INFORMATION TECHNOLOGY AND CHANGES OF MANAGEMENT

INFORMACIJSKA TEHNOLOGIJA I PROMJENE MENADŽMENTA

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A b s t r a c t

Multimedia systems of communication enable general application of new technologies which set up a challenge for the preparing of new methods in forming learning and teaching processes. Educational process is becoming a process of information and communication, however multimedia systems of communication enable general application of new technologies. In the text below we are going to talk about information systems as component part of organizational processes, about information technology equipment in public institutions and about the presence of information technology in boarding school organizational systems. By the help of research we got statistical data about the number of computers in boarding schools, how many and what chances of use of computers and internet educators and students have, which organizational systems are guided by the help of computer programmes and what is the principals' view on information technology. We also got the answers to how principals value their knowledge in computer science and what advantages bring information technology in the school system.

S a ž e t a k

Mogućnosti koje donosi informacijska tehnologija utječu na promjene modela obrazovanja. Obrazovni proces postaje informacijsko – komunikacijski proces, dok multimedijski komunikacijski sistemi pak omogućavaju svestranu uporabu novih tehnologija koje postavljaju izazov za uvođenje novih oblika i metoda u proces učenja. U tekstu ćemo govoriti o informacijskim sistemima kao sastavnim dijelovima organizacijskih procesa, o opremljenosti đačkih domova kao javnih ustanova s informacijskom tehnologijom te uključenju informacijske tehnologije u organizacijske sisteme đačkih domova. Pomoću istraživanja dobili smo podatke: koliko u đačkom domu ima računala, koliko i kakve su mogućnosti učenika i ravnatelja za uporabu računala i interneta, koji organizacijski sistemi su vođeni pomoću računalnih programa, kakvo je stajalište ravnatelja o informacijskoj tehnologiji, kako ravnatelji ocjenjuju svoje znanje s područja informatike i kakve prednosti vide uvođenjem informacijske tehnologije u školski sistem.

1 FOREWORD

Education, science, technique and technology are incomprehensible outside social changes of the modern world. The contemporary fast-paced development of social sciences and technology imposed a number of unexpected changes in all spheres of life and work, and in educationas well. Alienation is more and more present and expressed in relations between people,in relation man - society, etc. The feelings of tension, uncertainty, anxiety between the man andthe society more often lead to moral, spiritual and even material crisis. The consequences of sucha condition are significant as they have influence on man - especially on young people who are worried about their future /**1**/.

Introducing the information technology into schools has a major purpose - to improve the quality of the educational process as well as the school as a whole. The educational systems is becoming an informative–communicational process, whereby the multimedia communication system enables a comprehensive use of new technologies, which represent a challenge of introducing of new methods in designing the learning and teaching processes /**2**/. An individual is supposed to acquire the most knowledge during an organized educational process which is increasingly linked with information systems and organization processes. With the growing possibilities brought about by electronic communication the informatization of school systems is becoming more and more important.

Introduction of information – communication technologies into the teaching –education process requires from the institutions of the educational system adjustment in the field of management and organization of work. On the other hand, the overhauling in terms of information and media of the public institutions from the field of education means additional financial burden for the budget. The vision of headmasters is certainly efficient management and organizing of the educational process and consequently the incorporation of information systems into the education – teaching process is a supremely important part of strategic plans of schools /**3**/.

As a matter of fact, computers have found their way to young people, to Slovenian elementary and high schools and that happened more quickly than we are aware of. We may say that part of young people

outdistanced the school system and that they have found us unprepared. That is why it is an imperative that we focus the intellectual and organizational efforts in educational system to careful study of the use of technology on global as well as on local level /**4**/.

2 PURPOSE, RESEARCH SAMPLE AND METHODS

Developing trends of the market enterprise countries show that education is set among

the highest priorities of global national strategies and policies of a social, economic and technological process. In developed countries and societies that are learning of gaining and creatingnew knowledge, it has a status of the main instrument for accomplishing their competence andmaintenance. In this focus is also education, in all its forms that are known to us. The formaltype of school as elementary and unique educational institution we know is vastly overdone. Itscompetition is mainly informal ways and types of education, including institutional and noninstitutional(outer) types /**5**/.

The boarding schools are public institutions, in terms of organization they are part of Slovenian school system – secondary education /**6**/. The changes in environment occur permanently. Their frequency and speed of their incorporation into the social life depends very much on the people and their propensity to accept them. IT rapidly changes the world, the people, science, and society. That is why it is urgent to plan and systematically introduce it into the management policy, to orientate it to targets, to follow up, and to carry out the internal and external auditing – evaluation /**7**/.

A basic research was carried out in the boarding schools. The work method applied was surveying with questionnaires. The research should provide the information of what the situation is like in the field of information systems and processes in boarding schools.

The survey questionnaire consisted of 10 questions. With this research we aimed to find out how many computers are there in the boarding schools, their

availability as well as the availability of internet access to pupils and tutors, what organization systems are computer aided, what are the attitudes of the headmasters to IT and finally the replies to how the headmasters assess their knowledge in the field of computer sciences and what advantages they may see in information technology for the educational system. The research covered 9 selected boarding schools (headmasters) from various Slovenian environments. The designed sample covered the headmasters from small, medium, and large boarding schools. Among them 4 are females and 5 males all university educated. Following the previous agreement the questionnaires were sent and returned by e-mail. In the research the method of non-experimental pedagogic investigation was applied. The results were qualitatively and quantitatively analysed and compared with each other.

3 RESEARCH QUESTIONS AND ANALYSES OF THE RESPONSES

3.1 How many computers and computer classrooms are there in the boarding schools?

The table 1 shows that the total number of computers in the researched sample is 283 and the number of computer classrooms 17. On quick judgement we may say that there are in average 8 pupils per 1 computer in the boarding schools. However the situation is different. In each boarding school one computer is used by the headmaster only, usually however he uses one desk top and one notebook or lap top. At least two computers are used by the accounting and secretarial dept. In average two tutors will use one machine and at least one is for the kitchen staff. In our research we were only interested in the number of computers and no their internal arrangements.

3.2 Does your boarding school have an intranet ?

The response shows that all in the research included boarding schools use intranet as a means of communication.

Table 1: Number of computers and computer classrooms

	DD 1	DD 2	DD 3	DD 4	DD 5	DD 6	DD 7	DD 8	DD 9	Total
Number of computers	21	72	38	30	24	40	13	25	20	283
Number of computer classrooms	1	5	5	0	1	2	2	1	0	17

Table 2: Intranet in boarding schools

Response	Number	Share (%)
Yes	9	100,0
No	0	0,0
Total	9	100,0

The response shows that in 66.8% of boarding schools all computers are connected to intranet. The most computers connected to intranet are 36 and the least 7 computers. The result shows that intranet plays an important role in managing and organizing work in boarding schools.

Table 3: Number of computers in boarding schools (DD) connected to the intranet

	DD 1	DD 2	DD 3	DD 4	DD 5	DD 6	DD 7	DD 8	DD 9	Total
Number of all computers	21	72	38	30	24	40	13	25	20	283
Number of computers connected to intranet	21	36	12	30	23	15	7	25	20	189
Percentage of the computers connected to intranet (%)	100	50	31,5	100	96	38	53,8	100	100	66,8

3.3 Do the pupils in the boarding school have access to the computer connected to internet?

Table 4: Availability of access to computers and internet for pupils

Response	Number
No	0
Yes, in special classrooms (for computer sciences)	8
Yes, we are included in the project "e-schools"	1
Yes, in the library	6
Yes, in the corridor	3

The headmasters reply that the pupils have access to the computers and internet at all times. In most cases it is in the special classrooms (computer science classrooms). 6 of them say that they have access to internet by means of the computers in the library, 3 have internet access by means of the computers in corridors and 1 boarding school is included in the project "e- schools". As the frequency of replies is over 9 we my draw the conclusion that in some boarding schools there are computers in several rooms besides the classrooms in library or in corridor.

The results show that the headmasters of the boarding schools in leading the pupils through the educational activities use computers as a means of communication with each other and to assist pupils in learning and in useful spending of their free time incl. their pastime activities.

3.4 How important in your opinion is the use of computers and of IT in management and organization?

Table 5: Importance of using computers and IT.

Reply	Number	Share (%)
Very important	5	56,0
Important	4	44,0
Less important	0	0,0
Not important	0	0,0
No opinion	0	0,0
TOTAL	9	100,0

The replies show that the headmasters are aware of the importance of using the computers and IT in management and work organization.

3.5 Which organizational processes in your institution are carried out by means of information system?

Table 6: Information system aided process management

Response	Number
Records of employees.	9
Records of pupils in the institution	8
Records of the employees' arrivals to and departures from work	3
Records of the pupils' arrivals to and departures from institution	3
Calculation of salaries and wages for the employees	9
Accounting	9
Electronic marks records	2
Records of presence to lessons	2
Personal records of the employees	2
Boarding school or school chronicles	2
Ordering and cancelling of meals in the kitchen	3
Maintaining of home page in internet	8
Running of the library .	6

We must not be content with the fact that the IT in the school is only used for business organizational purposes and very little in teaching processes. The objective is that each pupil should be able to use the basic tools of information technology. An important element of each school should be multi-media education /8/. The headmasters' responses show that in organization and management they frequently use various organizational systems.

3.6 Does each member of the staff have their own study with 24 hours' access to the internet?

Table 7: Access to the internet of the employed staff in the boarding schools

Response	Number
Each member of the teaching staff has his study and a computer with 24 hours' access to internet.	2
The thus furnished study is shared by two members of teaching staff that work in the same shift.	4
The thus furnished study is shared by two members of teaching staff that work in the opposite shifts.	1
The thus furnished study is shared by more than two members of teaching staff. How many?	1
The members of teaching staff are given space in the teacher's staff room for their implements and access to internet.	1
The teaching staff has no daily access to internet.	0

The replies show that the teaching staff in boarding schools has satisfactory conditions in respect of access to computers and in turn to internet. We may say that the boarding schools follow the information society and the respective changes in environment because the staff have the possibility to use internet as a source of information and means of communication with the surroundings.

3.7 Do you as a headmaster expect that the staff have the knowledge in the field of computer science and IT ?

Table 8: The headmaster expects the staff to be in command of the computer's knowledge

Response	Number	Share (%)
Yes	9	100,0
No	0	0,0
TOTAL	9	100,0

From the replies to the 8th question we may see that the headmasters expect the staff to be in command of knowledge in the field of computer science and IT. This reply was somehow expected since the work conditions in the environment are such that the teaching staff are expected or are supposed to have such knowledge so that one of the requirements of their jobs to be met.

3.8 How do you encourage the staff to acquire of additional skills in the field of IT?

Table 9: How does a headmaster encourage the education of the teaching staff?

Response	Number
I always procure funding for this type of education.	2
I am in favour of such education but the institution has no funds to pay for it.	4
I invite lecturers from this field to the institution where training for all personnel is organized	1
I encourage the knowledge exchange inside the staff. (Lectures and workshops carried out by the staff themselves in "work" conferences.	1
The staff must take care of acquiring of this knowledge themselves.	1
I find this education for the staff as not important.	0

The reply to the 9th question shows that the headmasters encourage the training of their staff in the field of information technology by procuring the funding for such training.

From the replies of some of the headmasters we may however deduce that the institution seems to lack the necessary funds. The cost of the IT training may be rationalized by arranging the lectures in the institution for all personnel and thereby promoting the exchange of knowledge in the institution which means that the lectures and workshops are carried out by the staff possessing the necessary knowledge.

Only one headmaster feels that the staff should acquire the relevant knowledge on their own. The staff should in any case have the basic knowledge from the field of IT. The headmasters however must be constantly well informed about the news from the environment and must organize the training of the staff.

3.9 Rate knowledge in computer science on the scale from 1 to 5 of the headmasters

Table 10: The headmasters' rating of their own knowledge in computer science

Reply	Number	Share
1 bad	0	0,0
2	2	22,2
3	5	55,6
4	2	22,2
5 good	0	0,0
TOTAL	9	100,0

The replies show that most headmasters gave themselves the mark 3. The rating is very much subjective since if we really wish to assess the headmasters' knowledge of the computer science we should set up criteria of measuring it and also compare the group "headmasters" with another similar group.

Information technology and learning how to use a computer have become an important part of development of human resources, of the general education process and of the social development as such /**9**/.

3.10 *Please state the essential advantage which you deem to be contributed by IT in the field of education«?*

With this question the headmasters were given an opportunity to state the advantages that in their opinion are brought by the information technology into the schools. They decided for the following advantages that IT provides:

- a speedier and more efficient access to information, it makes work easier and it facilitates essentially the running of records of pupils and employees.
- A simpler and less expensive access to up to date information.
- Less time is consumed for filling of forms, better transparency, speedy communication.
- Better organization and less clerical work, speedier transmission of data.
- Better transparency of organizational processes.
- Speedier carrying out of work of better quality.

The replies show that the headmasters are aware of the essential advantages of IT in education system. The fact is that the informatization of society is a global phenomenon resp. environment change to which the education system must adjust. We must always be aware of the changes that IT brings into the system. The learning and education will not be confined to school only but will be resp. has already been extended to different media /**10**/.

4 CONCLUSION

From the results if the research we have deduced that headmasters' rating of their computer literacy is comparatively good, that all boarding schools encompassed into the research use intranet as a means of communication and that headmasters use computers to run records and at the same time as tools for communication. Finally it has been determined that the use of computers and IT is a very important form of work in management and organization of work in boarding schools.

Considering the results of the research we may conclude that the boarding schools keep up with the development of information society and with the changes in it largely due to the fact that the staff are

offered the possibility of using internet as a source of information and communication with the environment. Further the headmasters' replies show that in organizing and managing the educational process they often use various information systems, and they encourage the training of the staff in the field of IT by procuring the necessary funding. The headmasters are obviously aware of the fact that IT bring into the education system. It is used not only for running of records and accounting but in the process itself. The central conclusion is that headmasters include the information systems in their policy of management of development of boarding schools.

When the mission and the visions of the school are implemented by the headmaster and other staff and to what extent IT has been included will depend on their professionalism, competence, knowledge, and abilities.

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