatively different kind of educational system, a different kind of worker, culture, and supporting institutions.

In this vein Diebolt and Fontvieille contrast economic efficiency in the pre-and post-1945 economic and industrial systems. The pre-1945 system economized labour by increasing productivity; and one way to increase labour productivity was to spend more money on industrial capital. Instead, the post-1945 system leads to efficiency not by making savings in labour, using fewer employees and working them harder, but by improving labour quality. In this scheme, production can be improved by incorporating more intelligence and knowledge into labour [5].

Conclusions. To conclude, it should be noted that human development is not opposed to efficiency, but in fact stimulates efficiency. In simpler words, the ideal labour force is not one that is technically competent while also disciplined, overworked, and poorly paid. Instead, a good labour force results from inclusive social policies and is healthy, secure, and well paid; at the same time that the personal aspirations of its members are aligned with organizational goals. The technocratic or scientific management paradigm has reached the limits of its usefulness in education, innovation, and economic progress. This paradigm now needs to be supplemented by more open educational systems and organizations, whose functioning is enhanced by cultural and social capital.

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