

GIVEN COMPETENCIES BY HIGHER EDUCATION VERSUS EMPLOYERS' DEMANDS MIRRORED IN AN EMPIRICAL SURVEY

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Abstract

Significance of knowledge is realized and appreciated in the life of every competitive economy. But a question must be put. What is the right and required knowledge enterprises need? How can employees acquire this knowledge and how our educational system can keep steps with these continuously changeable economical demands to serve these requirements?

In an empirical survey we have tried to find the answer to the following question:

How can the higher education and labour market interpret knowledge? What does knowledge mean to enterprises? What kind of competencies are needed to a successful economy? Do the young employees with a new degree have these competencies? Can higher education provide students with competencies which are required by the labour market?

Does higher education take notice of these demands in their courses?

This survey researched requirements and assumptions from three sides. The questioned people were students and teachers from higher education, managers of enterprises. In this paper information is given about a part of the results with the help of two verified hypotheses.

Key words: *competencies, enterprises, higher education, knowledge, knowledge management.*

Introduction

Realization of the importance and the extreme handling of knowledge are the same age as the history of humanity (for example: respect for shamans, magicians, priests, teachers, curatives, later scientists, etc.). Endeavour to share, integrate, produce knowledge are very old (council of the elderly, relationship between masters – students, etc.). New notions which are different from earlier ones are methods of knowledge sharing, knowledge integration. They become complete by the support of information technology. The latter one is not so old, it originates from the second part of the 1990s. In the background the strengthening globalization and requirements of the globalized economy can be found (Davenport, 1996)

Knowledge management has become a tool of increasing organizational competitiveness by the conscious and system level handling of knowledge. Its

- aim is the development of business,
- prerequisite is to operate all the value chains of HR (recruitment, selection, performance management, teaching/learning, knowledge sharing, knowledge integration, motivation, reduction),

- natural structure is a network,
- basis of their existence is partnership,
- technical background of their operation is information technology.

Why do we have to manage knowledge? Due to the fact that intellectual capital has been in the foreground of organizational statements in the last period. However, it is clear that knowledge can be difficult to account for, its importance is indisputable. The more companies can keep and exploit their employees' knowledge, the more they will be able to reach a business success. Their knowledge can be found in a lot of divisions (departments, workshops, industrial units, etc.). It is dissipated and this knowledge cannot be reached by every employee. Therefore companies have to discover their knowledge again and again, they have to find solutions which have already been born in another unit.

General Background of Research

The role of knowledge is determinative in the life of economy and society. Nowadays this role is reevaluated by new knowledge - economical and sociological processes. To determine knowledge is not an easy task. But the real task is to determine the right knowledge. From this view knowledge is a sum of experience, ideas and cognitions which can help to stay at markets and to realize a maximum profit. At the same time environmental changes project in advance that contents and demands of right knowledge are changing.

The right question is: which elements of knowledge are needed for young people with a new degree to be adequate in an activity – or at an organization level to stay in the market?

Nowadays the quantity of information and its accessibility is very problematical. This huge information is not equal with knowledge. Demands to understand and to use complex processes require systematized knowledge. As the quantity and accessibility of knowledge are so huge that a large number of employees expect higher education not only to provide and to systematize knowledge, but to control its accuracy and to use it effectively.

To get the above – mentioned right knowledge at the highest level is possible or required from universities. The responsibility of these institutions becomes higher and higher to contribute to competitive economy because their role in knowledge transfer is very important.

Resources of Hungarian economy and its capability of aggregation are very poor. Therefore it can stay at the markets only by using and developing human capital. The economy expects higher education to give a basis to this ability. We can say that in this situation employees and their knowledge are in focus in organizations.

Knowledge management is a subsystem of leadership. Inside this practice leaders use the most developed organizational theories, management technics, information technologies to interpret, to systematize knowledge capital and to make it reachable for everyone in organizations. In these processes teamwork, collaboration, communication, trust and organizational study are needed (Bencsik, 2009).

Cognitions, abilities, competencies change depending on economical development (Székely, 2006). At the beginning of industrial production only simple abilities were needed (it can be acquired in vocational schools), nowadays employees have to have a wide range of capabilities and skills. In our days employees should have an ability of problem solving, good communication, enterprises.

Expectations of Labour Market about Competencies

Hessami és Moore (2007) determine competence - on the basis of the 2003 European Handbook - as the best practice of knowledge management, as a mix of knowledge, experience,

motivational features with the help of which employees can fulfil their tasks successfully. From this view competence is more than an ability to undertake a task perfectly, effeciently, in a high quality according to costumers' demands and changeable conditions. This portfolio of abilities and talents are much more than using knowledge successfully. In this meaning a competent person is much more than a knowledge - worker.

One of the challenges of our century is to harmonize requirements of enterpresies and the supply of educational systems (Jánossy 1975). It is not a simple task. With a deficient professional structure the economic increase cannot reach a good trend line for a long time, it will stay at a lower level. That is why it is necessary to form and to operate such an educational system which can follow the economic requirements and changes.

In this paper a part of an empirical research is shown which was carried out in 2009-10. All the survey was based on the questions below:

How can the higher education and labour market interpret knowledge? What does knowledge mean for enterprises? What kind of competencies are needed to a successful economy? Do the young employees with a new degree have these competencies? Can the higher education provide students with competencies which are required by the labour market? Does higher education realize these demands in their courses?

Each question was answered in this survey but only two of them will be highlighted below:

1. Students and economical players have very different ideas about employees' competencies.
2. Not only professional knowledge but other competencies (soft skills) are expected from employees by organizations.

Methodology of Research

This research has continued between 2009 – 2010 in Hungary by questionnaires. Students and teachers at universities and managers of enterprises/companies were questioned by questionnaire.

Before this survey semi - structured interviews was continued by personal asking to test our idea and our questionnaire.

The collection of samples was made by the 'snowball' method. On the basis of the sample a statistical selection (sample cleaning) was used. Number of measurable questionnaires were altogether almost one thousand.

The research hypotheses were:

1. The first hypothesis focused on to show if there is a difference or not between employees' and employers' ideas about the competencies which are needed at the labour market.
2. In the second hypothesis the purpose was to show and verify that a knowledge society expects not only and not first of all professional knowledge from employees because behaviour and adaptibility come firstdue to the accelerated technical development and environmental changes.

Characteristics of Sample

The number of questioned people symbolize well and give an overall picture of their situation in Hungary.

Table 1. Characteristic of sample.

Asked groups	Number of samples	Number of universities/companies
Students	399	6
Teachers	95	6
Managers	486	433

Research Method

- qualitative method by semi – structured interviews

A semi-structured interview technique was selected because it is a representative of a questioning technique and can acquire a broad range of knowledge. The semi - structured interview is a standard technique used in numerous knowledge management projects. It makes use of a predesigned set of questions but allows unplanned supplementary questions to be asked during the session. Traditionally the interviews are carried out face to face, one to one and consecutively. The interview is a mutual and conversational interaction process which is based on asking and answering questions and carried out for a serious and predetermined aim.

Twenty people were interviewed in these processes.

- quantitative method by questionnaires

The structure of questionnaires was different. Three different types of questionnaire were used. Every form was directed towards the habits and communication situations of the asked people. The questionnaires consist of five main chapters with 25 questions. They are closed, opened and scaled questions.

In the questionnaire the competencies which are in connection with work, profession, collaboration were scored on a nominal scale (yes – not) by students. Managers had to use the ordinal scale from 1 to 5, to mark at which level they expect the enumerated features from employees. To compare the results were ranked the sum of answers (in case of students) and mean of competencies (in case of enterprises).

In the questionnaires for enterprises there were statements which had to be valued on a scale with 7 levels by questioned people from “absolutely not” to “absolutely yes”.

The data were evaluated by descriptive statistical methods (frequencies, average values, means, standard deviation) in a Microsoft Excel program and by cross tables, factor analysis in an SPSS program.

(To control results Wilcoxon-style from nonparametrical methods can be used - which served to evaluate the coherent data - in case of ordinal scales. In this case two samples will be ranked together and rank - numbers will be prepared on the basis of means without reference to groups. Direction of correlation can be investigated but the measure of correlation cannot be investigated.)

Results of Research

The first hypothesis was investigated among managers and students. In the background of this investigation there had been a lot of earlier research which reported that the enterprises/companies are not satisfied with young people with new degree. The teachers miss cooperation with enterprises/companies.

Table 2. The rank of required competencies according to students' and leaders' opinions.

Students' opinions			Required competencies	Leaders' opinions			
Number of samples	Sum of answers	Rank		Number of samples	Mean	Standard Deviation	Rank
372	340	1.	Profession (Knowledge)	462	4,4	0,741	2.
372	323	2.	Language knowledge	458	3,7	1,140	10.
372	308	3.	Adaptability	461	4,2	0,772	5.
372	300	4.	Communication skill	460	4,1	0,821	6.
372	281	5.	Creativity	460	3,9	0,927	7.
372	278	6.	Experience	458	3,7	1,018	11.
372	274	7.	Collaboration	461	4,5	0,724	1.
372	273	8.	Flexibility	462	4,4	0,731	3.
372	272	9.	Teamwork	461	4,3	0,782	4.
372	204	10.	Propriety	457	3,9	0,883	8.
394	190	11.	Obedience	456	3,8	0,910	9.
372	138	12.	Empathy	458	3,6	0,888	12.

It can be established that these two groups of participants have a different opinion about the rank of the required competencies. Students think that the most important competencies are their knowledge, language knowledge, adaptability, communication skills and creativity. At the same time for managers the most important competencies are: collaboration, knowledge, flexibility, teamwork and adaptability.

It was investigated what these participants think if these competencies can be gained during their studies at universities or not. On the basis of similar logic the students' and managers' answers were compared.

In the table the statistically significant differences of students' and managers' opinions are highlighted. (You can see differences between ranks.) Students think that they acquire skills in teamwork, profession (knowledge), communication, collaboration and adaptability. Managers' opinion is the opposite of these. According to their experience young people with a new degree have skills in collaboration, language, communication, creativity and flexibility. In some cases there are big differences between their opinions. For example: profession (knowledge), skills in teamwork, creativity, flexibility.

Table 3. Rank of possessed competencies according to students' and managers' opinions.

Students' opinions			Possessed competencies	Leaders' opinions			
Number of samples	Frequency	Rank		Number of samples	Mean	Standard Deviation	Rank
358	103	11.	Obedience	408	3,2	0,888	11.
358	253	2.	Profession (Knowledge)	418	3,4	0,873	7.
358	87	12.	Empathy	412	3,3	0,78	10.
359	203	5.	Adaptability	410	3,4	0,807	8.
358	127	10.	Propriety	411	3,4	0,866	9.
359	153	9.	Flexibility	415	3,6	0,854	5.
358	205	4.	Collaboration	414	3,7	0,803	1.
358	170	8.	Creativity	413	3,6	0,831	4.

359	192	6.	<i>Language knowledge</i>	413	3,7	0,900	2.
359	221	3.	<i>Communication skill</i>	416	3,6	0,827	3.
359	255	1.	<i>Teamwork</i>	412	3,6	0,821	6.
358	177	7.	<i>Empirical experience</i>	412	2,6	1,003	12.

It was also examined what students' opinion is if there is a statistical correlations between the requirements of enterprises and competencies gained at universities. In the analysis correlation calculation was used among the non-metrical variables. It serves to show direction and tautness of linear correlation among varieties. To control and analyse these nominal scales (dichotom variables) simple cross-table analysis was used. The results show there is differences between the requirments of labour market and the obtained competencies at universities according to students' opinion.

On the basis of the above showed logic managers' opinion was investigated if there is a statistically significant correlation between the requirements of labour market and the competencies supplied by universities or not. If there is a correlation, how strong is it. From this view a weak connection was established, consequently there is not harmony between the requirments of labour market and the competencies provided by the universities.

Table 4. Labour market requirements and acquired competencies at universities.

Requirements of the labour market (expected) and acquired competencies az universities	Number of samples	Expect more than get	Required and given are the same	Get more than expect
Acquired obedience vs. expected obedience	398	201	139	58
Acquired knowledge vs expected knowledge	406	291	93	22
Acquired empathy vs expected empathy	402	174	163	65
Acquired adaptivity vs expected adaptivity	402	247	118	37
Acquired propriety vs expected propriety	400	194	136	70
Acquired flexibility vs expected flexibility	404	245	132	27
Acquired collaboration vs expected collaboration	402	255	120	27
Acquired creativity vs expected creativity	404	176	140	88
Acquired language knowledge vs expected language knowledge	402	156	110	136
Acquired communication skill vs expected communication skill	404	197	140	67
Acquired teamwork skill vs expected teamwork skill	403	239	118	46
Acquired empirical experience vs expected empirical experience	400	260	113	27

In this table the differences between the required competencies and the possessed competencies of employees are summarized. On the basis of a Wilcoxon test there are statistically significant correlations ($p < 0.01$) in each case without language knowledge ($p = 0.936$).

The table shows in some cases differences between the acquired and expected com-

petencies. According to these results enterprises miss skills in the following areas: profession (knowledge), adaptability, flexibility, collaboration, teamwork and empirical experiences.

Altogether it can be established students and economical players have different ideas about employees' competencies. On the basis of this result can be accepted the first hypothesis.

In the table 5 there are means and standard deviations of answers and their rank in case of enterprises. From the means can be seen that each feature was mostly or absolutely important. There is only one exception: „employees' personality should not be boring”. It is clear deviation was very high in each case which means that questioned people's evaluation is not homogeneous.

The rank on the basis of means, leaders expect employees to be correct and honest, should be interested in the profession and should be authentic, should have realistic expectations concerning tasks and should be able to work in a team. These competencies and features can be developed during education, tuition and empirical trainings.

Table 5. Expectations of enterprises from employees.

Expectations from employees	Number of samples	Mean	Standard Deviation	Rank
Should be honest and correct.	483	6,2	0,983	1.
Should be interested in profession.	479	6,0	1,096	2.
Should be authentic.	483	5,9	1,056	3.
Should have realistic expectations concerning tasks.	483	5,8	0,975	4.
Should have the ability to work in a team.	485	5,8	1,048	5.
Should have ethical norms.	482	5,7	1,140	6.
Should have realistic expectations regarding salaries.	482	5,6	1,116	7.
Should help colleagues.	483	5,6	0,993	8.
Should have realistic expectations regarding workplaces.	483	5,6	1,025	9.
Should have such knowledge which determines what he/she wants to do.	481	5,4	1,200	10.
Should have up to date information.	479	5,4	1,122	11.
Should have excellent communication skills.	484	5,1	1,272	12.
Should have empirical experience.	483	5,1	1,277	13.
Should have foreign language knowledge.	485	4,9	1,548	14.
Should not be boring.	477	4,6	1,530	15.

On the basis of this table it can be seen that the expectations of employees are ethical (1, 6.) and social (2, 3, 4, and 5.) These preferred features require not absolutely professional knowledge.

Universities have a dual sorter role: at first at entrance examinations, during the education to get a degree while students are selected, sometimes students drop out. Economic analyses show that ability to perform tests is in a weak correlation with abilities to perform special tasks at companies at a high level. These results confirm this thesis from the employers' point of view it is the least important.

As the number of these variables was so high, data had to be reduced by Maximum Likelihood method. At first KMO and Bartlett's-test were used. On the basis of their results (KMO=0.847) and Bartlett's test ($p < 0.01$) factor analysis can be used (See table 6.).

Table 6. Results of KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,847
Bartlett's Test of Sphericity	Approx. Chi-Square	1346,835
	df	45
	Sig.	0.000

Table 7. Factors about expectations of enterprises towards employees.

Expectations of enterprises towards employees	Components			Communalities
	1	2	3	
Should have realistic expectations of tasks.	0,849	0,241	0,187	0,815
Should have realistic expectations of workplaces.	0,735	0,154	0,208	0,607
Should have realistic expectations of salaries.	0,594	0,245	0,195	0,451
Should be interested in profession.	0,096	0,685	0,146	0,499
Should be authentic.	0,207	0,639	0,179	0,483
Should have such knowledge which determines what he/she wants to do.	0,248	0,568	0,132	0,401
Should be honest and correct	0,248	0,425	0,375	0,383
Should have the ability to work in a team.	0,129	0,056	0,618	0,401
Should have ethical norms.	0,228	0,255	0,571	0,443
Should help for colleagues.	0,111	0,165	0,480	0,270

The extracted factors were named:

1. factor: Realistic expectations
2. factor: Mature personality and professional preparedness
3. factor: Social/communal being

The first factor contains realistic expectations. Employers expect a realistic behaviour and a realistic way of thinking of work, workplace and salaries.

The second factor contains a mature personality and professional preparedness. It means that employees should be conscious, authentic, correct, honest, open for his/her job.

The third factor contains expectations of social interactions, helpfulness, ability for teamwork and ethical norms.

The competencies and abilities which are determined and expected from employees by enterprises can be formed in education and due to social environmental effects. The knowledge as a resultant of the other competencies, it comes to light, most part of competencies - for example collaboration, flexibility, teamwork and communication, - rest on the quality of education, social and family life. Having examined all the social system, we can say that universities should handle education and transmission of the moral cognition equally with tuition and training.

On the basis of the above showed results the second hypothesis is accepted. It means that the expectations of enterprises regarding employees are beyond professional knowledge other light (soft) competencies are also required.

Discussion

It is shown in this sample that students and economic players have different ideas about competencies which are important at the labour market.

There is a difference between their opinion if young people with a new degree acquire these competencies or not and how high level. According to students employers expect professional knowledge, language knowledge, communication skill, adaptability, creativity from them. It is not the same as employers' opinions. According to them knowledge and adaptability are important, but the most preferred are collaboration, flexibility and teamwork.

Enterprises require more professional knowledge, flexibility, adaptability, collaboration, ability in teamwork, practical experience at a higher level than students can gain at universities. Altogether the higher education cannot meet the expectations of the economic sector.

On the basis of empirical experience it was verified that at the companies demands appear for soft skills/competencies beyond professional knowledge. In this frame with generated factors it was verified that for enterprises professional knowledge and a mature personality are important but there are more preferred employee values referring to work, workplace, salaries. The skills of teamwork, helpfulness which are very important for collaboration and success of enterprises play determinative roles in employers' expectations.

Conclusions

To operate a knowledge management system in organizations successfully depends on how a learning organizational culture can be formed. Conditions of these structures are open thinking, helpfulness, collaboration, trust in colleagues and in leaders beyond professional knowledge at a high level. The value of enterprises/companies at the markets are often much higher than their value in accounting. The difference between these two values is the intangible assets, (the intellectual capital or knowledge assets) which are about 70% according to macro economical public accountancy.

This capital has to be cared by organizations. A task is on the one hand to acquire and increase knowledge, and a task is on the other hand to minimize the loss of knowledge capital. (We can speak about loss of knowledge capital in case of fluctuation if a valuable employee becomes sick or dies, etc.).

Competitiveness of companies depends on employees' features, on the level of their competencies and abilities and depends on how employers can use these capabilities.

According to this theory the first task is to acquire the suitable employees with the best competencies. But these competencies are not given by universities most of the time.

The higher education is theory oriented in Hungary. Conditions to form practical and other soft skills are at a low level. To build a knowledge society and a competitive economy is a very important task to harmonize demands of companies and supply of universities. Such professional knowledge and competencies should be in the middle of education which can serve demands of real markets. To this a conversation between economical players and a change of structure and methods of higher education are needed. In a lot of regions of Europe the conventional educational systems hinder forming and operating a competitive society and economy. If there is an expectation, an open way of thinking, collaboration, teamwork and flexibility from students, teachers, professors at universities have to take the first steps on this road.

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