

# THE CONTEMPORARY SCHOOL AND KNOWLEDGE MANAGEMENT

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## Abstract

The school of today faces circumstances that differ very much from the ones in which the current educators have been educated as students, especially in the countries that are new members of the European Union as EU-27. Therefore, in order to manage knowledge in their school of today, one must understand the socio-economic development trends and their impact over the school as a subsystem of the emerging innovative society in which the innovative business leaves little or no room for the routine-loving behaviour of previous decades, centuries, and millennia. This contribution summarizes a dialectical system of this development trends and the resulting newly required attributes of the contemporary schools and teachers, but it does so on the level of provocation for readers' creative and innovative thinking and action rather than on the level of any final answers. The Bologna Process seems to be an underused opportunity for innovation of higher education in Europe.

## Key Words

Bologna process, education, innovative business, innovative society, knowledge management, requisite holism, socio-economic development, values – culture – ethics – norms circle.

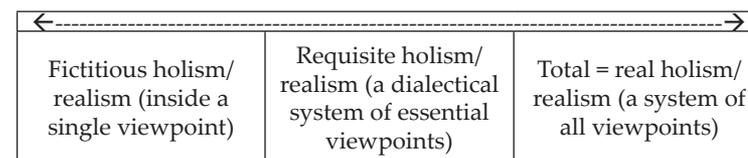
## The selected problem and viewpoint of consideration

By definition of their role in society, schools exist to provide knowledge for people to live on it in the context of their socio-economic conditions that keep changing today much more and much more rapidly than ever before. Hence, schools must – permanently – acquire (new!) knowledge, select their preferential part of the available knowledge, choose preferential methods of delivering it and of making/helping students acquire it, as the long-term basis of students’ employability and viability. This process may be called knowledge management of a specific type, while the term knowledge management has many contents all way from very qualitative analysis of human behaviour and means (e.g. Houška and Berankova, 2006, and several other contributions in the same journal; Jurše, Potočan, 2006; Potočan, Jurše, 2006) to very technical considerations of computer work (e.g. contributions in Part 3: Knowledge Systems Engineering, Part 4: Data Mining and Text Mining, in Gu et al, editors, 2006). What is knowledge created and used for by knowledge management today? The topic of knowledge management was well delineated in OECD’s study on knowledge-based society (Pavlin, 2005) one must study the impact of knowledge on the socio-economic development; traditional economic categories, such as labor and capital no longer explain social and economic phenomena well enough. Authors make a nice and clear distinction between knowledge and knowledge management in a knowledge-based society and economy, but the definition, that knowledge creation, retaining, refining and using are involved in knowledge management (Edwards, 2005, 9), does not necessarily imply using knowledge for the invention-innovation processes that are crucial in the contemporary times in which the innovative business and

innovative society prevail. (For a brief elaboration on this topic see: Mulej, Ženko, 2004; Mulej et al, 2005, a, b; 2006; Mulej, 2006; Mulej, guest editor, 2006; here a next step of discussion is provided.) In these conditions, the content and way of working of the school must be innovated in order for the school to help society, in which and for which it works, to be contemporary rather than obsolete, hence to help population to have a good life and work life. The school aspect of the innovative society (in making) is what will be discussed here, therefore.

### 1 Four development-economics contexts making the dialectical system of conditions for the school of today to be contemporary

Consideration of the selected topic along with the law of requisite holism (Mulej, Kajzer, 1998; Mulej, 2007; etc.) is helpful (Figure 1). For it, four development-economics processes might be important, here: (1) the general market development reflecting the general socio-economic development, (2) the market development after the Second World War, (3) the development of the basis of societies’ competitiveness, and (4) the development of the education subsystem of society. They exist in have influence in synergy, of course.



**Figure 1: The selected level of holism and realism of consideration of the selected topic between the fictitious, requisite, and total holism and realism**

### 1.1 General market development reflecting the general socio-economic development

To make the long story short, see Figure 2 (new, after: Mulej, in Mulej et al, 2000):

Viewpoints Type of Market	Basic relation/s between production and consumption	The necessary skills of most people	Education
1. RANDOM MARKET	Producers' own consumption and occasional exchange of random surpluses	Minimal skills, mostly acquired by experience, growing as humankind grows in number and needs / requirements	Education is limited to power holding people; higher education provides general knowledge with little specialization
2. SELLERS' / PRODUCERS' PREVAILING POWER = PRODUCERS' MARKET	Growing production for poorly considered, known/ unknown, customers, who lack impact over suppliers	Specialization and narrow thinking grow along with industrialized production	Education is divided to three levels: primary for shop-floor workers, secondary for middle managers, tertiary (higher) for power-holding people; narrow specialization growing

3. BUYERS' / CUSTOMERS' PREVAILING POWER = BUYERS' MARKET	Growing impact of customers requiring satisfaction / total quality of products and services, and conditions of life	Specialization keeps growing, so does biased application of science, causing need for interdisciplinary cooperation	Education is equally divided; inter-disciplinary insight grows more in practical need than in curricula of any level of education; many more humans are included in higher education
4. STATE / GOVERNMENT SUPPORTED BUYERS' MARKET	Increasingly organized / legalized impact of customers demanding total quality of products, services and conditions of life	Growing awareness about the terrible impact of humankind's one-sided impact over e.g. nature and its dramatic consequences for humans' survival	Same as before, but world wide official documents and actions urge schools, governments and businesses as well as humans to be more holistic; so does a part of market

**Figure 2: Development of market relations and its impact over education**

Conclusion from Figure 2 asks the question: is the school of today requisitely holistic to be contemporary in terms of the last – 4th in Figure 2 – phase of the development of so far? If it was, most probably there would be no need for UNESCO to exist or for European Union to issue documents about the innovation-based society (EU, 1995; EU, 2000; EU, 2004; etc.) or for Europe to launch the Bologna Process (Zgaga, 2004; Jurše, Potočan, 2006; Potočan, Jurše, 2006), etc. Knowledge and knowledge management need adaptation to the current

and future reality urgently. But documents about the Bologna Process, which Zgaga has collected and commented so well, do not mention, at least not explicitly, innovation, systems thinking, and interdisciplinary co-operation as crucial contents of the modern curriculum, although EU requires them in documents, to which the Bologna Process is closely linked (see: Zgaga, 2004, 7, 48-49, 179-273). The document about employability (see: Zgaga, 2004, 334-336) mentions trans-disciplinary capacity (limited to master level only), which is coming close, perhaps, to interdisciplinary creative co-operation capability, but not requisitely holistically in terms of our practical experiences.

### 1.2 Market development after the Second World War

The process in Figure 2 was very much accelerated after WWII. In this period, but with limitation to the most advanced economies, the oldest two market types showed up, mostly, only in the period of the post-war reconstruction, and were replaced very quickly by the most modern market type (i.e. the phases 3 and 4 in Figure 2). See Figure 3 (Ećimović et al, 2002):

Decade	Market & Social Requirements	Enterprise's Ways To Meet Requirements	Type of Enterprise
1945-	Covering of post-war conditions of scarcity, rebuilding, etc.	Supply anything; supply does not yet exceed demand	Supplying Enterprise
1960-	Suitable price (as judged by customers)	Internal efficiency, i.e. cost management	Efficient Enterprise
1970-	Suitable price X <sup>1</sup> quality (as judged by customers)	Efficiency X technical & commercial quality management	Quality Enterprise
1980-	Suitable price X quality X range (as judged by customers)	Efficiency X technical & commercial quality X flexibility management	Flexible Enterprise
1990-	Suitable price X quality X range X uniqueness (as judged by customers)	Efficiency X technical & commercial quality X flexibility X innovativeness management	Innovative Enterprise
2000-	Suitable price X quality X range X uniqueness X contribution to SD (as judged by customers)	Efficiency X technical & commercial quality X flexibility X innovativeness X sustainable development	Sustainable Enterprise

**Figure 3: From a supplying to a sustainable enterprise – and a new definition of the concrete contents of requisite holism**

<sup>1</sup>X denotes interdependence. No attribute is avoidable any longer for a longer-term success. The original table (Bolwijn, Kumpe, 1990) did not contain X, but +. The sign + denotes that interdependencies and resulting synergies are not considered; elements are only summed up. Experience shows summation is an oversimplification. The original did not contain the decades of 1950 and 2000 either.

Conclusion from Figure 3 asks the question: is the school of today requisitely contemporary to meet the society's and economy's need for humans' capacity to behave as sustainable enterprises and other business systems? If it was, and if it had been so for long enough period of time so far, there would hardly be any need for the Club of Rome outcry that humankind is endangering itself by its mistreatment of its natural environment, followed (and thus made official for the entire humankind) by United Nation Rio Declaration of 1992 and many more documents urging humankind to diminish its consumption of energy etc. (for our summary see: Ećimović et al., 2002), including the ones published in May 2007 (e.g. Petek, 2007).

### 1.3 Development of the basis of societies' competitiveness

Several years ago, Porter published his model of development of the societies' basis of competitiveness in four phases (Porter, after Brglez, 1999), from which we have developed the model of five phases, including values etc. in Figure 4 (Mulej, Prosenak, 2007):

Development phase of economy	Economic basis of the given development phase	Values – culture – ethics – norms typical of the given development phase
1. Natural factors	Natural resources and cheap labor, hence poor life for millennia	Modesty, solidarity, collectivism, tradition preferred to innovation
2. Investment in modern technology	Foreign investment, mostly; poor competitiveness in global markets; neglecting of natural environment and health	Growing social differences based on property/ inheriting, local competition, individualism, ambition to have more and become rich (in tangible property)
3. Innovation based on own capabilities	Nations/regions live on own progress, attaining growing competitiveness and standard of living	Social differences based on innovation, higher standard of living, global competition, ethics of interdependence, ambition to create
4. Affluence	People are rich, happy owners, no longer needing hard work for new progress	Complacency, consumerism, no more ambition to have more and hence to create
5. Requisitely holistic creation and social responsibility	Material wealth suffices; effort for it to be renewed and for spiritual wealth and healthy natural and social environment	Ethics of interdependence and social responsibility, hence ambition to create; diminishing of social differences to the ones caused by creation, including innovation

**Figure 4: From misery via one-sided investment and innovation to affluence and from there to (perhaps) requisitely holistic creation**

Conclusions from Figure 4 ask the question: is the school of today requisitely contemporary to meet the society's need for innovation and other creation that is not one-sided, but requisitely holistic? If it was, documents cited above would not be necessary, and success of innovation projects would not be under five percent (Nussbaum, 2005); nor would the general success of the invention-innovation processes be under two percent (Likar, Fatur, 2007), neither would problems of humankind's natural environment be so terrible as they are. Criteria of efficiency would no longer be economic only, because they can explain less than 50% of success (Grayson, O'Dell, 1988; Levitt, Dubner, 2005) but more holistic, including e.g. happiness (Hornung, 2006) and other aspects of well-being (Diener, Seligman, 2004).<sup>1</sup> Life must make sense; hence owning things alone is not enough, once one can cover one's crucial material needs.

For good and bad practices see e.g.: (Afuah, 1998; Basadur, Gelade, 2006; Buijs, et al, 2007; Business Week, 2004; Chesbrough et al, 2006; Collins, 2001; Collins, Porras, 1997; Daghfous, 2007; Davila et al, 2006; Dyck et al, 1998; Fujs, Mulej, 1993; Gloor, 2006; Gu, Chroust, editors, 2005; Hippel, 2005; Hrast, 2007; Hrast, Mulej, Knez-Riedl, editors, 2006; Huston, Sakkab, 2006; IBM, 2006; Jaruzelski et al, 2006; Kuhelj Krajnović, Pibernik, 2006; Lee, Chang, 2007; Lee, Gandolfi, 2007; Lester, Piore, 2004; Leydesdorff, 2006; McGregor, 2006; Nakamori, ed. 2005; Potočan, Mulej, 2006; Rebernik, Mulej, 1992-2007; Rebernik et al, 2003-2006; Reich, 1984; Rogers, 1995; Rosenberg, Birdzell, 1986;

<sup>1</sup>Years ago I received from somebody the following statement by the philosopher Ralph Waldo Emerson: 'How do you measure success? To laugh often and much; to win the respect of intelligent people and the affection of children; to appreciate beauty; to find the best in others; to leave the world a little better, whether by a healthy child, a garden patch, a redeemed social condition, or a job well done; to know even one other life has breathed easier because you have lived – this is to have succeeded.

Senge et al, 2004/2005; Stokes, Carr-Chellman, 2007; Schwartz, 2006; Tapscott et al, 2006; The Economist, 2006; 2006a; 2006b; 2006c; Wren, Greenwood, 1998; Ženko, 1999; Ženko et al, 2004; Ženko, Marn, 2006; Živko, 2005; Živko, 2006; etc.).

#### 1.4 Development of the education subsystem of society

In addition to remarks about education in Figure 2 we could state, that, in history, the primary education has become normal as a tool of enabling shop-floor workers to take orders from bosses, once the industrial and urban life started to develop. Secondary education started to become normal, when the factory equipment started replacing humans and needed professional maintenance and service to work well. Higher education has existed for eight centuries, which means, that universities have a history of splendid isolation from the producing world (Kobal, 2003). Then, along with the development of manufacturing industries and resulting specialization, universities changed from 'communities of studying colleagues' to profession-based special schools, allowing for less and less room for free thinking (Pogačnik, 1994) and inter-disciplinary co-operation, which is now officially recognized as a failure to be corrected (Jurše, Potočan, 2006; Zgaga, 2004), e.g. with the Bologna Process. Still, documents about the Bologna Process do not mention introduction of more studying of the invention-innovation processes and systems thinking, which would be the way of correcting the failure of so far according to the EU Lisbon documents about the future of Europe saying that Europe must become the most innovative area of the world. (See: EU, 1996; EU, 2002). This mismatch of two crucial European policies may explain a part of reasons for the Lisbon Declaration to be found an unrealized dream (Competition, 2004; Vilfan, 2006). Authors of documents and politicians may have overseen that

its point is the innovation of culture rather than technology only, which has taken two generations or about 70 years in the transition from the pre-industrial to the modern life (Mulej, 1994). It can perhaps happen more quickly now, once people have already become used to the modern speed to some extent, but the current generation is the first one ever, anyway, to face this speed of change. Thus, the embedded experience calls this speed un-normal. This relates less to USA, which is a product of the most entrepreneurial Europeans who had left Europe in search of a new life, and more to Europe, in which the less entrepreneurial and more routine-loving people are making the culture in terms of the circle in Figure 5. (Potočan, Mulej, 2005; Potočan, Mulej, Kajzer, 2005; Potočan, Mulej, 2003; Potočan, Mulej, 2006).

Individual values (interdependent with knowledge)	↔	Culture = values shared by many, habits making them a rounded-off social group
↓	≠	↓
Norms = prescribed values on right and wrong in a social group	↔	Ethics = prevailing values about right and wrong in a social group

**Figure 5: Interdependence of values, culture, ethics, and norms**

The circle in Figure 5 matters for knowledge management because of interdependence of knowledge and values (Mulej, in Mulej et al, 2000, and earlier, since 1974; for an English presentation see e.g.: Mulej, Ženko, 2004).

## 1.5 Conclusions from socio-economic development views at school of today

All four processes, which are summarized above, are having their peaks of so far in a more or less crucial synergy, today exactly and cause the pressures of the most competitive ones in the global market over the others:

- The demand is lagging behind supply very much (except for the most innovative authors, entrepreneurs, products and services!).
- Therefore companies that are the most developed as sustainable enterprises are best off among all competitors; they may be reaching beyond innovation due to the market pressure alone and kind of predict the phase 5 in Figure 4 to be a probable future.
- And they are so because they have innovated their management to develop and activate creativity and creative co-operation of their members best and most of all competitors.
- They succeeded to attain it because they have managers and co-workers with the most developed ethics of interdependence leading to their will and capacity of interdisciplinary creative co-operation, including across hierarchical level.
- They have combined technological, managerial, organizational, and technological innovation to innovate their business programs in time.
- And all these attributes in synergy lead to the best level of their requisite holism, causing the least failures in their business and personal lives.

Last, but not least, all these processes have their synergetic outcome in what Florida (2005) calls 'the rise of the creative class': it is no longer the working class that makes the biggest contribution and the biggest share of employment, because the creative class has grown from 5 to more than 30%, while the working class has fallen from 40% to less than 25%, and the service class makes the rest, but does not earn much either because it only creates preconditions for the creative class to work to the benefit of the entire society most of all. The outcomes of the rise of the creative class are best in areas where they have attained the highest 3T: tolerance (for difference in life style etc.), talents (attracted by tolerance from other areas), and technology (investment, because there are talents). Discussion at 27th PODIM in March 2007 in Maribor added a 4th T: time – for the laggards to catch up and innovate their cultures; this is in line with my law of two-generation cycles (Mulej, 1994) above.

There is one more process of crucial importance for the topic of this discussion: universities have become mass institutions rather than elite ones like in older times – see Figure 6 (Zgaga, 2004, 11-12):

Country	Students in 1975/76	Students in 2000/01	Index of growth of number of students	Percentage of students in generation, age of 19-21
Germany	1.334.000	2.084.000	1,56	
Finland	90.000	280.000	3,11	

Greece	117.000	478.000	4,09	
EU-15	5.647.000	12.820.000	2,27	
Slovenia 1981/82				16,8%
Slovenia 2003/04				44,8%

**Figure 6: Some data about numbers of students**

Due to the diminishing numbers of births the numbers in Figure 6 will become essentially smaller in the coming years, although the percentage may remain high or even grow. This matters because the number of schools competing for the same potential students has grown, which requires schools, especially the ones with lower investment in equipment, to face a severe and growing competition (Jurše, Potočan, 2006; Jurše, Tominc, 2007). Masses of students face specialization of jobs requiring schools to adapt their knowledge management processes to individual demands, which require these processes to reach far beyond the usual teaching or even reading the lectures with a passive presence and poor creative involvement of students.

There is another new component of competition between schools: Europe has less and less borders, and knowledge has less and less boundaries, both in terms of contents and accessibility, while the cultural, linguistic and similar differences between nations and regions in Europe should survive as important treasures (Zgaga, 2004).

## 2 Impacts of the rising innovative society and business over knowledge management in schools

The summarized processes cause the schools' task to match the innovative business and fit in the innovative society, as summarized below (Mulej, 2007a; enlarged after Mulej et al, 1987) much more than most areas of the new EU member states seem to consider:

Innovative business can be simply defined in the following ten sentences:

1. In principle, every cost is unnecessary. In reality it is so, if we work smarter, not harder, and produce innovations.
2. Today, every product and process becomes obsolete, sooner or later. That's why we must know their life cycles, do research, do development (connecting research results with the daily needs and practices), create other inventions and make from them innovations as a new, useful / beneficial basis of survival, on a continuous basis.
3. Survival and therefore both good and poor work is everybody's business. Nobody, neither the superiors nor the subordinates, are entitled to be irresponsible and to oppose or to disregard innovation in their own life reality.
4. Therefore let us continuously, all the time and everywhere, search for possible novelties! Only a small portion of them can become inventions. Some of them will be registered as suggestions. From some of them, by research and development, or connect and develop concept or other ways of 'open innovation' (Chesbrough, 2003), sometimes something both usable and new might be created, a potential innovation. Customers will accept only a fragment of them as useful / beneficial and worth paying for, hence making a benefit to both customers and suppliers, therefore

deserving the name of innovation. They can be diffused, too, to support survival by business success.

5. The entire business policy and practice is innovation oriented, not just a fragment of it.
6. Results pay, not efforts. Hence, let us work like the clever ones, not like fools. Diligent stupid humans are dangerous: they do it wrong all the time; so do clever bandits.
7. These six sentences no longer apply to the producing part of the organizations only, but to all activities and all parts of life in all organizations.
8. The effort must be broadly disseminated and permanent, because the pressure from competitors is permanent.
9. For competitiveness the quality must be systemic, which is impossible without continuous innovation.
10. Systemic quality includes price, quality, flexibility, uniqueness, and care for natural environment, and all of them as a dialectical system (see Fig. 1 and 3 above).

The innovative society differs from the (foregoing, historically) routine-based society:

- It applies all achievements of development of the worldwide civilization.
- It accepts and applies its own and foreign inventions and innovations rather quickly.
- It applies foreign knowledge to upgrade its own knowledge in order to effectively develop and use all the technologies of production, organization, education, etc.
- On this basis, it attains both a high international competitiveness and quality of life.
- Its inventiveness and innovativeness, both as attributes and activities, reach the West European level, so do their

preconditions (at least!).

- The creative co/workers, scientific and other inventors and innovators are well appreciated because they are the most useful co/citizens and co/workers.
- The uncreative individuals are in trouble, especially the ones under-using their natural and learned capabilities.

The dialectical system of attributes of an innovative society includes, therefore:

1. A contemporary, creativity-based, and creativity-and-holism supporting, democracy (i.e.: bosses listen and make synergies) both in the entire society and all organizations from families on.
2. A contemporary, creativity enhancing market in which, as well as in the democracy, innovative persons and organizations prevail and reign.
3. A contemporary perception of ownership, which tells clearly the responsibility and includes creative and innovative ambitions rather than seeking rent (as an income based on owning without creating) only.
4. A contemporary perception of innovation, which says that innovation is every beneficial novelty accepted as such by customers and granting the suppliers a suitable profit / benefit, too.
5. A contemporary way of running the business, the innovative business, which continuously strives on innovation of any kind.
6. A contemporary perception of entrepreneurship, i.e. innovative entrepreneurship, which means that not every owner of an enterprise is an entrepreneur, but only the one who combines his or her business factors in an

innovative way in order to produce innovation and live on it. Hence, private ownership is not enough for success, if owners are not entrepreneurial.

7. Education and other societal subsystems, which are not economy and business, but rather create human resources, circumstances and preconditions for them to flourish, and therefore also support innovation rather than routine growing to routine-loving.

Several crucial differences of the current situation and trends from the ones of young times of today's educators are arising from the above summarized situations and trends, such as:

- Current teachers, professors and managers, including government officials, were students in times when the innovative business and innovative society have hardly been a topic of research, and even less they were included in teaching, or a prevailing practice. Today innovative business and innovative society are a prevailing situation and trend to which the new generations are condemned with no choice due to the global market without isolation behind national or other borders. The alternative is even worse: living in terms of the first or second phase in Figure 4, rather than in phases 3, 4 or even 5 in Figure 4.
- Current quantities of available knowledge and sources of knowledge are by far too large for anybody to absorb all of them. Thus a narrow specialization of knowledge is unavoidable, but so is also the requisite holism of observation, perception, decision making, and action, requiring the requisite holism of knowledge. The latter requires interdisciplinary creative co-operation, because an individual trans-disciplinary knowledge with a requisite depth is impossible.

- Current knowledge grows so rapidly, that in many professions and scientific disciplines, it is hardly possible to leave school with knowledge that is not yet obsolete, although it has not been obsolete while studied. Thus, there is a permanent dilemma: what is worth studying and what is worth teaching:
  - (1) The applied knowledge to be used quickly after graduation, which allows little time for theoretical background and resulting adaptability to the new trends showing up all the time,
  - (2) The basic principles of the deep theoretical knowledge, which can hardly be used soon, but helps better in a longer term, if it provides a solid basis for creativity and adaptability of current students as the future professional, not the mere facts only.
- An additional dilemma includes the distribution of subsystems of knowledge to be covered in primary, secondary, and tertiary education, which build a pyramid, but should not include too much repetition, while providing a profession after the secondary school as well as after the tertiary one, because a half of graduates from secondary education do not enter the tertiary education and are in demand in the labor market or do not feel able to finish a tertiary education successfully, but rather as drop-outs.
- A further dilemma results from the finding and experience that entrepreneurship as an economic attribute, meaning the interest and capacity to live on and for innovation with an entrepreneurial spirit, is crucial for many more individuals today than ever before, when the innovative business and the innovative society have not prevailed as they do today (In Europe, 94% of all organizations employ less than ten or nobody, and less than one percent employs more than 250. On average, an enterprise employs 6, and the larger ones have units. This means that about 40% of all employed people, including owners, must have the entrepreneurial spirit or support entrepreneurship and hence innovation. (For details see: Mulej, 2007b)).
- In the current innovative society it has become clear that a technological innovation is important, but far from enough. One can even live better on a very good business style innovation dealing with a less innovative technology, than vice versa; experience is summarized in the literature cited above.
- It has also become clear, that eight decades ago Alan Mogensen had been right, when he required managers to view their co-workers as creative persons who offer much more, when managers do not order them as persons deemed unable to think and create; managers should rather collaborate with them as a team of specialists different from each other and therefore complementary. (Mogensen, 1981; Mogensen, Rausa, 1989).
- Thus, for employability of students (of all 3 levels and all types of schools) a narrow profession is crucial and not requisitely holistic, neither is a superficial general knowledge so, nor a profession with no entrepreneurial spirit and capability of creative co-operation with others because they are different, not despite of their being different.
- The market to be served by school has no longer only the component of the government that used to establish and finance it in the name of the society at large, but there are many more and quite diverse market components including:

- Potential students from schools of one level below in the same or other countries;
  - Students who have enrolled, but have the right to switch to other programs, schools or universities in the same or other countries;
  - Employers with whom students will try to get jobs after graduation, and may express their requirement – both conservative and innovative – now addressing the future, both in the same and other countries;
  - The general society, no longer represented by government bodies only, but also by non-government organizations, both in the same and other countries.
- All these market components may express short-term or long-term interest and other values – cultures – ethics – norms (Figure 5) and related given and required knowledge.
  - Knowledge of all of them may consist of mastering routine and of invention-innovation processes. Thus, their knowledge management processes in the form of teaching, education, practicing, workshops, discussion, application, virtual and real action, using books, internet and other sources of data, messages, and information, may include both vertical and lateral thinking and their combinations. (See: De Bono, 2003; De Bono, 2005; De Bono, 2006).
  - Knowledge of students as future professionals may have to include all types of inventions' and innovations' contents (concerning business program composition, technology, organization, management, business methods, creativity and co-operation methods) with all types of consequences

(incremental, semi radical, radical in either making or marketing or both of them), and with all types of duties (inside the job duty, outside it, partly outside it) and outcomes (new processes, new architectures/compositions of given or new or partly new components of products and/or processes), individually tailored to various degrees, etc.

- Etc.

All these and similar requirements of participants of the innovative business and innovative society put quite many new requirements on the teachers' capacities and values considering:

1. Contents to be included such as basics, facts, instructions for sources to be detected in libraries, journals, books, public press and other public sources, internet sources, etc.
2. Methods of transmission and of acquiring both knowledge and values related to the innovative rather than routine-loving business and society.
3. Ways of rather equal-footed co-operation of teachers in their work with students.
4. Ways of co-operation of teachers who work at the same time with same students, but on different topics, between which links can be established, but are not, if there is a poor co-operation and mutual information of teachers, and hence the potential synergies are missed, quite probably.

In the catching-up countries and areas, such as the ones of central and eastern Europe who have not belonged to Europe-15, but do belong to Europe-27, the above findings receive some additional weights such as:

- Catching-up requires additional speed, or it does not happen.

- Catching-up requires de-memorizing of quite some long-established habits, values, and insights, which have been rendered obsolete in the course of changes in the recent past.
- Catching-up, anyway, requires keeping one's identity.
- With all troubles, which accompany catching-up, or would show up anyway and tend to be ascribed to changes rather than to obstruction to changes, including innovative ones, one should not forget that the European Union has been and still is created as a peace project: this is the longest period of peace in Europe ever, and the first period in which public pools show that peace in Europe is taken for granted.

And last but not least, the resulting summarizing question reads: in which time frame and with how many students per teacher can dilemmas from this list be solved? There has, obviously, never in history of education been a shortening of time available for education. It is resulting now from the Bologna Process. Great Britain is said to provide the model (Zgaga, 2004), but what about her model of the student per professor ratio, etc.?

### 3 Some conclusions

Knowledge management in schools reaches beyond the traditional teaching as conveying of the established knowledge by lecturing, what ever technology is applied such as overhead projectors, power point, blackboard or paper work. It reaches also beyond workshop and discussion style, if the later is limited to the established knowledge with no or little new creativity of students. It reaches even beyond changing the role of students from passive addressees to active and creative participants of the education and learning processes, because it includes development of the students' and teachers' absorption

capacity for the permanent influx of the new knowledge and their adaptation to the circumstances of the innovative business and innovative society. It tends to be much more complex than ever before and to demand teachers to de-memorize times of their splendid isolation in the academic life, which used to exist in times when science was worked on in monasteries (only). Schools are in market, actually in markets of several types that express several types of pressures, to which schools must respond creatively and with requisite holism, or perish. The Bologna Process seems to be an underused opportunity for innovation of higher education in Europe, because it tackles comparability much more than modernization matching the current socio-economic development of Europe as an innovative society, which Europe has decided to be, but with a poor success so far. Educators that have experiences education of yesterday which is history due to the current speed of changing must educate students of today to be professionals of tomorrow, which tends to be very different from the one of today and even more from the one of yesterday.

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