

**NEW CHALLENGES FOR THE TRAINING OF THE HUMAN  
CAPITAL THROUGH THE SYSTEM OF TERTIARY EDUCATION IN  
THE CONTEXT OF THE KNOWLEDGE ECONOMY**

*MINICĂ Mirela<sup>1</sup>*

*Eftimie Murgu University of Reșița*

---

**Abstract**

*The article aims at identifying the connections between knowledge economy and the outputs of the academy education system. We started from the hypothesis that a good awareness of the knowledge-based economy characteristics allows the analysis of the quantitative and qualitative aspects of Romania's tertiary education in European context. Starting from the study of bibliography and reports of international institutions we reached the conclusion that higher education represents an essential pillar of the strategy of sustainable development, simultaneously based on economic growth, competitiveness and sustainability of any national economy. The adoption of a generic process model for triologic learning is a proposal of the author for the adoption of a management system focused on the training and development of competencies, meant to enhance the inputs and then the career opportunities for the economics graduates. Today's crisis, although manifested with priority on the economic level, originates nevertheless in people's crisis of identity and morality, and a post-crisis evolution can be grounded, in our opinion, only on a new mentality, where the collaboration component of competition economy should become dominant, one of the forms of manifestation being the real public-private partnership between universities and real economy.*

**Keywords:** *knowledge economy, higher education, labour market, graduates' competencies.*

---

<sup>1</sup> *Associate Professor Ph.D., University "Eftimie Murgu" of Reșița, minica\_mirela@yahoo.com*

## 1. Knowledge economy

Emergence and alert development on which knowledge economy is based may seem difficult to understand at least for two reasons. On the one hand, because the fundamental notions of information and knowledge have always existed in economy. On the other hand, from the perspective of planning in market economy (F.Taylor, 1929; F. Hayek, 1935; O. Lange, 1935) we may say that the '60s marked the apparition of the first articles debating the problem of information economy. Before this period, grace to the development of cybernetics and communication theory in the '40s and '50s, a high number of economists approached this new science, with a crucial impact. Starting with the '70s the theory of information became an object of preoccupation for economic science. In that period, this interest was inspired especially from the perspective of imperfect market survey of neo-classical inspiration, where the information of agents from the cognitive or psychological plane are not found in practice.

Along with the introduction, in the '80s, of the Walrasian neo-classical theory, knowledge and growth accumulated new valances, more difficult to measure, as they have a complex and interdisciplinary character.

In the present stage of knowledge may we speak of a new domain of research, "the science of knowledge"? If yes, what are the essential principles underlying it?

### 1.1. Brief history of the evolution of the knowledge economy science

It is difficult to identify the apparition date for knowledge economy. We may however list several key dates:

- 1965: the apparition of the theme in the programme of the annual conference of the American Economy Association;
- 1971: publication by D.M. Lamberton of the first volume of texts on the topic *Economics of Information and Knowledge*;
- 1976: introduction of the notion of information in the index of economic journals of the American Economy Association.

The theme of knowledge was not absent nevertheless in the periods previous to those dates. Thus:

- Labour division, since its start, raised questions related to the development of knowledge and intelligence, or on the contrary, the causes limiting it (A.Smith, 1776; A.Ferguson, 1783)

- The theme of the relation between the information structure and organisation is approached by F.Knight in the '30s;
- The questions regarding the optimum size of companies in correlation with the capacity of knowledge to plan is the core theme of Penrose's theory, approached in 1934 by N. Kaldor and A. Robinson too;
- The role of information in the structure and equilibrium of markets is discussed in many a paper; in the analysis of the relation between the monopolistic competition and the role of publicity (E.H. Chamberlin, 1933); within the theory of oligopoly raising the issue of anticipating the overlaying of oligopolistic interests (W.Fellner, 1949);
- Hayek's theories on the distribution of knowledge necessary in socialist planning (in the '30s).

All these elements were dispersed and never treated systematically. That is why we prefer to consider the '50s as the birth period of the knowledge economy.

*The '50s and the apparition of the enterprise theory*

- Between 1950-1953 we witness the occurrence of the principle of profit maximisation. The terms of the theory are forwarded in the '50s by A.Alchian who was the first to invoke the argument of natural selection for justifying the maximisation and continuous growth of profit. R.Nelson and S.Winter, promoters of contemporary evolutionism in economy, lay the stress in their enterprise analysis on the routine option, which constitutes the place where knowledge is manifested. They consider that routine represents the most important form of storage for specific knowledge, either operational or organisational.
- In 1959 E.T.Penrose published his famous theory of the firm's growth. It starts from the principles, specific to the macroeconomic theory of the moment, according to which the enterprise should be regarded as an "autonomous administrative planning centre" which intervenes in the organisation and the set of production activities. As resources *in se* never constitute what we call production factors, only the services they can offer, it follows that the productive activity depends on the productive potential, which comprises all the production possibilities entrepreneurs know and can apply in

practice.<sup>2</sup> Starting from here, the entire theory forwarded by Penrose is a plea for the necessity of approaching the cognitive conception of the enterprise.

- In Cyert and March's works (1963), the organisational orientation is more radical, in the sense that the "productive" aspect of the enterprise disperses. What becomes dominant is the image of the enterprise regarded as a system of decision and problem solving. On the contrary, we find in these authors' papers an enriched vision grace to the highlight of conflicts and divergences related to the firm's objectives.<sup>3</sup>

*The end of the '50s and the apparition of the microeconomic theory of innovation and technical changes*

Between 1958 and 1962 numerous fundamental articles were published about research-development and knowledge economy:

- In one of his first articles discussing this topic, R.Nelson (1959) meditates on the issue of quantity of resources a country has to allot to scientific research, defined as "human activity focused on knowledge enhancement, which is in general of two types: facts and data oriented towards reproduction experiences, and theories of relations among facts".<sup>4</sup> He remarks that, in the case of the existing knowledge, marginal costs are null, and hence the necessity to manage knowledge as a free access common pole.
- The same issue is debated by K.Arrow in 1962, in a fundamental article with macroeconomic character<sup>5</sup>, about learning from practice.
- An article written by J. Stigler and published in 1961 introduces the notion of "search" to design the process by which a purchaser (or a seller) attempts at obtaining the best price, by researching several sellers (or purchaser). Acquiring real information about the market situation becomes thus a key element in the activity of any economic agent.

---

<sup>2</sup> Penrose, E.T., *Theory of the Growth of the Firm*, Basil Blackwell, 1959

<sup>3</sup> Cyert, R.M. and March, J.G., *A behavioral theory of the firm*, Petience Hall, 1963

<sup>4</sup> Nelson, R.R., *The simple economics of basic scientific research*, Journal of Political Economy, vol.21, 1959

<sup>5</sup> Arrow, K., *The Economic Implications of Learning by Doing*, Review of Economic Studies, Stanford University Press, 1962

- In the same year Muth's article is published where he forwards the principle according to which agents use all available information, and the representation of the economic system can be regarded as applied knowledge underlying rational anticipations.

*The '60s: the first connections between information economy and education*

- In 1962, F. Machlup opens the stage of measurement and place of cognitive activities in American economy. In 1966 K. Boulding's article is published about knowledge economy, the first publication bearing this title. In the '70s we witness the apparition of numerous studies about the role of activities based on knowledge and information, in developed economies. The most important empirical study was published by M. Porat (1977)<sup>6</sup>.
- As a completion or in parallel we remark the apparition of the notion of post-industrial society, developed by D. Bell (1967), the creator of the concept, and then by A. Touraine (1969) (under the name of programmed society).
- The term of *human capital* naturally occupies an important place in the analysis of knowledge role and mechanisms.

In a fundamental article published in 1956, T. Schultz draws the attention upon ignoring two important factors: enhancement of people's aptitudes in the capacity of productive agents and improvement of the art of producing.<sup>7</sup>

While E. Denison tries to evaluate the role of training starting from the decomposition of residual value from Solow's model (1962), T. Schultz estimates education's indirect costs (1960), and then directly assesses the contribution of education stock to the growth of national product (1963).

*The '70s and consideration of imperfect information in market functioning*

At the beginning of the '70s a series of articles appeared which contributed to the collective effort of integrating imperfect information into the market theories.

---

<sup>6</sup> Porat, M., *The Information Economy*, Special Publication, Department of Commerce, Washington D.C., 1977

<sup>7</sup> Schultz, T.W., *Reflection on Agricultural Production, Output and Supply*, Journal Of. Farm Economics, 1956

- Most articles are dedicated to unemployment and development of the thesis according to which it is a consequence of a search for a job based on imperfect information., starting from the idea that this search involves a cost. A. Alchian, in a well-known text, suggests a certain type of unemployment “is self-employment in information collection”<sup>8</sup>
- In 1970 Akerlof published his article highlighting several difficulties occurred on the labour market when sellers and buyers have different information.
- Spence’s model (1974) treats education as a signal of competence.
- Another field exhibiting the asymmetry of information is the enterprise: shareholders and administrative management do not have the same types of information and do not have always the same interests. Starting from incomplete management contracts, it is proved by M.Jensen and W. Meckling (1976), O.Hart (1995) what the costs of the systems of incomplete information are.

If we wish to take into account both human knowledge and machine knowledge (computers), first of all we need a more general vision on information. A general theory of information was elaborated in 1984-1985 taking into account also the phenomenology information, specific to the mind.

As knowledge is information, but information with a certain meaning (by itself), it can be mental (on the conscious, subconscious or superconscious level), which means that structurally it is phenomenology. Knowledge can be only in relation with a certain structure (matter or energy), according to modern quanta theory, even inanimate objects can have knowledge (contemporary intelligent agents). A piece of knowledge as information may have a passive form or a dynamic (active) form if it acts alone.

The informatic software, without artificial intelligence, as it acts based on knowledge that was stored in it by the programmer, is dynamic (active) knowledge. Things are the same as regards organisational information, which, if it acts alone, is a form of knowledge.<sup>9</sup>

We may remark how much one can expand theoretically also the notion of knowledge, which acquires a great importance for society in all its forms of manifestation.

---

<sup>8</sup> Alchian, A., A., *Information Costs, Pricing and Resource Unemployment*, Phelps E.S., Norton, 1970

<sup>9</sup> <http://www.preferatele.com/docs/filosofie/3/cunoastere-5.php>

## **1.2. Characteristics of the knowledge society**

Attempting a synthesis of the above, academician Mihai Drăgănescu points out the following<sup>10</sup>:

1. Development and enhancement of scientific knowledge and truth about existence.
2. Use of knowledge management under the form of technological and organisational knowledge.
3. Production of new technological knowledge through innovation.
4. An unprecedented dissemination of knowledge to all citizens by new means, using with priority the Internet and e-books, and the use of e-learning (learning methods through electronic procedures).
5. The knowledge society represents a new economy where the innovation process becomes determining. The influence of the Internet as a market in the informational society and the acknowledgement of the importance of the value of intangible goods (assets), especially knowledge, represent the characteristics of the new economy.
6. The knowledge society is fundamentally necessary in order to ensure an ecologically sustainable society.
7. The knowledge society has a global character and is a factor of globalisation.
8. The knowledge society represents a new stage of culture. The culture or knowledge will take the front plane, involving all the forms of knowledge, including artistic and literary knowledge. Thus, the field will be prepared for what we called the society of conscience, truth, morality and spirit.

## **2. Quantitative, qualitative and structural aspects of the Romanian higher education**

The human capital, irrespective of the aggregation level, represents a neofactor of production essential for the economic-social development, in the context of the knowledge-based economy. All are aware of the theory according to which the accumulation of physical capital is insufficient for supporting a long-term growth.

---

<sup>10</sup> Drăgănescu M., (2005) *Societatea informațională și a cunoașterii. Vectorii societății cunoașterii / Information and knowledge society. Vectors of knowledge society*, [http://www.racai.ro/INFOSOC-Project/Draganescu\\_st\\_a01\\_new.pdf](http://www.racai.ro/INFOSOC-Project/Draganescu_st_a01_new.pdf)

The new theories insist upon the role of the human capital, which proves to be a determining factor of growth.

In Global Competitiveness Index presented in 2006/2007 at the World Economic Forum (WEF), it was pointed out that tertiary education represents one of the main pillars of a sustainable economic growth and of long-term prosperity.<sup>11</sup>

The starting hypothesis is that the countries that stimulate the system of higher education (characterised by a higher flexibility of inputs and outputs and a higher recovery rate) exhibit (both quantitatively and qualitatively) a higher rate of success than the administratively centralised systems.

We shall insist in this article only on the way in which academic education contributes to the development of the competencies necessary to alumni for a good integration into the labour market, both in the initial access phase and of career evolution by lifelong learning.

### **2.1. Quantitative aspects of higher education**

The strictly quantitative analysis of the number of students exhibits an ascendant trend throughout the world, from 15.4 students per 1000 inhabitants in 1999 to 24 students per 1000 inhabitants in 2009. In Romania, in the year 2011, the ratio was of 56.1/1000, value with which we rank 24<sup>th</sup> among the 160 countries for which there are data. In the European Union, where 19.5 million students are enrolled, Romania ranking 7<sup>th</sup>.<sup>12</sup>

If in 1990 in Romania there were less than 200,000 students, in 2007, the year with the largest university population, there were 900,000 students, whereas in 2012 the number dropped to less than 500,000 students.

Apparently, the situation is satisfactory from the quantitative perspective, but behind this primary statistic, the Ministry of Education, in the last Report on the situation of education in Romania for 2010/2011 points out that we have greatly fallen behind compared to the European targets.<sup>13</sup>

---

<sup>11</sup> F.van der Ploeg, R. Veugelers, *Higher Education Reform in Europe*, CESifo Economic Studies, 54, 2/2008, Downloaded from <http://cesifo.oxfordjournals.org/> at Universitatea Eftimie Murgu, January 12, 2012

<sup>12</sup> [https://www.fundatiadinupatricia.ro/ro/media\\_room/stiri/639](https://www.fundatiadinupatricia.ro/ro/media_room/stiri/639)

<sup>13</sup> <http://www.tincutaapateanu.ro/2012/07/25/raport-privind-starea-invatamantului-din-romania-2011-parte-a-iii-a/>



*Higher education:* in the age segment 30-34 years of age, the percentage of higher education graduates is 18.4%, the lowest in the European Union, where the percentage is almost double.

*Students' external mobility:* only 2% of the Romanian students learn abroad, the EU average being of 2.8%. The participation in the Erasmus programmes is only 0.3%, way below other European countries..

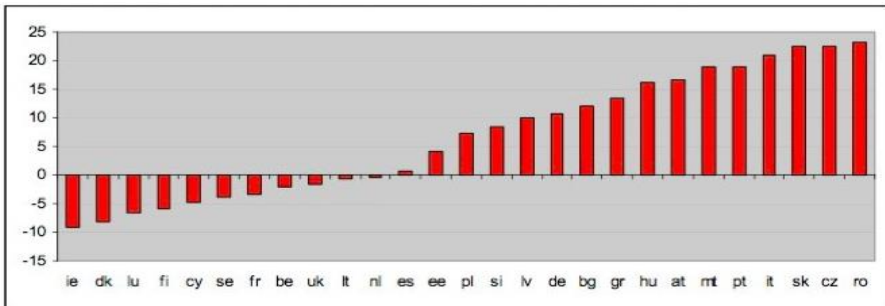
*Adults' rate of participation in the lifelong learning process:* it is 1.3% in Romania compared to 9.1% in the European Union, and the 2020 target is 14%.

**Table1. Romania's situation in comparison with the 2020 European indicators**

Indicators	Romania		EU average		EU targets	
	2000	2010	2000	2010	2000	2010
Rate of early abandonment of the education and professional training system (young people aged between 18 and 24)	22,9%	18,4%	16,0%	14,1%	10%	10%
Participation in tertiary education (young people aged between 30-34)	8,9%	18,1%	22,4%	33,6%	-	40%
Participation of adults in education and training (adults aged between 25 and 64)	1,4%	1,3%	8,5%	9,1%	12,5%	15%

Source: Eurostat (UCE, LFS). 2011

**Figure 1. Distance to the EU target regarding the participation in tertiary education**



Source: Ministry of National Education

## **2.2. Qualitative and structural aspects related to the role of higher education**

Empirical researches point out the correlation between graduating from a form of higher education and the return rate under the form of the probability to find a job and to benefit from the increase of incomes by accumulation of experience and continual improvement of the human capital (for instance, Jacobs and van der Ploeg 2006).

The channels of these positive externalities leading to higher return rates are the superior productiveness compared to an employee without higher education and the former's capacity to learn easier from others' experience and the acquisition of the ability and desire to learn during their entire life span.

The empirical literature is rather divided on the issue if the stock of education affects economy's long-term level (neo-classical approach) or the long-term growth rate (new theories of growth).<sup>14</sup>

The medium growth of the population's level of education by one year would raise the level of production per capita on the medium term by a percentage ranging between 3 and 6% in the countries with a developed economy.

These figures are correlated however with a high quality level of competitiveness and innovation indices, according to the Global Index of Competitiveness for 2010–2011 presented at the World Economic Forum<sup>15</sup>, where it is clearly specified that tertiary education is one of the pillars of sustainability and economic growth as well as global competitiveness, as long-term trend, as a result of its correlation with the labour market.

Efficiency and flexibility on the labour market are critical for any economy, that is why it is intended that the population apt to work gets employed, so that the most efficient use in economy could be reached. Moreover, the human resource should be stimulated in order to yield the best efficiency at the place of work.<sup>16</sup>

In Romania, the labour market functioning is hindered by the existence, still at high rates, of black labour, by the filling of different positions based on

---

<sup>14</sup> F. van der Ploeg, R. Veugelers, 2008

<sup>15</sup> World Economic Forum, *The Global Competitiveness Report, 2010-2011*

<sup>16</sup> Tănase Diana, *Probleme ale competitivității economiei românești / Problems of competitiveness of the Romanian economy*, Editura / Editions Mirton, Timișoara, 2012, p. 201, cit. *The Global Competitiveness Report, 2010-2011*, p.7

criteria other than value, by the emigration of labour force, by the problems occurred in the employer-employee relation, by the existence of a controversial legislation in the field.<sup>17</sup>

Recent studies, such as *Research into Employment and professional FLEXibility*<sup>18</sup> highlight the following correlations:

- Although the tertiary education graduates are selected from a sub-population coming from a relatively homogenous social environment as regards academic abilities and motivation, there are still strong correlations with the parents' studies, both related to the level of education and specialisation.
- Social inequality is stressed under the circumstances where institutional differentiation leaves its mark upon the degree of absorption into the labour market.
- Social origin counts on a contracted labour market, characterised by a strong competition among the tertiary education alumni in the transition towards employment on the labour market, in a society where the competencies provided by universities do not correspond to employers' requirements.

### **3. Foundations of learning strategy in the higher economic education**

The labour market absorption of the economic alumni depends first of all on the qualitative aspect of labour demand, but also on the level of professional and transversal competencies that universities train and develop during the education cycles (bachelor, master and doctoral studies).

The adoption of a model of triologic learning based on investigations and projects can be one of the solutions for improving the quality of today's educational system.

Extremely complicated bureaucratic procedures were adopted by the so-called *quality management*, neglecting the process of achievement of a logical functional educational community, able to train competencies, whose application can generate performance at the graduates' future place of work.

---

<sup>17</sup> Idem, p.203

<sup>18</sup> Triventi Moris, *Stratification in Higher Education and Its Relationship with Social Inequality. A Comparative Study of 11 European Countries*, European Sociological Review, 2011, accessed <http://esr.oxfordjournals.org> în data de 10.01.2012

The elaboration of pedagogical models built on theories of learning or knowledge can be an alternative for the more specific application to a certain concrete situation.

Learning is trialogic if:

- It is focused on the student;
- It supposes an educational community;
- It consists in long-term activities focused on *real life* tasks without previously set solutions;
- It is focused on creating artefacts, that are modified and developed within an iterative process by the members of the group;
- The produced artefacts increase the degree of knowledge of the entire group;
- The results of the activities are reusable;
- The process of collaborative creation of knowledge is explicitly illustrated within the group;
- It is supported by technology.<sup>19</sup>

Ignoring the aspects related to teaching and learning of economic knowledge, the preponderant focus on theoretic aspects rather than the practice of real economy have generated a high number of graduates who lack not necessarily the specialised competencies but the support competencies (shaping competencies) meant to support them during their entire active life and to develop their capacity to learn how to learn.

According to M.Rieckmann( 2012) these are:

- The competence of anticipation;
- The competence of interdisciplinary approach;
- The competence of perception and change of perspective;
- The competence to process incomplete and complex information;
- The competence of participation;
- The competence of co-operation;
- The competence to cope in individual dilemma (crisis) situations;
- The competence of self-motivation and motivation of others;
- The competence to adaptation to different cultural models;

---

<sup>19</sup> Dondi C., Turrini M, (2011) *Metodologia transferului de cunoștințe / Methodology of the transfer of knowledge*, SCIENTER Ricerca e Innovazione per la Formazione

- The competence for individual activities;
- The competence for ethical actions;
- The capacity of empathy and solidarity.

#### **4. Conclusions**

The characteristics of knowledge economy point out the necessity to adapt social sectors (education, health, assistance) to the requirements of a society based on innovation and competitiveness.

The globalisation of the labour market and education system have generated deep changes in the Romanian educational system. If until 1989 there were several academic centres with a small number of students, the '90s started the process of expansion and privatisation of higher education, and initially the expenditure destined to education increased (UNDP, 1997 and 2001). As part of the students enrolled in the state universities started to pay tuition fees from their own sources, and the number of students in the private university increased until 2007, we witnessed a constant growth of the private funding sources for tertiary education.

Between 1998-2002 Romania was the first country in Central Europe to legislate the open distance learning, which significantly increased the number of students and developed a structure addressing to adults' education (Centre for Open Distance Education for the Civil Society (CODECS)) as a result of the Great Britain financing scheme "Know How Fund".<sup>20</sup>

If the quantitative aspect of higher education graduates in Romania had an evolutive trend until several years ago, the problem of the present educational system is the misbalance between the labour market and those developed by a preponderantly theoretic system which does not develop entrepreneurial abilities or the desire to access lifelong learning.

The situation of the present crisis, rather moral and motivational than economic, can be overcome only by a quality education structured along clear values: respect for work, for environment and interpersonal respect, an integrative approach of education and labour market in which man is not a

---

<sup>20</sup> Ginsburg M., Espinoza O., Popa S., Terano M., *Globalisation and higher education in Chile and Romania, The role of The International Monetary Fund, World Bank, and World Trade Organisation, International Handbook on Globalisation, Education and Policy Research, 2005 Springer.*

mere production factor generating profit for the employer, but a partner in the innovative processes on which the future knowledge economy is founded.

The challenges occurred in the way of the Romanian higher education seem to be correlated not only to ensuring the inputs (students' financial resource, material equipment) but especially to the process, i.e. finding the training methods able to develop competencies and not propagate information irrelevant for the future graduates.

The critical attitude towards the present situation of the Romanian higher education requires a change of paradigm in the approach of the learning process. The proposal of the authors can be formulated as follows:

- The elaboration, in co-operation, of a generic model of process for the dialogic learning in the field of economic sciences;
- The professionalisation of the didactic career by continuous improvement and lifelong training of the entire teaching corps;
- The establishment of viable public-private partnerships between universities and business environment;
- The limitation of the bureaucratic system of so-called quality management, in the absence of quality, and the grounding of management on the training and development of graduates' competencies starting from a powerful organisational culture in universities and a correct financing, allowing the development of the human capital instead of limiting it.

## **5. References**

- Alchian, A., A., (1970) *Information Costs, Pricing and Resource Unemployment*, Phelps E.S., Norton,
- Arrow, K., (1962) *The Economic Implications of Learning by Doing*, Review of Economic Studies, Stanford University Press,
- Cyert, R.M. and March, J.G., (1963) *A behavioral theory of the firm*, Petience Hall,
- Drăgănescu M., (2005) *Societatea informațională și a cunoașterii. Vectorii societății cunoașterii / The information and knowledge society. Vectors of the knowledge society*, [http://www.racai.ro/INFOSOC-Project/Draganescu\\_st\\_a01\\_new.pdf](http://www.racai.ro/INFOSOC-Project/Draganescu_st_a01_new.pdf)

- Ginsburg M., Espinoza O., Popa S., Terano M., (2005) *Globalisation and higher education in Chile and Romania, The role of The International Monetary Fund, World Bank, and World Trade Organisation*, International Handbook on Globalisation, Education and Policy Research, Springer
- Minică, M., (2005) *Capitalul uman și creșterea economică în România / Human capital and economic growth in Romania*, Editura / Editions Mirton, Timișoara,
- Nelson, R.R., (1959) *The simple economics of basic scientific research*, Journal of Political Economy, vol.21, Penrose, E.T., (1959) *Theory of the Growth of the Firm*, Basil Blackwell,
- Porat, M., (1977) *The Information Economy*, Special Publication, Department of Commerce, Washington D.C.,
- Rieckmann M., (2012) *Future-oriented higher education: Which key-competencies should be fostered through university teaching and learning*, Futures 44
- Tănase, D., (2012) *Probleme ale competitivității economiei românești / Issues of Romanian economy competitiveness*, Editura / Editions Mirton, Timișoara,
- Triventi M., (2011) *Stratification in Higher Education and Its Relationship with Social Inequality. A Comparative Study of 11 European Countries*, European Sociological Review,
- Schultz, T.W., (1956) *Reflection on Agricultural Production, Output and Supply*, Journal Of. Farm Economics,
- Van der Ploeg F., Veugelers R., (2008) *Higher Education Reform in Europe*, CESifo Economic Studies, 54, 2
- World Economic Forum, *The Global Competitiveness Report, 2010-2011, 2006-2007*
- [https://www.fundatiadinupatriciu.ro/ro/media\\_room/stiri/639](https://www.fundatiadinupatriciu.ro/ro/media_room/stiri/639)
- <http://www.tincutaapateanu.ro/2012/07/25/raport-privind-starea-Invatamantului-din-romania-2011-partea-a-iii-a/>
- <http://www.preferatele.com/docs/filosofie/3/cunoastere-5.php>
- [www.elsevier.com](http://www.elsevier.com)
- [www.oxfordjournals.com](http://www.oxfordjournals.com)
- [www.edu.ro](http://www.edu.ro)
- [www.eurostat.eu](http://www.eurostat.eu)