Organizational culture and e-education in secondary school teaching process

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Abstract. *The implementation of e-education in secondary education systems depends on a large number of factors unlike in university systems. The purpose of this paper is to point out the complexity and importance of understanding the influence of organizational culture within secondary education institutions in the course of e-education implementation. Secondary School of Building and Crafts Čakovec was used for analysis of the ways in which organizational culture functions and to which extent it inhibits or supports the e-education implementation process, i.e. to which extent it directs the behaviour of an individual-a teacher, a student and the Principal towards fulfilling their goals.*

Finding mutual interests was the focus of interest in the development of the e-education incentives by means of a synthesis of the motivation of a teacher to create organizational values, the satisfaction of a student in the particular organizational environment and the management style of the Principal. Besides the theoretical assessment of the problem of the influence of organizational culture on the e-education implementation process, the results of opinions of the Principal, the teachers and the students have been shown. A thorough social insight of organizational culture will prove strategically effectual in generations of future students.

Keywords. e-education, organizational culture, secondary education institutions, motivation

1 Introduction

The implementation of e- education into the educational institutions reflects the way of teaching, learning and the way in which an institution is organized in terms of supporting the teaching and learning processes. An efficient implementation of e-education into university, secondary school and primary school level courses requires changes in organizational culture, namely a shift from the traditional, academic approach to the managerial one [1]. This in turn requires significant changes as to organization and management structures within the educational institutions ranging from universities and secondary schools to primary schools. Unlike the implementation of e-education in the university education system, the implementation of e-education in the secondary education system depends on a large number of factors.

It is beyond dispute that the ICT has become more and more important factor in the development of educational system and society as a whole. The contemporary education is increasingly based on the ICT usage whose influence on the organizational structure in education is visible at all levels. The usage of ICT in secondary school courses implicates the formation of a new organization, which as well means formation of a new organizational culture. The synthesis of the motivation of a teacher to create organizational values, the satisfaction of a student in the particular organizational environment and the management style of the Principal is usually experienced as a problem of perception and/or worldview. New values, norms and beliefs are easier to implement if there is a thorough social insight into the independent elements of the organizational culture that influence (dependent) envisaged e-educational objectives (and vice-versa.). The first investigations into this field have been started and their results will prove strategically effectual in terms of organization in generations of future students (and teachers).

2 Organizational culture

A definition has it that an organizational culture is a steady system of values, relationships, views, beliefs, ethics, life styles, personalities and the character of a company [6]. The concept of organizational culture is encountered for the first time in an article that was published by P.G in 1979.[3] In the interpersonal relations, written and unwritten rules apply and values and standard principles are cherished that govern the behaviour in an organization. An organizational culture is influenced by numerous factors: interpersonal relations of the employees, the leadership and managing style, external influences, the features of the organization. It (the organizational culture) is built in all the activities and it influences all the activities of organization and means of organization, making decisions, the degree of decentralization, displaying authority and its application, the type of power that is used, degree of standardization and formalization, means of control, resource allocation, means of business planning and its volume, business strategy and its application. [5]

A key role in the influence on an organizational culture is played by the management – and leadership – of the organization. A decision-maker should be provided with necessary information in time so that he/she could recognize strong points and possibilities on the one hand, as well as threats and weak points on the other hand. Regarding the fact that his/her decisions influence all the people in the organization, the organizational climate /working atmosphere/ is closely related to the status of an employee, motivation and self-incentive, self-affirmation and relations with other members of the organization or individual achievements. It is therefore important for the feelings of an organizational "shareholder" to be recognized in the contemporary organizational culture. An organizational culture should support the mission and the vision of a company, its strategic goals and organizational needs [6].

2.1 Organizational culture and e-education

The activities performed at a school consist of different tasks, functions, jobs and assignments carried out by lecturers (teachers), external experts, administrative and technical staff. The basic role of a principal is to coordinate the efforts of these people aimed at attaining the objectives that the school has envisaged. The role of a teacher in the traditional secondary school classrooms was researched a long time ago. For centuries, teachers have been transferring strictly defined and to students fully adjusted teaching material. This model requires a lecturer to play a primary role and to "transfer" knowledge to students in the best way possible. After the Internet came into being, the role of a teacher-lecturer has changed because his knowledge source-role vanishes. Students have had the opportunity to do research on their own and retrieve information. The inexhaustible and fairly accessible sources of information are at their disposal in their flats, schools, libraries… The question that has arisen nowadays is to which extent has the role of a teacher changed qualitatively with the implementation of ICT.

Teachers have gradually been shifting from being a source of information to being leaders, mentors, tutors or moderators who give directions to or mark the known and certain sources of information. An educational group of today (a class) share the common interests and a faith in education and in an opportunity of an effective education process by means of the e-education technologies (chats, wiki, forums, blogs,…). A new culture is being developed, the e-culture.

Under such circumstances, the values of an organization change – what is to be attained – and an organizational climate – satisfaction, motivation, dedication, creativity and innovations. Some elements of an organizational culture are a logical prerequisite of attaining a certain e-culture; knowing (and recognizing) these elements is the basis for attaining objectives. Only a minority of educational institutions have recognized the need and professionally approached to the development of the potentials of their teachers. Many a teacher/mentor thus start teaching/ mentoring by means of attempts and failures and they do learn in that way, but students are those who pay the highest price. Their satisfaction is impaired in that way, so it is advisable for everyone to prepare for the challenges of the 21st century and this can perhaps be done in the best way by acquiring quality knowledge of the implementation of the e-education. By means of developing a strong organizational culture, the philosophy of e-education –"a student is in the centre of attention"- is as well to come into being. Although it is young, this kind of the e-culture contains the domination of vision and the readiness to take risks. In order to use the e-education technologies properly, some additional knowledge and knowledge of the factors influencing the e-education are requested and, pursuant to that, knowledge of the organizational e-culture as well.

3 E-education in school of secondary school of building and crafts

The Internet has been developing in a constant and an accelerated manner and the scope of the services it offers has also been widening. The teachers of secondary School of Building and Crafts use it mostly for exchanging e-mails and retrieving information related to their profession or some other fields of interests.

The teaching process takes place at traditional classrooms mostly with the use of ppt presentations, multimedia CDs and DVDs in the role of teaching aids; furthermore, the WEB is used for the informative purpose. As to the courses attended by media technicians, WEB designers and interior architecture designers, a combined type of teaching process is performed featuring the usage of the contemporary ICT, WEB contents and the online teaching via the Edupoint online courses:

1. „Processing pictures by GIMP",
2. „Creating animations in Flash" and
3. „Processing audio/video recordings"

(the courses have been implemented in the regular teaching process)

When this type of combined teaching process, the F2F and online courses-based teaching process, is concerned, we want to make sure that it is not a mere supplement to the already existing methods and approaches, in case of which expenses will increase and the burden on the part of both the teachers and the students become unbearable. In an ideal situation, we would have to integrate the online teaching process with the traditional teaching process (performed in a classroom) in the way that changes and upgrades the organization of teaching and learning in a classroom.

4 Research methods

Regarding the fact that the students of School of Building and Crafts (media technicians, WEB designers and interior architecture designers) were actively involved in F2F and online teaching process as attendants of courses for two years, we wanted to determine the influence that the e-cultures of the students and the teachers had one upon the another. We wanted to get data on the indicators to represent the teachers and the students that are involved in and those who are not.

The measured indicators are:
1. Motivation
2. Incentive
3. Tolerance
4. Identity
5. Clarity of objectives
6. Control
7. Integration
8. Awarding
9. Mutual support
10. Communication

The research sample was made up of 10 teachers in accordance with the principle of 50% of them being involved in e-education and 50% not being involved and 100 students out of whom, similarly, 50 % of them being involved in e-education and 50 % of them not. Although all grades (1-4) took part in the research, only the students attending 2nd and 3rd grades could be chosen for the sample of the students that are involved in e-education as the implementation

of this kind of teaching process is still at its beginnings.

Teachers included in this sample of research work are employees at the School of Building and Craft. Regarding the fact that professions programmes at that school enable implementation of various forms of e-learning in the course of schooling (using PP presentations, over-head projectors, on-line testing, simulation, animation and on-line education), numerative representativity of employed information science teachers that were included in e-learning was taken as competent.

The research was done by the survey method. The students were free to give up at any surveying stage, to accept the survey or not and the obtained data can therefore be considered relevant.

5 Results

The analysis of the results of the research into the organizational culture and e-education at the School of Building and Crafts Čakovec is extremely voluminous and we thus present only the most important results.

The results obtained pursuant to the question "Do you believe that the organizational culture supports the implementation of e-education into school?" seemed significant to us. The answers are presented in Graph 1:
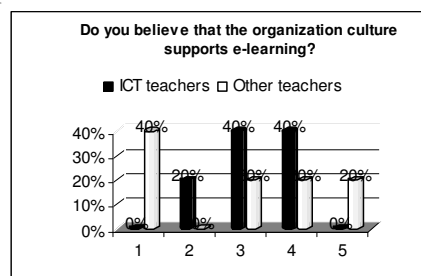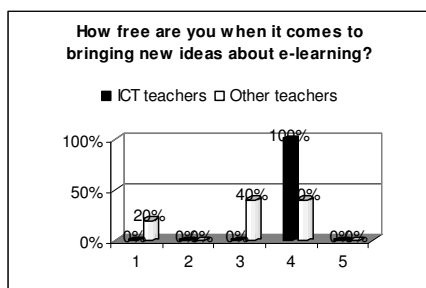

GRAPH 1

It can be seen from the graph that 40% of the surveyed teachers who do not use e-education at the higher teaching process level think that the organizational culture does not support the implementation of e-education into school whereas one group of 40% of the teachers who actively use e-education labelled the support as good and another group of them (also 40%) labelled the support as very good, which indicates that they recognized the good organizational climate and organizational values.

It can as well be related to the question "What is the extent of your freedom to promote new ideas as to the form of e-education?" (Graph 2) to which even 100% of the surveyed who introduced e-learning into the teaching process gave answers labelling the freedom as very good, which indicates that they

recognized the advantages of a democratic leadership in the very organization and this is in turn one of the crucial prerequisites of implementing innovations in the secondary education segment of the education system.
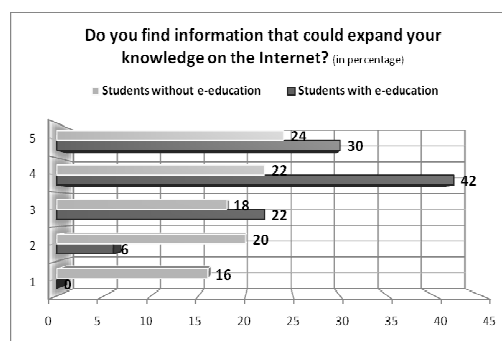

GRAPH 2

The question "Are there any individuals that can serve as a model to others when e-education is concerned?" was answered negatively by not less than 40% of teachers who do not use e-education at a higher level of the teaching process, which indicates that they do not see such individuals in their own organization; however, 80% of those who do use e-education at a higher level of the teaching process answered the question positively (Graph 3):
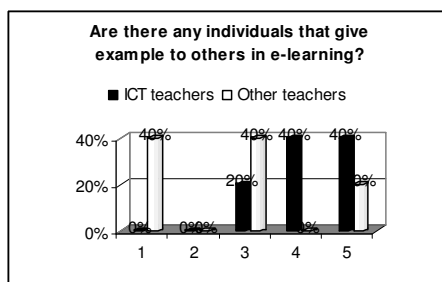
GRAPH 3

The answers of the surveyed indicated a need for an intensified informing of other teachers on e-education and a need for them to be included into e-education by means of introducing e-education in their lifelong learning courses.

The questions posed to the students were the control ones by means of which we wanted to prove that the interest on the part of the students and their motivation as to the usage of IT for widening the scope of their knowledge are related to the motivation of the teacher him/herself and his/her attitudes toward e-education and IT. This is confirmed by the results obtained from the question "Can you find information that widen to the scope of your knowledge on the Internet?"; 42% of the students that are included in e-education labelled their positive answer with "very good" and 30% of them labelled their positive answer with "excellent". The results are shown in Graph 4:

GRAPH 4

Table 1 and Table 2 show the quantitative analysis of the results of the research done into the influence that the e-cultures of the students and the teachers had one upon another. The analysis consists of an average mark obtained for each of the indicators that present the students and the teachers who are involved in e-education and those who are not, i.e. of the average marks for all the investigated indicators (for teachers and the students) of the organizational culture within the implicated secondary school.

Table 1. Quantitative analysis of e-education – teachers

No	INDICATORS	AVERAGE MARK		STANDARD DEVIATION		VARIATION COEFFICIENT	
1	2	3		4		5	
	TEACHERS IMPLEMENTED E-EDUCATION	YES	NO	YES	NO	YES	NO
1	MOTIVATION	3,2	2,8	0,75	1,60	23,39	57,14
2	**INCENTIVE**	**3,8**	**3,6**	**0,75**	**1,02**	**19,69**	**28,33**
3	TOLERANCE	2,8	2,6	1,33	1,36	47,38	52,17
4	IDENTITY	2,4	2,0	0,80	1,10	33,33	54,77
5	**CLARITY OF OBJECTIVES**	**4,2**	**2,6**	**0,75**	**1,50**	**17,82**	**57,56**
6	CONTROL	3,6	3,0	0,49	1,10	13,61	36,51
7	INTEGRATION	3,4	2,8	0,80	0,98	23,53	34,99
8	AWARDING	2,8	2,6	1,17	1,02	41,65	39,22
9	MUTUAL SUPPORT	2,6	2,8	1,02	1,47	39,22	52,49
10	**COMMUNICATION**	**4,0**	**3,0**	**0**	**1,10**	**0,00**	**36,51**
11	TOTAL	3,28	2,78	0,78	1,22	25,96	44,97

Table 2. Quantitative analysis of e-education - students

No	INDICATORS	AVERAGE MARK		STANDARD DEVIATION		VARIATION COEFFICIENT	
1	2	3		4		5	
	STUDENTS INVOLVED IN E-EDUCATION	YES	NO	YES	NO	YES	NO
1	**MOTIVATION**	**3,7**	**3,2**	**0,96**	**0,98**	**26,06**	**30,62**
2	**INCENTIVE**	**3,96**	**3,18**	**0,87**	**1,47**	**21,99**	**44,33**
3	TOLERANCE	3,46	3,3	1,22	1,20	35,26	36,49
4	IDENTITY	3,2	3,2	1,10	1,18	34,23	36,98
5	CLARITY OF OBJECTIVES	3,52	3,4	1,14	1,48	32,26	43,62
6	CONTROL	3,18	3,22	1,23	1,64	38,61	50,95
7	INTEGRATION	3,6	3,14	1,13	1,40	31,86	44,59
8	**AWARDING**	**3,78**	**2,26**	**1,08**	**1,34**	**28,64**	**51,15**
9	MUTUAL SUPPORT	3,44	2,8	1,10	2,14	31,93	76,43
10	COMMUNICATION	2,96	2,78	1,97	1,58	66,53	56,78
11	TOTAL	3,48	3,08	1,18	1,44	34,74	47,19

Fairly high indicator marks in teachers who implemented e-education can be observed for clarity of objectives **4,2 (σ=0,75;V=17,82), incentive 3,8(σ=3,8; V=19,69) control 3,6 (σ=3,6; V=13,61)** and **communication 4,0 (σ=0; V=0)**; and in students, it goes for **incentive 3,96 (σ=0,75;V=17,82), awarding 3,78 (σ=1,08;V=28,64), and motivation 3,7 (σ=0,96;V=26,06)** as contrasted to the results obtained from the teachers and the students who are not involved in e-education.

Indicators of motivation and initiative that were observed with students were gotten from the evaluation while measuring the degree of students' will and desire for Internet access and finding information, while the indicator of rewarding was gotten from the evaluation of the grading system in regular conditions and in e-learning. Teachers' indicators of initiative and object clarity were gotten from teachers' estimation of school's feasibility that the school can autonomously offer by introducing e-learning and giving personal object clarity that a teacher wishes to achieve by introducing e-learning.

The control indicator was gotten from measuring teachers' knowledge of regulations while introducing e-learning, and the communication indicator was gotten on the basis of teachers' assessment of the freedom of presenting new ideas.

The results lead to the conclusion that the teachers are satisfied with the attained clarity of the curriculum objectives, with the possibility of controlling the acquired subject matter and with increased possibilities of exchanging information and discussing with the students. The incentive of integration of e-education into the traditional learning process has been positively accepted by the students and the motivation for taking an active part in online teaching process lies mostly in receiving a certificate upon completing the teaching process (awarding).

6   Conclusion

The gathered and analysed data indicate that there is a positive motivation in the teachers and in the students as to e-education and that there is a support to the respective lifelong learning for teachers. Regarding the fact that promotion encourages the feeling of devotion to the school a teacher is employed at, the working culture of the teachers and their culture in general are as well upgraded. However, efforts should be taken to eliminate all the obstacles to their creativity (especially in e-education) and to encourage all teachers to become involved in the e-education process in order not to neglect the interests and the satisfaction of students (who are motivated to use new ICT from the very start).

Learning and lecturing at universities differs from the e-education processes at the secondary education institutions. University education courses do not incorporate the dimension of upbringing that secondary education courses incorporate. It is beyond dispute that online teaching has its place in secondary education institutions, but just because of the dimension of upbringing an avoidance of F2F teaching process is not welcomed or even possible. The dimension of upbringing is a common interest of the secondary education teachers and students who are involved in e-education. The interest is therefore to be monitored through the prism of the organizational culture (e-culture).

The development of the contemporary ICT and the increasing openness and readiness of teachers to follow new computer technologies solutions create an appropriate climate for the implementation of e-education. The implementation and usage of e-education offer a range of advantages for students – ICT usage skills are acquired, learning is enhanced and new ways of cooperation are encouraged. Students are ready for e-education as well as a large number of teachers.

The e-education enthusiasts that have been trying to start developing e-education incentives in their

surroundings must be aware in advance that e-education requires significant changes in the organizational culture in the majority of educational institutions. Those who find a common interest in developing e-education incentives may have different set of values, norms and beliefs while attaining their objectives, but they should learn to accept different world views and be ready to adapt mutually.

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