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About the "learning organizations" and corporate education in the context of innovation*

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Abstract. The current state-financed system of continuing professional education is often unable to catch up with the real needs of production and labor market in advanced training and professional retraining of staff. Corporate (internal) education is being developed as an alternative. It competes successfully with state educational systems, since it has a specific purpose – to train an employee for productive work specifically in his/her organization and for its benefit. Companies that are developing internal continuing education become "learning organizations" and gain obvious competitive advantages.

Key words: corporate education, corporate internal staff training centers, learning organizations, sectoral R&D projects.

Introduction

Corporate universities appeared in the late 1980s in connection with the globalization of the labor market and integration of national economic spaces[1]. Currently, there are about 1200 corporate universities in the world. The acknowledged leaders are Toyota University, ORACLE, MacDonald's University, General Electric, and Disney University. Science-intensive companies such as Google, Rolls-Royce, BMW, IBM, Sony, and Daimler-Benz

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[1] Gutowski J. *Corporate Education*. PublishAmerica, 2010. 542 p.; Chumakov A.N. *Globalizatsiya: kontury tselostnogo mira* [Globalization: the Contours of the Holistic World]. Moscow: Prospekt, 2005.

spend much effort in the training of their employees. We can see the scope of this activity on the example of Motorola, whose corporate university employs over 1,000 full-time teachers who conduct classes in 24 languages, and in 49 countries. It is noteworthy that only 10% of the total number of the full-time teachers previously worked in conventional universities.

Corporate education at the international level is getting out of state control and it becomes one of the main factors in labor migration. As a rule, education authorities within the state have to carry out a specific political and ideological policy; but at the international level they have much more freedom "to maneuver" and work for the benefit of their own internal interest.

It seems that it was not so long ago that the advocates of the famous Fordist model considered that it is unprofitable to train specialists and it is more profitable to hire new workforce. But with the growth of intellectual capacity of labor, the introduction of advanced science-intensive technology, and most importantly, due to the deepening specialization of professions and increase in the knowledge that an employee requires, internal staff training is becoming widespread. Training of employees becomes a profitable investment.

For instance, a large-scale study in several U.S. companies showed that the 10% increase in spending on staff training results in the 8.5% increase in labor productivity, while the same increase in investment enhances labor productivity only by 3.8%[2].

The scale of corporate education is impressive. Staff training becomes an industry, in which an increasingly important role belongs not to the government, but to employers, and which brings considerable profits. For example, the U.S. annually spends 70 billion dollars on staff training. We consider that it is not yet possible to assess the market of corporate education in Russia. Apparently, it several times exceeds the current public expenditures on the system of continuing professional education.

Corporate university (CU) is usually a separate structure (division) of a company; it organizes training and advanced training of its full-time employees according to special education plans. In fact, corporate university is a system of internal training, which is completely different from that of classical university. As a rule it has no deans, departments, and student's record books. There is no bell that announces the beginning and the end of the lesson. There are no honorary doctors and scientific degrees, which are inevitable attributes of a classical educational institution.

Experts name two main features defining the specifics of corporate training. The first consists in the fact that this form of education is always focused on the specific target group – the company's employees or employees of the industry for whom the training is completely free of charge and is, as they say, "off-the-job". This system of education is closed to outsiders.

The second essential criterion of the internal education system is the presence of a *common strategy of continuous development*, which involves continuous education – targeted and directed regular (periodic) training (retraining and advanced training of the staff of this company. At that the company gradually turns into a

[2] Gutowski J. *Ibidem*. Pp. 5-25.

"learning organization" where everyone is learning in certain periods of his/her career[3].

There also exists a more specific understanding of corporate education as a system of training of young specialists at universities at the senior level with the use of specially developed training programs, tailored to the company's specifics and its corporate culture. In this case a special training program for senior students (specialists and masters) at specialized (sectoral) universities is developed in those regions where the enterprises of the client company are located. Graduation papers are executed, as a rule, under the supervision of experienced employees of enterprises. Graduates are employed by the customer company on the basis of the results of final "corporate" exams, and the recommendations of the company's representative are also taken into account in this respect.

Thus, we can take the following definition of corporate education as a basis: a system of internal training, united by a single concept in the framework of the company's development strategy, and designed for all levels of managers and specialists[4]. In fact, we are talking about a real system of continuing professional education that acts in the form of a *learning organization*.

Corporate education in Russia

It is believed that inconsistency between the existing professional training institutions and the real needs and specifics of the labor market is a reason for the development of corporate education in Russia[5]. It is large enterprises themselves which, for obvious reasons, are developing this niche, since they know better what employees they need. We agree with the opinion of one of the interviewed experts that traditional universities and the almost entire system of higher and secondary professional education with its traditional programs, state standards, and curricula approved for several years ahead, lag behind the "corporate engine of knowledge" that is rushing forward.

At the same time, despite the criticism of modern high school, many experts point out that it is necessary to use the resources of traditional universities. For instance, the representatives of corporate universities and companies' training centers confirm that they are ready to work personally with individual teachers who meet the requirements of the corporations. This means that college professors will be able to develop and offer their own courses that take into consideration the specifics of the customer's needs; they will be able to update their knowledge continuously, demonstrate skills of dealing with modern technical means of education (including

[3] Rademakers M. *Corporate Universities: Drivers of the Learning Organization.* Routledge, 2014. 170 p.

[4] *Korporativnye universitety v rossiiskoi i zarubezhnoi praktike* [Corporate Universities in the Russian and Foreign Practice]. Moscow: Assotsiatsiya menedzherov Rossii, 2002. P. 8.

[5] To prepare this article the author used the data of expert surveys conducted by FSUE Center for Sociological Research under the Ministry of Education and Science of the Russian Federation in 2012 (supervisor – F.E. Sheregi). The study involved a number of leading Russian companies, corporations and joint stock companies, including Rosatom, Rostec, RusHydro, UES, Rosneft, Gazprom, Russian Railways, AVTOVAZ, JSC "Academician M.F. Reshetnev Information Satellite Systems", Khrunichev State Research and Production Space Center, ALROSA, JSC Vega Radio Engineering Corporation, JSC "Concern "Sozvezdie", Concern "Gidropribor", Shipbuilding & Shiprepair Technology Center, Roskhimzashchita Corporation, Concern "Okeanpribor" and Concern "Morinformsystem-Agat", Research and Production Corporation "Uralvagonzavod".

distance learning); and, most important, they will be "market-oriented" in every sense.

Another reason for intensive development of corporate education in Russia consists in the fact that top managers of large companies are interested in acquiring non-core assets, including those related to education. For many companies the possibility of extensive growth characteristic of the 1990s – early 2000s, has exhausted itself. Therefore, to maintain competitive positions, it is necessary to make qualitative changes primarily within the organization itself, including the active production and accumulation of human capital. In this context the principles of working with staff are changing, a new strategy of professional retraining and advanced training of employees is introduced.

Another prerequisite for the development of corporate education is connected with a sustainable trend toward the merging of companies and establishment of large holdings. When one company buys another, there always arises the problem of combining different management systems, "compatibility" of corporate structures and values. This problem is handled by developing special education programs which ensure unification of business technology and dissemination of business values.

When financial groups decide to invest, they look not only on business profitability, but also on how safe it is to invest their money in this business. The agencies that make investment ratings usually point out two main factors: financial transparency and managerial transparency. The latter is determined by the presence of the managers training system within the company, by the presence of unified and modern standards in people management and in the actions of managers in various positions.

One of the key elements in the activities of the corporate university lies in the selection of its target audience. This determines the scope and specifics of educational and training programs. Russian experts have different opinions concerning who and what we should teach in the corporate university. Despite the variety of corporate education models in the surveyed companies, they have a common target group – the employees of these companies, regardless of their position.

The ratio of the volume of educational services for various levels of positions is different in different companies. Some companies provide mostly educational services for technical staff, and others have programs for middle managers; in some companies the formation and development of personnel management reserve plays an important role. At that, the employees have virtually no alternative choice in education: some of them need business education, others need advanced training, technical training or innovation-oriented training.

As for additional courses on adaptation of newcomers who got the job right after they graduated from a "conventional" educational institution, the situation is quite similar everywhere. Special attention is paid to the training of personnel reserve directly in higher educational institutions. It concerns mainly technical and engineering specialties. An example of such interaction can be found in the internal training system at the Moscow City Telephone Network (MGTS), which finances the basic inter-university department at the Moscow Technical University of Communications and Informatics (MTUCI).

Annually after the completion of the third year of education a group of 30 people is selected, and, on the basis of the additional agreement, they study all the telecommunication systems of MGTS. Specialists of the Moscow Telecommunication Network give special courses of lectures describing what is being done in practice. In addition, MGTS concludes agreements on the training of specialists on a commercial basis. If they are children of the company's staff, MGTS pays for their training, and after graduation they are employed by the company.

Thus, the main directions of modern corporate educational process should be considered the following: *first*, the training of the company's managerial staff at all levels and the training of personnel reserve; *second*, the training of young specialists; *third,* the advanced training of personnel who are directly involved in production. Corporate universities as a system of internal training have occupied a niche of applied engineering education that has almost dropped out of the modern system of public education.

Professional training is carried out at all educational levels – primary, secondary, higher and postgraduate. For instance, an average of 8.0% of the surveyed enterprises and companies have their own (corporate) advanced training courses for workers who graduated from vocational schools or lyceums (elementary vocational education); 8.5% – for specialists who graduated from technical school (secondary vocational education); 8.5% – for specialists with a university degree (higher professional education); 22.3% – for workers with complete or incomplete general education[6].

[6] Data of FSUE Center for Sociological Research under the Ministry of Education and Science of the Russian Federation (2011). Supervisor – F.E. Sheregi.

Saint Petersburg, Central Russia, the Volga, Volga-Vyatka, Urals and Eastern Siberia regions, heavy industry enterprises, and financial institutions have especially large share of enterprises that have corporate educational institutions for retraining and advanced training of specialists and skilled workers.

Among those enterprises and institutions that do not have their own full cycle of professional training of specialists and skilled workers 1.8% are going to establish courses for personnel who graduated from elementary vocational education institutions; 0.6% – for the graduates from secondary vocational education institutions, 0.9% – for specialists with a university degree. The share of those enterprises that are going to establish advanced training courses is significantly greater – 14.2%.

The companies that have their own base of complete cycle of professional education satisfy their own demands in skilled personnel: in those who graduated from elementary vocational education institutions – by 55.9% on average; in the graduates from secondary vocational education institutions – by 68.9%; in those who have a university degree – by 71.2% on average. These figures in almost all the industries are especially big in Moscow, Saint Petersburg, the Volga, North Caucasus, the Urals and Far East regions *(tab. 1 and 2)*.

The issue of corporate education efficiency is the most important one. For the enterprise which organizes training for its employees such criterion consists in the growth of profit, increase of competition and growth of capitalization in the stock market. No less important is the growth of

Table 1. To what extent does the corporate base of professional education satisfy the demands of an enterprise (company) for personnel training (by region), %

Level of training of specialists and skilled workers	Moscow	Saint Petersburg	Volga	North Caucasus	Ural	Far Eastern
Vocational school, lyceum (elementary vocational education)	90.0	48.3	31.8	70.0	56.7	40.5
Technical school (secondary vocational education)	90.0	57.5	52.5	78.0	59.1	50.5
University (higher professional education)	87.5	55.6	61.7	68.0	76.3	0.0

Table 2. To what extent does the corporate base of professional education satisfy the demands of an enterprise (company) for personnel training (by branches), %

Level of training of specialists and skilled workers	Branch				
	Consumer goods industry	Heavy industry	Services sector	Construction	State-financed institutions
Vocational school, lyceum (elementary vocational education)	70.0	40.5	63.3	73.0	46.3
Technical school (secondary vocational education)	70.0	62.7	70.8	78.2	63.3
University (higher professional education)	60.0	80.8	67.4	67.5	76.7

social payments and benefits for employees, which, again, are directly related to the general economic performance indicators. As a rule, for the employees who are to attend training courses the primary indicator of effectiveness is career growth and increase in wages. Motivation to study is usually connected with the achievement of these indicators. However, motivation can vary greatly, depending on the learner's status. For example, the study of internal education at the Russian subsidiaries of a large international company has revealed significant differences in the groups of high and middle managers *(tab. 3)*.

Modern departmental and corporate education in Russia is distinguished by the fact that it is difficult to assess its effectiveness objectively. In international practice, when choosing the educational program, the consumer focuses on the rating of an education provider and, as a consequence, on the expected increase in salaries and career growth. For instance, according to our calculations based on the data provided by RLMS-HSE, the wages of employees in Russia usually grow by 10–20% faster during the first two years after obtaining continuing professional education than the wages of those who did not attend any training courses. That is why authoritative world rankings are based primarily on the growth rate of salary after obtaining a degree. It is difficult to create such a rating in Russia.

Table 3. Motivation of participants of corporate training at Japan Tobacco Int. (Russian branches), %

Motives/position	Decision of the chief executive	Desire to discuss problems with colleagues	Desire to improve one's own competence	Desire to change one's environment
Chief executives	0.0	42.9	57.1	0.0
Middle managers	35.5	5.0	40.0	20.0
% of the total number of those who participate in continuing professional education	29.8	10.6	42.6	17.0

The real remuneration of employees, including a significant share of "grey" salary is almost impossible to determine; as a consequence, the effectiveness of education can be estimated only indirectly. On the other hand, direct investments of business in education make it possible to divert attention from the level of "opaque" wages and to establish control over the ratio of investments to the profits of enterprises. If this ratio has a positive trend and it suits the business structure, it is a reliable enough argument in favor of the high rating of an educational program.

There exist different opinions concerning the criterion such as the transition of a corporate university to self-sufficiency and profitability. Most experts believe that the transition to self-sufficiency and self-financing will ultimately have an adverse affect on the quality of staff training, since the educational structure will solve its own tasks to ensure profitability.

In general, given the current stage of formation and development of corporate education in Russia, we can say that the understanding of its economic efficiency is rather vague. Managers generally agree that their staff needs training, but the size of investments can vary greatly. In fact, every business and company have their own ways to solve the problem of the ratio of outsourcing to education; in other words, the ratio of the number of those who should be trained to those who are more profitable to hire from outside.

Particular attention should be paid to the rate of personnel turnover. Almost all the experts do not consider the reduction in turnover to be a direct result of corporate education. This is due to the fact that the existence of the internal training system is connected not so much with the problems of personnel retention, as with the enhancement of their professional capacity for the purpose of the company's development. The experts highlight the existence of a certain relationship between personnel training and the rate of turnover. Moreover, this relationship has two aspects. According to one of them, personnel training can contribute to its turnover if a rival company shows interest in attracting such an employee to its own side. On the other hand, by enhancing the skills of an individual employee, the company invests in his/her human capital and contributes to his/her internal career growth.

Internal training process

We have already noted that corporate education largely depends on the ratio of the share of general knowledge to special knowledge in the content of the classes. Of course, we mean not the general education subjects, but the knowledge, skills and technology that are used at the enterprises of the industry (large company) or that are used only at a particular enterprise. It is clear that the value of a highly focused specialist for the company is higher than that of an employee with the mass specialty. For example, it requires not more than 20% of special knowledge on the company's activity to train top managers for the Volga Hydroelectric Station. However, if we mean the training of specialists involved in specific (sectoral) technology, then the volume of special knowledge reaches 80%. In these cases a corporate university can be transformed into an independent faculty or institute. No doubt, a manager is more mobile on an out-of-the-industry labor market, and a highly focused specialist will always be in demand within the company itself.

Russian Railways provides an interesting example that shows the relevance of highly specialized knowledge. The commissioning of new-generation locomotives equipped with modern digital control technology caused the necessity to retrain engineers, repairmen and locomotive drivers. As a rule, those who are to undergo training are sent to a railway school or to a base depot, which can be located several hundred kilometers from the principal place of employment. After graduating and obtaining new knowledge, a specialist does not always return to his/her former place of work, and is often transferred (with the provision of in-house living quarters or preferential mortgage) to other depot where he/she organizes the repair and maintenance of incoming locomotives. Thus, internal mobility is provided through training.

Advanced training and professional retraining of managers with regard to the specifics of the company is a particularly important area of activity of a corporate university. Requirements for management personnel in the current competitive environment are radically different from what they used to be. The understanding of the fact that managers' training within the company is very promising comes gradually. The development of this process is influenced by factors such as stable macroeconomic situation (allows for investing in education and research) and the integration of enterprises (creation of holdings), which causes the necessity to unify the management of the enterprises that are located in different regions of the country and that often represent different economic sectors. Training of managers is carried out on different levels – from line managers of the lower level (foremen, masters) to the personnel reserve for companies' top management. Advanced training of chief executives is usually in the hands of top managers themselves, since they are highly skilled specialists (several degrees, MBA, significant experience). They do not have to be taught in basic management skills, and their advanced training can be carried out informally, on the job. They get the necessary specific new knowledge and skills mostly while communicating with colleagues at conferences, exhibitions and presentations. At the same time, strict subordination and

hierarchy in most cases does not allow the staff of the training center, regardless of their standing in the company, to evaluate their chief executives and give them advice on advanced training.

At present, the efforts aimed at professional development of managers are undertaken in almost all training centers. The sector of the economy in which the company operates is not important for this type of educational activity, because the basic management principles are universal in all the areas. Besides, a similar situation (cross-sectoral work) mitigates issues such as competition and information protection, which are very important for modern economic actors.

Thus, the efficiency of investment in corporate education has three aspects.

First, it is the very economic efficiency, which consists in bonuses for employees and profits for the enterprise, namely, the excess of profits over expenditures. In economic terms it means that an investment is effective when the benefits acquired cover the costs – unrecovered costs, losses due to inflation, etc.

Second, we should bear in mind that financial investment results in the production and accumulation of intangible human capital, which in time is converted to the results expressed in money terms in the form of rising wages and profits. When these indicators are compared with one another, the efficiency of investments can be traced more clearly[7]. The difference from the first aspect lies in the fact that investments in human capital, made by corporations, have external effects that are gained not only by the employee and the company, but also by another enterprise and society in general.

The third aspect is instrumental. Continuing education is for other companies (potential employers) a *marker*, which by means of diplomas, certificates and records highlights individual capabilities of students and the prospects of their participation in the paid professional work. Obviously, such "sifting" and screening of potential employees demands the creation of quite a costly system of schools, courses and training centers. However, this does concern those groups of workers who apply for jobs of little prestige like watchman, janitor, cleaner, usher, conductor, registering clerk, dispatcher on the home telephone, etc.

Corporate science and education

Of great importance is the issue concerning the relationship between corporate education and scientific research funded by the company and applied in the technological process (R&D). The company's educational and scientific departments usually have no organizational connections with each other on the initial stages of company development. The largest companies establish their own research centers because knowledge becomes an important competitive factor for them. As soon as the management realizes this fact, they start thinking about the people who are able to carry out the necessary research. The training of personnel capable of such activity becomes one of the priority areas of corporate education.

No doubt, the development of corporate science allows the company to remain highly competitive. The ideology and form

[7] Didenko D.V. Finansirovanie rossiiskogo obrazovaniya i nauki: rol' institutsional'nykh sektorov ekonomiki [Financing of Education and Science in Russia: the Role of Institutional Sectors of the Economy]. *Finansovyi zhurnal* [Journal of Finance], 2014, no. 1, pp. 111-122.

of departmental research sections are radically different from the former Soviet sectoral institutions. The main difference consists in the closed nature of the research carried out at corporate research centers regardless of R&D subject. The thing is that information and research findings become a competitive advantage for every company that wants to keep them secret from others. The entire development strategy of a company is founded on its resource base, and the latter is formed on the basis of scientific research (R&D). R&D sources and the associated costs are presented in *table 4*.

The amount of funds allocated to R&D is an important indicator of the company's competitiveness. For example, Gazprom and RAO UES of Russia invest over one billion US dollars in corporate science each year. This is considered the optimal level for the companies of this scale. The structure of scientific research funding in smaller companies is as follows *(tab. 5)*.

R&D is considered to be an innovation direction of company development. Their effectiveness is usually judged by two indicators. The first is the total cost of R&D per employee. The second is the share of revenue from R&D in the aggregate profit of the company. As a rule, these indicators are closed to outside experts; however, they can be estimated by indirect methods. Such methodologies are used by analytical agencies that can assess the likely prospect of new developments and technologies in the relevant market segment at the commission of competitors.

In this regard a new and principally important trend is emerging: the training of scientific personnel, traditionally considered a government prerogative (since the achievements of science are a source of national pride), is gradually shifting to corporations. Large companies are interested in the training of their own scientific staff if not "from scratch" (the leading universities do well in this respect), then starting from a certain level that requires specialization in the company's field-specific area. This can be a master's level or a more advanced one, if we talk about continuity in the government and corporate education. But most of this training takes place in a design office, laboratory, design or research institute financed by the corporation. It is connected with the development and implementation

Table 4. R&D funding sources of corporations, %

	Federal budget	Local budget	Russian grant	Foreign grant	Commercial contract (economic agreements)	Receipts from sponsors
Share of receipts	30.3	2.5	1.2	0.1	65.7	0,2

Osipov G.V., Strikhanov M.N., Sheregi F.E. *Vzaimodeistvie nauki i proizvodstva: sotsiologicheskii analiz* [Interaction between Science and Production: Sociological Analysis]. Moscow: Institut sotsial'no-politicheskikh issledovanii, 2014. Part 1, Pp. 141-143.

Table 5. Funding of scientific research in corporations, %

	Payroll	R&D funding	Corporation's deductions	Other charges (taxes)
Share of expenditures	30.3	15.4	41.2	13.1

of technological and high-tech (knowledge-intensive) innovation in modern economic relations.

Since 2010 major state-owned corporations have adopted and are now executing innovation development programs that provide for the significant increase of R&D expenditures. At the same time the resources are concentrating on the so-called drivers of development (Centers/Points of Excellence) and breakthrough research directions. Such centers for corporation development represent a section (or a group of sections), which is engaged in research and development in breakthrough areas of knowledge and technology, and possesses unique logistical, intellectual and human resources. The center is distinguished by particularly high performance efficiency and quality of the product. As a rule, these centers are national (sometimes international) leaders in one or more areas of science and technology, and at the same time they serve as a link in the **transfer of technology** from the cutting edge of research to national companies and laboratories.

An important component of corporate education is corporate ethics – training in behavior patterns customary in this company. To date, almost all of the largest domestic companies have adopted codes of ethics that set out the main provisions of corporate ethics and values. This code contains a list of basic principles that the corporation employees at all levels should follow. It also defines the principles of delegation of powers, participation in the competition, business partnership, relationship to information (trade secrets), corporate behavior and image of the staff. Special attention is paid to the prevention of the situations where there is a discrepancy between the personal interest of an employee and the interest of the corporation, or when there is a possibility of jobbery.

From the viewpoint of educational technology the study of the system of corporate values is informal; it is merged into daily work. The special ethics committees also play an important role, because they handle the most complicated cases of application of the corporate code of ethics; and the decisions by such committees are then widely disseminated to employees. In addition, the texts of the codes are usually placed at the company's websites and are available to everyone interested.

We should also note another important feature such as the special social effect of corporate education. Indeed, on the one hand, the development of corporate training helps to deal with business challenges of enhancing its efficiency and development. However, the social component of corporate education, as was mentioned above, consists in the formation of the market of highly skilled specialists and also in the production and accumulation of human capital.

Despite the obvious benefits of corporate education, one has to consider the arguments of the opponents, who believe that colleges and universities, rather than enterprises, should be engaged in professional training. Critical attitude to corporate education is based usually on the recognition of a possibility of infringement of students' rights and interests. Corporate universities are usually non-transparent to the state and to the public in contrast to "ordinary" educational establishments. Another argument consists in strong

doubts concerning the necessity of focused specialization (due to more general and, therefore, more easily convertible knowledge) that a corporate student is subject to; and the emerging attachment to a particular technological process. One also criticizes the programmed nature of training, in which any deviation from the program or the individualization of the educational process become impossible. Besides, sometimes one has to sacrifice general education and moral attitudes in favor of well-paid professionalism, because corporate values do not always coincide with the standard ones, including family, religion and civil values. An expert points out: "In corporate education people are taught to act out of habit. Here, as a rule, the conformist without any self-reflection skills is encouraged rather than the one who thinks and is capable of change and growth. Corporate university graduates will hardly be able to apply the acquired knowledge with the aim of social transformation or to change the usual way of life and thought"[8].

The "strongest" argument of critics is that corporations are "skimming off the cream" and train their employees in the fields with the highest investment performance. Thus the state is left with low-profit (from the viewpoint of the private returns from high public costs of training) and mass professions such as teacher, doctor, semi-skilled worker, etc.

However, despite the criticism, corporate education is successfully expanding its capabilities and scope. Today in the majority of countries that are distinguished by vigorous economic development the growth of people participating in education is associated primarily with the needs of professional activity rather than the overall development and enhancement of extensive knowledge[9]. Therefore, one should expect that training and retraining at the expense of employers will be still determined by the market needs; as for the subjective wishes of students, or, as they say, their "educational paths" will be taken into account only to the extent that they meet these needs.

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