POSSIBILITIES OF IMPROVEMENT OF ORGANIZATION AND PLANNING OF WORK IN HIGHER EDUCATION INSTITUTIONS ACCORDING THE APPLICATION OF EDUCATIONAL WEB TOOLS

Dr Ivana Đorđev[1]
Predrag Prtljaga, MA[2]
Dr Tanja Nedimović[3]

Preschool Teacher Training College "Mihailo Palov" Vršac

Abstract:
Change and knowledge management have in the conditions of rapid changes and severe demands imposed on modern organizations become high priority of social strategies. Readiness for change, flexible use of knowledge, creativity, permanent improvement of planning skills and knowledge are undoubtedly most important competencies of employees in modern organizations. The aim of the paper is to research possibilities to improve organizational and strategic skills in higher education using new informational-communicative technologies and educational web tools, according to undertaken need analysis. The results of the research, i.e. need analysis carried out in Preschool Teacher Training College in Vrsac (the Republic of Serbia) have shown that planning and organization of work in the institution are suitable for the type of institution and the nature of work the subjects do; majority of employees equally participates in planning and realization of activities; there is emphasized high interdependence of employees in conducting their tasks; results have shown highly developed awareness of the subjects on the respect of time, obligations and availability of their co-workers (i.e. other employees). The obtained results imply that there is no need to introduce significant changes in organization and planning at the level of institution. However steps should be made leading to improvement (modernization) of key elements of work. As a consequence, possibilities are considered in the paper of using new IC technologies, i.e. educational web tools, for more successful planning and organization in similar settings, requiring high level of interconnectedness and team work in everyday activities.
Keywords: organization, ICT, planning, web tools, higher education institutions.

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[1] ivanacurcin@yahoo.com
[2] jpivan@hemo.net
[3] nedimovic.tanja@gmail.com

1. Introduction

Globalization, fast and intensive changes of market needs and requirements, changes in internal and external environment, expansion of informational-communicational technologies – are only some of the processes influencing extremely dynamic and permanent changes of organizational setting. Functioning of an organization in such a complex and constantly changing context has demanded readiness for change (Drucker, 1995; Koter, 1997; Nelson & Quick, 2003; Robbins, 2004, as cited by Djurisic-Bojanovic, 2007: 212), before all in organization and plan of work of institutions themselves.

Successful planning in modern context assumes respect of scientific principles, as well as principles of complexity, reality, continuity, flexibility, simultaneousness, productiveness, economy and profitability. It goes through a variety of phases: ranging from analysis of previous work, making a plan, anticipation of internal and external factors influencing work of the organization, defining of aims, creation of plans, followed by tasks designed for each potential participants, to "conceiving of measures for implementation of aims and tasks" (Ristić et al, 2008: 141). When talking about higher education institutions, it could be said that we are in the field of learning organizations (Garvin, 1993). According to Senge, "learning organizations are those whose employees permanently increase their capacities for creating results they truly want to reach [...] where people are constantly learning how to learn together" (Senge, 2003: 135), i.e. where employees do their job in such a way to constantly develop their potentials, sharing the vision of the aim with their colleagues. There is certain organizational climate in learning organizations (individual perception of organizational characteristics of the institution), as well as organizational climate (assumptions, value system, narrations, beliefs) – Nikčevič (2014: 69).

Radical novelties in functioning of modern organizations as well as in higher education institutions are rather complex and take place at the level or organization, group and individual. Individual self-development management is a precondition for improvement of work at higher education institutions and it is a dynamic process of change – "it is created in a man him/herself, and it provides him/her a possibility to establish a contact with the outer world, getting back to a person, changing both his/her personality and the environment " (Nedimović et al., 2015: 1850).

A good plan and successful organization lead, among other things, to saving of time – the only resource which is constantly and irretrievably spending. A good plan, successful organization and properly chosen tool for realization of the plan save even more time. There are certain so called time stealers in

work in higher education institutions: unannounced visits, private phone calls, unprepared meetings, vague aims, delays – and everyday exchanges of more version of the material among team members who work on versatile tasks: ranging from preparation of accreditation documentation, different materials for publishing and printing, to creation of documents and materials involved in organization of a scientific conference, etc. Work developing in such a way is not rarely followed by the fear that a wrong, i.e. old version of the material is sent, abundance of emails, as well as non-functional correspondence (e.g. incompatible versions of computer programs); all the stated leads to unnecessary waste of time, work energy and enthusiasm of those who work together on the same task. The results of such way of work are usually felt by future academic citizens – students. Therefore it is a duty of every higher education institution to permanently reconsider the level of success of planning and organizing at the level of institution and searches for possibilities of improvement of the current state of affairs.

Results of previous studies in the field of higher education (Prtljaga et al., 2016: 311) dealing with organizing and planning skills of those employed at the Preschool Teacher Training College in Vrsac showed that less than a half of the employees at this higher education institution estimates their own skills of planning as far below well or excellent, that majority of them (more than 75%) had never attended a seminar or training in the field of improvement of organizational and planning skills, as well as that more than half of the teaching staff uses computer for planning and organization of time and work, but not recently developed electronic tools with this purpose. All the above stated has served as an impulse to research the problem of organization and planning of work at higher education institutions.

2. Methodological framework of the research

An explorative research was conducted aiming at examining the needs for improvement of planning and organization of work at a higher education institution. Research topic refers to employees' attitudes on planning and organization of work in the institution. The main research problem can be formulated in the form of the following question: Is it possible to identify the fields in which planning and organization of work in the organization, according to the analysis of organizational climate of the institution, i.e. individual perceptions of the employees on organizational characteristics of the institution and planning currently present at the institution?

2.1. Sample and procedure

Total research sample included 33 subjects (25 of them were teaching staff – professors, lecturers, assistants, teaching associates and 8 of them were non-teaching staff members) employed at the Preschool Teacher Training College "Mihailo Palov" in Vrsac. Research was carried out in November 2015. The method of a poll was used in order to collect data and in order to describe and analyse the results, descriptive and analytic methods were used.

2.2. Instruments

A questionnaire was construed for the purpose of the research *Examination of the needs for improvement of organization and planning at the level of an institution*. The questionnaire was anonymous and it consisted of 5 closed type questions.

2.3. Hypotheses

There is no need for a significant change of the way work is organized and planed at institutional level in the case of the Preschool Teacher Training College in Vrsac (RS).

3. Results and discussion

The data collected according the questionnaire *Examination of the needs for improvement of organization and planning at the level of an institution*, i.e. research results are shown in the Table 1.

Table 1 Results of the poll carried out according the questionnaire *Examination of the needs for improvement of organization and planning at the level of an institution*

Examination of the needs for improvement of organization and planning at institutional level	Teaching staff		Non-teaching staff	
	Number of responses	%	Number of responses	%
How is a working day planned at your college?				
On a daily basis	2	8%	6	75%
On a weekly basis	2	8%	1	12,5%
On a monthly basis	7	28%	0	0%
On a yearly basis	12	48%	0	0%
Nothing of the above	2	8%	1	12,5%
Do you yourself participate in planning or implementation of the planned activities?				
I actively participate in planning	7	28%	0	0%
I only carry out the planned activities	4	16%	8	100%
I both actively participate in planning and	14	56%	0	0%

carry out the planned activities				
To what an extend you are able to organize your work during the day?				
Never	0	0%	2	25%
Rarely	1	4%	0	0%
Most of the time	9	36%	2	25%
Frequently	7	28%	2	25%
Always	7	28%	2	25%
No response	1	4%	0	0%
Do you depend on others to fulfil your obligations?				
No, never	4	16%	0	0%
Rarely	1	4%	1	12,5%
From time to time	14	56%	3	37,5%
Frequently	6	24%	2	25%
Yes, always	0	0%	2	25%
How long do you wait for the response/reaction of others?				
I do not wait.	6	24%	2	25%
I mostly get the response/reaction within the agreed deadline.	19	76%	5	62,5%
I wait for so long that I cannot carry out my part of the job.	0	0%	1	12,5%

The Table show the following findings:

1. 48% of teachers, i.e. teaching staff, plan their working day on yearly basis, 28% of them does this every month, while only 8% of subjects plans their work weekly/daily. When talking about the non-teaching staff working at the College (secretary, i.e. the lawyer, the clerk dealing with students issues, financial department, those working on the various maintenance jobs, etc.), poll results show that they plan their working day mostly on daily basis (75%).

2. 56% of teachers equally participate in planning and carrying out activities, while 28% of them participate in planning and 16% of teaching staff only carry out the planned activities. All non-teaching staff members only carry out the agreed, i.e. planned activities.

3. 36% of teachers point out that it is mostly possible for them to organize their work during the day, 28% of them can do it frequently and 28% of them can do it always. Only 4% of the subjects can rarely organize their work during the day. There was one questionnaire without a response: 4%. Non-teaching staff members consider that they can organize their work during the day most of the time (25%), frequently (25%), always (25%), while 1 fourth of them (25%), can never do it.

4. More than half (56%) of the teachers occasionally depend on others in carrying out their tasks and obligations, while only 16% of them are completely independent, i.e. they do not depend on others. The other group of the subjects depend on others rarely (12,5%), from time to time 37,5%, and 25% of them depends on others frequently or always.

5. None of teachers' responses to the question *How long do you wait for the response/reaction of others?* was that they *wait for so long that they cannot carry out their part of the job*. 24% of them do not wait (at all), while 76% of teaching staff mostly get the response/reaction in time, i.e. within the agreed deadline. In regard to non-teaching staff, 25% do not wait for the response/reaction of others, 62% of them mostly get the response/reaction within the agreed deadline, and only 1 subject waits for so long that he/she cannot carry out his/her part of the job.

The obtained results have confirmed the initial hypothesis *H1* and, as a consequence, it is necessary to think only in the direction of improvement (modernization) of significant elements of work – organization and planning at the level of the institution, according to the available possibilities offered by the age we live in. One of primary possibilities which have occurred is the application of ICT, i.e. educational web-tools.

4. Educational web-tools

As soon as it became a part of the *internet era*, education has faced huge and significant changes, especially if it is taken into consideration that the internet itself is constantly changed at high speed. Thus, it is possible to recognise certain stages of development, i.e. web *generations* (*Web 1.0, Web 2.0, Web 3.0...*) in the *internet era*.

Web 1.0 is called „Read Only" web, since the interaction between the owner of the site and its users either does not exist or it boils down to communication through a web-form, i.e. exchange of information via *e-mail*-a. *Web 2.0* concept is a result of the expansion of services and sites for social networking and their use has been growing since 20014. The notion was launched by *Tim O'Reilly* in 2005, and the same year is marked as the beginning of the second phase of development of the internet – all the prior phases were called *Web 1.0*. The period marked as *Web 2.0* is not featured by significant technical-technological novelties, but by "using of web as application platform, democratization of web and use of new methods for distribution of information" (O'Reilly, 2005). The concept *Web 2.0* "refers to creation of web pages and web design enabling internet users to get involved into interactive exchange of information, participation and cooperation at the

global level" (Arsenijević & Andevski, 2015: 46), resulting in building up of a unique social space, significant for further development of the internet. Involvement of a great number of users, internet has become an efficient tool for collecting and multiplying of pieces of information, initiating exchange of opinions and confronted attitudes, summing up of information similar in their nature, as well as rational debate on their values" (O'Reilly, 2007: 25).

This period will be inherited by *Web 3.0*, which is called and described as *semantic web* or *data-web,* expected to get the process of education *out* of classrooms and integrate it into everyday life. It is also considered that "browsers will learn from our characteristics and behaviour patterns and offer variety search results differently according to the noticed preferences" (Petrović, 2009: 272). In other words, the search will not take place only according to key words, but the demand will be explained in an appropriate context. The most significant role in the upcoming *Web 3.0* internet era belongs to *metadata*, which should open up possibilities for semantic search, so that computers could *conclude what something means,* i.e. what the user is looking for. The discussion on when it will all begin, i.e. when the *Web 3.0* internet will come to life, goes in the direction of the most optimistic prognoses of not later than 2016, while sceptics wander if even in 2025 such a web will be possible.

In numerous blogs appearing on the internet as well as in certain professional texts dealing with the topic of education in the *Web 3.0*, the authors point to the table created by *John Moravec*, where education, i.e. the position of technology, students, teachers, school... is considered in the context of *Web* generations.

Table 2: *Education in the context of Web generations*

	Education 1.0	**Education 2.0**	**Education 3.0**
Meaning is…	Dictated	Socially constructed	Socially constructed and contextually reinvented
Technology is…	Confiscated at the classroom door (digital refugees)	Cautiously adopted (digital immigrants)	Everywhere (digital universe)
Teaching is done…	Teacher to student	Teacher to student and student to student (progressivism)	Teacher to student, student to student, student to teacher, people-technology-people (co-constructivism)
Schools are located…	In a building (brick)	In a building or online (brick and click)	Everywhere (thoroughly infused into society: cafes, bowling alleys, bars, workplaces, etc.)
Parents view	Daycare	Daycare	A place for them to learn, too

schools as…			
Teachers are…	Licensed professionals	Licensed professionals	Everybody, everywhere
Hardware and software in schools…	Are purchased at great cost and ignored	Are open source and available at lower cost	Are available at low cost and are used purposively
Industry views graduates as…	Assembly line workers	As ill-prepared assembly line workers in a knowledge economy	As co-workers or entrepreneurs

Izvor: John Moravec, https://educationfutures.com/blog/2008/02/moving-beyond-education-20/ (retrieved on 30. 3. 2016)

It is not difficult to notice the change of the "dynamics of the classroom, responsibilities and role of each agent in education, as well as the expressed expectations from education. In the first two generations, it is possible to register *changes*, while in the third phase there is a *transformation* assuming a complete *shift* in the sphere of education" (Goroshko & Samoilenko, 2011: 15).

Modern education permeated by Web communications encourages teachers and students to active cooperation with others (cooperative learning), while all the increasing number of on-line tools close to the concept *Web 2.0* can be used for the improvement of planning and organization of work at higher education institutions. Cooperative, creative tools are defined according to different categories, to be recognized as: *white boards, tools for creating web-sites and project management tools*. Created, first of all, as managerial tools for management, coordination of team work in production and IT industry, they are electronic match to conventional, agile methods. Web-tools are based on *Scrum* and *Kanban,* i.e. most frequently used agile methods/techniques emphasizing the importance of communication between people involved in organization and planning of work in the processes demanding maximally efficient and fast results, as well as the maintenance of quality at high level during the project cycle as a whole.

As an illustration, what follows is a description of some of the most popular tools for project management, enabling, among other things, more efficient organization and planning of work in the institutions of the researched type, where there is high interconnectedness in carrying out tasks and an expressed need for team work.

4.1. Examples of web-tools enabling more successful planing and organization of work at higher education institutions

Higher education based on the postulates of the Bologna declaration assumes processes of accreditation, standardization and evaluation of institutions, curricula and achievements, initiating the creation, organization and filing of increasing material, i.e. documentation. For this purpose, a higher education institution management forms smaller teams of teachers and associates who are capable of addressing these needs. Seen as project tasks, they require calendars with planers and tasks lists, cooperative pages, forums for discussions and the exchange of documents, filing of project documentation, etc. It is possible to find a whole range of more ore less complex managerial oriented tools on the internet, which can be used for this purpose. *Asana, Trello, Glasscubes, Github, ThinkBinder, Onlyoffice, Vkolab, Voo2do, Notestar* are only a few of those most popular tools which are, apart from project management, very frequently used for project teaching.

Asana Overview

Asana is a task management solution that can help users to assign, create and comment on tasks from one single place. Users can stay on top of the details that are important to them and all the team's files, conversations and ideas stays in one place using this solution.

Asana is suitable for industries of all shapes and sizes where teamwork is done and is usually used in technology, healthcare industries, designing teams and marketing teams.

Trello Overview

Trello is online-based task management software that is suitable for any type of business. The program will help any organization in various tasks which will result into better organization for the company. The dashboard allows the users to see all the tasks in the company and their completion status. Managers can use this program to monitor the employees as they will see who is working on a particular project and how far they have gone. Trello is an ideal collaboration tool for everyone who has tasks that need proper management. This includes freelancers, startups, small companies and large companies among others. Employees are connected across various devices and are to work as a team. Companies that have a team of people working would benefit largely from this program. You are able to see who is working on what project and also see all the completed projects marked as done.

Glasscubes Overview

Glasscubes is a web based project and collaboration management solution for businesses of all sizes. It facilitates collaboration through multiple channels along with other capabilities. Customers of the software include small and medium businesses as well as large enterprises. Major industries where it can be used include retail and wholesale, automation and manufacturing, technology and software development, as well as education, healthcare and hospitality, and others.

Easily accessible through the internet, these tools enable forming of not only smaller, but also more complex cooperative teams. An important characteristic of this kind of functioning is that team members are not expected to be present and work in the same room, which is in accordance with the demanded and all the more present mobility of professors and students. Majority of the described tools can limit access only to team members, but when it is appropriate all the contents can become public, so that the final outcome of any *project* can be considered as a creation of a new base of theoretical or practical knowledge.

5. Concluding remarks

The research dealing with the organizational climate and planning at institutional level by the employees at the Preschool Teacher Training College in Vrsac implies that there is a need to act in the direction of modernization of organization and planning of work at this higher education institution. The paper has considered possibilities of use of ICT for this purpose. The application of ICT in the field of higher education can be considered as having a double sided feature, as a use of ICT in the process of learning itself (e.g. distance learning), but also as a means for planning, operative realization and evaluation of the teaching process (timetables of lectures, exams, consultations and other obligations, preparation of documentation, providing information via web-sites, assessment and evaluation of students' progress…) – Prtljaga (2010: 279–290). Digitalization and integration of all the sub-systems of a higher education institution into a unique informational system could significantly contribute to a better organization and planning (Spasić, 2007). However, it has turned out that realization of such project is very often inefficient and long-lasting; therefore it is necessary to get an insight into real needs and accordingly use *on-line* tools, which can lead to the improvement in the domain of organization and planning in a fast and simple way. The considered web-tools whose characteristics and application was briefly overviewed in the text above are a good example of application of ICT possible to use for more

successful planning and organization of work in higher education institutions (before all when talking about the work of the employed who are member of teams working on project type tasks. We suggest that the offered model is applicable not only in the institutions of similar type, but also in partner work of more organizations who work on the same tasks.

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