Use of ICT in the Management of Educational Institutions: The Case of Silesian College of Economics and Administration in Bytom - Poland

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Abstract—The authors of this article considers changes in college and university management which have taken place together with the socio-economic transformation in Poland. Issues that are being investigated are mostly connected with the use of latest information and communication technologies in management. To this objective, the analysis of ICT documentation, elaborated for the needs of Silesian College of Economics and Administration in Bytom management, was conducted. There were given several examples of computer systems and programs to serve the work of academic teachers, administrative employees (Sage Symfonia - System Forte) and students (Zintegrowany System do Obsługi Uczelni Wyższej ProAkademia i eAkademia, System Plagiat.pl). The authors also describes the results of the questionnaire conducted in WSEIA among administrative employees about abilities to use the Internet and ICT. The researches showed that specific actions should be taken here so that they should go hand in hand with investing in the newest equipment and the latest software. Only coordination of these two factors can contribute to a high level of flexibility and efficiency of management, which is so important nowadays when it comes to specific educational market in Poland.

Index Terms—ICT at Higher School, E-Management, Internet, Education.

I. INTRODUCTION

The end of communism in Poland, which took place in 1989, enabled to introduce the democracy and free market economy. Since then the study about organization and management has become more significant. It seems to be natural that at first the managers acquainted this knowledge to manage the companies. As the years passed, management methods and techniques gained recognition among other people managing different types of organizations. Among them we can find higher education institutions. Even the ICT progress was at first used in business organizations and then in others. The specific situation on the Polish educational market, forces the college managers not only to invest in ICT but also to immediate reaction connected with the progress in this area.

The authors’ aim is to throw light on the specific higher education institutions situation during the social-economic transformation, college administration area and using the ICT in Silesian College of Economics and administration in Bytom management.

A. Research methodology

Analysis of information documentation compiled for needs of Silesian College of Economics and administration management and the questionnaire containing the questions connected with the ability of the internet usage among other things, such as the internet usage experience, frequency and aim of its usage and ICT usage, among the other things; locating and starting the program, using the peripheral devices, working with files and brochures, etc., were used for the needs of the article.

All in, the questionnaire consisted of 81 questions divided into 7 thematic categories. Administrative officers, lecturers and students were asked to fill in the questionnaire. There were 90 workers completing the questionnaire which contained closed questions. The aim of the research was the operating systems analysis used in college and assessing the internet and ICT sills level of the administrative officers.

II. THE INFLUENCE OF SOCIAL-ECONOMIC CHANGES ON COLLEGES MANAGEMENT IN POLAND

For illustrating the meaning of the word management Peter F. Drucker’s words should be quoted, he said—‘The management might remain the basic and predominant institution as long as the western civilization will last. Not only is the management established in the nature of modern industrial economy and the needs of modern enterprise, whose industrial system must commend its productive funds – both human and material but it also expresses the basic views of modern western community’. Therefore, how can we define management if Peter F. Drucker accounts such a powerful value for it. According to P. Robins and David A. De Cenzo, management is ‘a process of efficient and successful completing certain things in collaboration of other people’. On the other hand, Ricky W. Griffin understands the meaning of management as ‘a set of actions (including planning and making decisions, organizing, supervising controlling people) aimed at organization funds (human, financial, material and informational) intended to achieve the aim in an efficient and successful way’.

The concept of supervising instead of managing can be often found in literature. Supervising is said to be ‘a specialization of concentrating on time and human relation matters as long as they appear in the organization’.

The concept of time in management includes such elements as:
1. Management as aiming at creating a desirable future by taking into account past as well as the present;
2. Management in a certain historical period is treated as its reflection;
3. Management as an action causing the results and phenomenon appearing as the time passes;
Next, the meaning of human relations is connected with following ideas:
1. The managers take part in mutual relationships, which means that they have the mutual influence on themselves;
2. The managers take actions in such relations in which the results influence on the others;
3. The managers are occupied with different and extant human relations.

Certain specific areas, which attention might be focused on, can be set apart in management. For instance, human resources management can be included, which is defined by Michel Armstrong as a “strategic and coherent attitude to the most valuable assets of organization management – meaning people who are employed and contribute individually and collectively to aims execution”.

Management might also refer to a specific type of organization, for instance, a higher education institution. By college management, we mean using all available resources, mainly human resources, in order to ensure the highest level of education, adjusted to current and future labor market expectations, research development and competitiveness among other higher education institutions.

In order to characterize management in Silesian College of Economics and administration in Bytom, it is advisable to describe the conditions in which this institution was created and how the change of those conditions influences on the present management. In Polish literature it can be read that management is a kind of ‘wandering through the chaos’, creating the reality by using the available components: ideas, people and their relations legal institutions, material gains (machines, devices and ready materials, etc.), money and the rights to use it. Moreover, it is emphasized that the most general aim of all institutions is cessation and development, which seem to be unquestionable. Furthermore, necessary but not sufficient condition, in order to maintain a continuity function of management, is isolated from the environment, object management. This profile of management is fully justified by life.

As it was mentioned in the introduction, Poland was released from the Soviet Union’s influence after a few dozen of years. This influence was omnipresent in all social-economic areas, including the citizens development and education. Education was subordinated to bringing up in the socialist spirit. The directions of its changes and development were governed by the highest party authorities. It is obvious that the directions and changes had to be compatible with the current educational system in the Soviet Union. The educational aims of vocational training were set by the centrally administered economy needs. It means that the authorities and party had the best knowledge about citizens’ needs in both material and mental area.

Consequently, it led to helplessness of a society. Moreover, this situation was influenced by both, assuring the citizens of access to essential living conditions, health care, education and recreation, etc. and social promotion of workers as well as depreciation of people with higher education. This situation directly influenced on management of higher education institutions. College authorities could only fulfill imposed tasks. All new conceptions, solutions and theories had to imitate the soviet education. Additionally, the technology used in researches came from communist countries. Access to western countries technologies was almost completely limited. Firstly, it was caused by the fact that Polish scientists were not allowed to go to capitalist countries. Secondly, because of imposing technological solutions of the Warsaw Pact. In addition, the rule of promoting and appointing the party members to executive posts influenced the colleges management.

Such a situation excluded using the scientific management achievements in Polish higher institutions, in spite of a significant achievements in this area of Polish economists from the period before the II World War. It lasted until 1989. Then Poland became democratic and used free market. It was the time of great changes. Unfortunately, not everybody was prepared for them and could adapt them. Breakaway from the centrally administered economy led to abolition, privatization or restructuring of some enterprises (almost all of them were state). It turned out that in majority enterprises there was staff surplus. Moreover, managers were not prepared to supervise the companies in new economical reality. Additionally, it was proved that the consumers knew the best what they needed, which was against all earlier ideas.

All those situations contributed to significant changes in Polish higher education. The changes took place in three different trends: the needs of adjusting educational offer to new market place, satisfying both adolescences and adults with studying in colleges, adjusting the higher education institution management to competitive educational marked by means of using ICT.

In actual fact, the colleges management based on market rules began in Poland in 1990 when the higher education law was established by lower house of the Polish parliament. This law enabled to create private higher education institutions. For that reason, gaining the students has been based on competition rules using the methods and techniques of management which were earlier used in business companies. Unfortunately, constant changes of regulations and higher education institutions, unequal treatment by executive stuff have had a significant influence on colleges management.

III. USE OF ICT IN THE MANAGEMENT OF SILESIAN COLLEGE OF ECONOMICS AND ADMINISTRATION IN BYTOM

Silesian College of Economics and administration was established in 1996, six years after introducing the higher education institutions law. At the present, the students are trained in various majors, among them, there are economics and administration. ICT investment is dictated by several factors, such as: constant improvement of education, raising the college management effectiveness, improving the teachers, students and administrative officers’ service, meeting requirements
of higher education institutions law and being competitive. Basically, three major areas of using ICT in college management can be mentioned, such as: students’ service area, teachers and administrative officers’ service area and ICT skills area. With a view to article limitations, the authors will mainly concentrate on using ICT in teachers and administrative officers’ service area, students’ service area and ICT skills area.

A. The college teachers and administrative officers’ service area

System of teachers and administrative officers’ management service as well as college funds is based on computer program Sage Symfonia - System Forte. It is a program which supports strategic management areas and processes which take place in a college. It contributes to effectiveness increase and expenditure optimization. An immediate access to credible and coherent information enables a flexible reaction, concerning the market changes. It influences on competitive increase and lowers the general risk of conducting an educational activity. Interface of this program is presented in figure 1.

Figure 1. Interface of Sage Symfonia – System Forte

This program consists of a few subroutines, such as:

**Finances and Accounting** - this program deals with all fundamental accountant operations, from creating the bank accounts and easy bookkeeping, automatic balance closing and full reckoning to ready or defined by a user reports and accounts.

**Human Resources and Payroll** - this program provides the management of pay and personnel department data. It automates payment calculations, planning and working time record. It also enables to run the human resources and payment documentation. It helps deal with accounting with Inland Revenue and Social Security.

**Invoice** - this program deals with trading with educational service. It makes out basic bills both in Polish and foreign currency. It accounts for cash and non-cash transactions. It enables to plan and run a certain sale policy.

**Capital assets** - this program facilitates records, update, taking inventory and capital assets, low-value components as well as non-materialistic and legal amortization. It enables a foreign capital assets record which are based on lease or a rent agreement.

B. Students’ service area

In this area, two information systems are used. The first one is used to administrate students’ data as well as to serve students and teachers in studying area. It is called Integrated System used for Higher Education Institution Service ProAkademia and e Akademia. The second one, is used to control the students if they obey the copyright. It means that it serves as a tool for preventing the plagiarism.

ProAkademia is a set of programs which enable to support management and organization effectively. It also serves as a tool for organizing college work in areas of administrative service and students training. It deals with recruitment, classes organization, payment control, end-of-term examinations, defense of diploma thesis and graduation diploma.

This set consists of such programs as: administration (recruitment, the internet recruitment, matriculation, groups management, tuitions, analysis and certificates); dean’s office (student’s files, ECTS, rigors, subjects, groups management, end-of-term exams, payments and finances, certification process, diplomas, supplements, filing system, printouts and certificates); communication with MS OFFICE/OPENOFFICE program it enables a fast data export from Pro Akademia to MS Office or OpenOffice; finances (tuition, payment, charges, scholarship); schedule – (teaching section, obligatory teaching hours, timetables, supporting programs).

E Akademia is a set of programs allowing students and teachers to have the access to information and data through the internet. It consists of: communication (a virtual dean’s office, the internet recruitment, a virtual lecturer, information stands, a voice service, a TV service, sms/mail service, electronic cards); SELS (issuing and extending students’ ID); service (log in and access to funds, printing service).

ProAkademia and E Akademia software can work in Windows or Linux systems. Productivity of a computer depends on the number of drives using the system. A version for 5 and more needs a dedicated server or a data base. Basic configuration: it is a Dual-Core processor Celeron Core 2 Duo 2 GHz or more. In case of 10 stations it is necessary to use Xeon DualCore or QuadCore, minimum 2 Gb, a fast disk, the data base size can run from 200Mb to 1 Gb.

The workstation requirements are as follows: Windows 2000 or higher, 512 Mb at the minimum, Celeron 2 GHz processor or higher, Minimum monitor resolution is 1024/768. In case of local area, the network should have a capacity of 100 Mb / s or more. ProAkademia interface package is presented in the figure 2, and the package E Akademia in the figure 3.

Figure 2. Interface package ProAkademia
The second of computer programs used in the management of student services area is Plagiat.pl system, which is used for the comparison of test documents. Plagiat.pl system is a tool for checking the originality of the examined documents. Its task is to accurately determine the extent of possible similarities in the text that has been subjected to check to the text which is in the database and the Internet. It makes the information available to users in such a way to assess whether there is the evidence of loanwords or whether they are eligible borrowings. The task of the system is not to assess whether the document was written by oneself but only to provide material to make it. Selected by the university users, receive an individual accounts which are protected by passwords. Logging in takes place on the website.

The user’s task is to introduce the documents subjected to analysis, reading the results and drawing conclusions from the report generated by the system. System Interface Plagiat.pl was presented in Figure 4. Hardware requirements for the system Plagiat.pl are as follows:

C. The area of ICT skills of administrative staff

Each university which has the access to the latest technology for its management does not succeed if workers will not be able to use it. Human capital constitutes to the possibilities of achieving the goals, set by the management of the university.

Therefore, the authors conducted a survey among the administrative staff to determine their skills in using the Internet and ICT. Structure of respondents by gender, shaped as in Figure 5

The largest part of the studies were people at the age 21-25 years, and the smallest, there were people aged 51-55 years, as shown in figure 6. The second place, due to a percentage of the study were employees aged 26-30 years

Among the administrative staff, a dominant group of 78.26% has been using the internet for more than 4 years. Next, there are people with experience of 2 and 4 years. These data is shown in Figure 7

The same percentage number as in case of the service experience of the Internet over 4 years, occurs in people who use it daily. Figure 8 presents this proportion which is as high as 88.04%. 

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It is also important to know, what is the reason of using the internet by administrative staff. Based on figure 9, it can be concluded that nearly 100% of them use the Internet to send e-mail, web surfing and use the browsers such as Google.

As it has been already mentioned, limited formula of the article, prevents a full presentation of research results. These several graphs aim to show the general ability to use the Internet by administrative staff. Nowadays in Poland, the Internet is widely available at home, at work, at school, at the internet cafes, etc. This directly affects the possibility of practical learning of using the Internet. Because of that reason, the staff college constantly improve their skills in using it. From time to time there are new possibilities of the Internet. For that reason, it is so important to have a wide access to it, because it broadens the knowledge of new trends in this area.

On the other hand, this knowledge enables to use ICT resources by employees in the management of the Silesian College of Economics and Business Administration in Bytom. As important as the ability to use the Internet, are the administrative staff ICT skills in their daily work at the university. Selected results of research in this area are presented below. These results indicate that 33.70% of the respondents show a very good knowledge of locating and starting up the programs (applications - software) as shown in Figure 10. Only 8.70% of employees stated that they did not know and did not use the procedure of locating and starting up the programs. It is obvious that not all administrative staff use ICT at their work. It derives from the fact that there are the positions where the computers are used only for basic operations.

The next chart (Figure 11) shows the ability to use the CD-ROM drive, and Figure 12 the ability to organize files in folders by the surveyed workers. It follows that 48.91% of respondents have a very good ability to use CD-ROM and nearly the same number (51.09%) is able to organize files into folders. Unfortunately, there are also people who do not have those skills. 4.35% of surveyed people cannot use CD-ROM. Even larger percentage of workers (6.52%) cannot organize files in folders. It is understandable, as it was earlier highlighted - that some employees have very limited needs for using the computers at work, but all the administrative staff should have such basic skills as using CD-ROM, or organizing files in folders.

Almost at the same level as the ability to use CD-ROM and organize files in folders, are the skills to search for files in a computer system (Figure 13) and moving / copying files between drives (Figure 14). A similar situation exists with regard to the lack of ability to search for files in a computer system and moving / copying files between drives. As for the ability to create backup files on different types of media, it is also only about 55.43% of the respondents who have very good skills in this area (Figure 15). Unfortunately, these data indicates that there are large shortages in these skills, which were previously mentioned.
Unfortunately, the situation is even worse in terms of skills to connect the computer and peripherals, use a scanner to copy images or use a scanner to a character recognition (OCR). According to the data shown in the diagram 12 only 30, 43% of respondents show a very good ability to connect the computer and peripherals. Moreover, the percentage of workers who do not have the skills in this area in relation to the previously characterized skills also increases (11.96%). The same applies to the situation with regard to the ability to use a scanner to copy images. Only 33.70% of respondents can be characterized by a very good ability to use a scanner to copy images (Figure 16).

The ability to connect the computer and peripherals

Figure 15 The ability to connect the computer and peripherals

The ability to use a scanner to copy images

Figure 16 The ability to use a scanner to copy images

The ability to use a scanner to copy the text seems to look quite badly. In fact, it may be noticed that there is a decrease of approximately 50% of people who possess a very good ability to use a scanner to copy the text in relation to people who have knowledge of how to use a scanner to copy images (Figure 14). There is also a significant increase of the percentage of workers who do not have any skills in the use of a scanner to copy texts. This percentage equals to 14, 13%. It probably results from the fact that employees do not have such equipment at home and if they need to scan a text or an image at work, they ask for help IT professionals working at the university. An additional explanation might be the fact that only selected personnel departments is in contact with scanning at a university in their daily work.

IV. CONCLUSION

Polish higher education market is characterized by instability due to illegible lines of education policy of the State Authorities. In addition, a drop in the birth rate that has existed among higher educational institutions for three years, results in intensification of competition between public and private universities. All of that mean that managing of the Silesian College of Economics and administration in Bytom must be characterized by a high degree of flexibility and efficiency. One of the factors by which this can be achieved is a high level of the Internet and ICT skills by all university administrative staff.

Studies have shown that the level of skills is much diverse and some workers do not show any interest in their expansion. There are also people who rely on the assistance of people who possess high knowledge of the Internet and ICT services. This situation unfavorably affects the efficiency of university management because it extends some activities and distracts other employees from their duties of.

Therefore, research clearly shows that clear actions should be taken to increase significantly the level of the Internet and ICT use by all administrative staff in the Silesian College of Economics and Administration in Bytom. Otherwise, the University authorities investment in new equipment and new generation of software which can be used for university management can prove to be an unsuccessful and useless action.

References

[7] Ibidem

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