

# Influence of ICT on Working Style Used Within

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## Summary

*The development of technique and technology significantly influences the shaping of business activities in all fields of human work. Therefore new professions are being developed that consequently require new combinations of knowledge, skills and competencies. Final and by all means the most important consequence is a strong need for constant learning and supplementary knowledge. Perhaps it is too bold to say that comprehensive professional education no longer exists. Although the need for continuous education cannot be observed as a novelty, its importance however is more pronounced. The influence of ICT on profession and working activities can be expressed in different modes. It is indisputable that at present ICT plays an important role in education as well as in performing daily business activities. This paper indicates a tendency of blurring the distinction between ICT application in education and work, during working life and a possible need for education supported by ICT in post-work period. The hypothesis of this research lies in analysing the style of performing working assignments and the need for constant supplementary knowledge – a Lifelong Education.*

**Key words:** education, ICT, student, individualisation, style, paradigm, teaching

## **Introduction**

The development and implementation of ICT in all areas of human activities significantly influences them in different ways. Within frames of a particular business activity ICT can be involved in many ways while its influence can be analysed from different aspects. Indirectly and directly, the consequence of technological development in general is its influence over educational process in qualitative and quantitative sense. Education is observed as a process of gaining knowledge, skills and competencies that necessarily requires time and space for its realisation. Time, as an educational determinant, is defined by a series of different, primarily pragmatic factors. Formal education is usually defined by the need to acquire basic knowledge and skills which will further on be used to develop specific knowledge and skills defined by the profession that shapes an individual for a longer period of time as well as his position in the society. The ICT significantly influences specificity and definition of particular professions. This influence is not exclusive and is often combined with technological progress and technical solutions in certain economical branches. The quality and quantity of these solutions indisputably influence distinctiveness of particular professions. This way, some professions die or are reborn as new or significantly modified. This process forces an individual to constantly implement and broaden his knowledge within frames of his own profession as well to acquire new skills. It is not a rare occasion that one has to professionally redirect or develop in completely new circumstances.

The recognition of the needs and changes mentioned is presently defined as a need for a Lifelong Education. Nowadays we believe these needs are more expressed and although they do not represent a novelty they are presented as such. The ICT and especially the web provide a possibility to access a huge amount of information and knowledge required in certain situations. Although access and quantity do not represent quality as well, an individual has an opportunity to access information that is appropriate for him and his needs in a specific moment and for a specific period of time.

This paper tries to research in what ways and in which situations the ICT can influence the working style. The answers presented have been obtained through polling a specific number of individuals of different profiles and professions but within the same field of work. The age of examinees has been observed only from the aspect of aspirations toward the ICT usage and information science education.

## **Style and a way of acquiring one**

The term style is frequently used in different contexts. When we deal with performing professional assignments and realisation of particular activities, the competition itself may require certain knowledge and skills expressed in specific interests and styles. In these situations the working style, management and communication styles are frequently named.

What does a style truly represent? Each term is defined and specified by the closest family term together with specific differences. Naturally, the exceptions refer to these terms that have original or axiomatic meaning. A style can be connected to a mode by meaning and importance. A mode on the other hand represents a way of realising one or more activities. The way of realising a specific activity or a series of activities is generally predefined and in certain measure determined. The level of determination defines the possibility for any kind of variations of a predetermined sequence of activities and the mode of their realisation. Variations as such have stochastic characteristics that can define differences in the mode of performance. Expressed differences in qualitative and quantitative sense represent a style. In this sense, our own life style is what makes us different from the usual life style in the community (in a more restricted) and the society (in a broader sense) that we belong to. Similar definitions of the term style can be found on the web in the dictionaries of scientific institutions ([wordnetweb.princeton.edu/perl/webwn](http://wordnetweb.princeton.edu/perl/webwn), 30.07.2009)

As an example we can mention that a style is a manner: how something is done or how it happens or if we use it in other meaning as an expressive style: a way of expressing something in language, art, music and architecture that is characteristic of a particular person or group of people or period of time. Style (lat. stilus - pencil) is way of expressing character by all those features that differs it from others ([hr.wikipedia.org/wiki/Stil](http://hr.wikipedia.org/wiki/Stil), 30.07.2009).

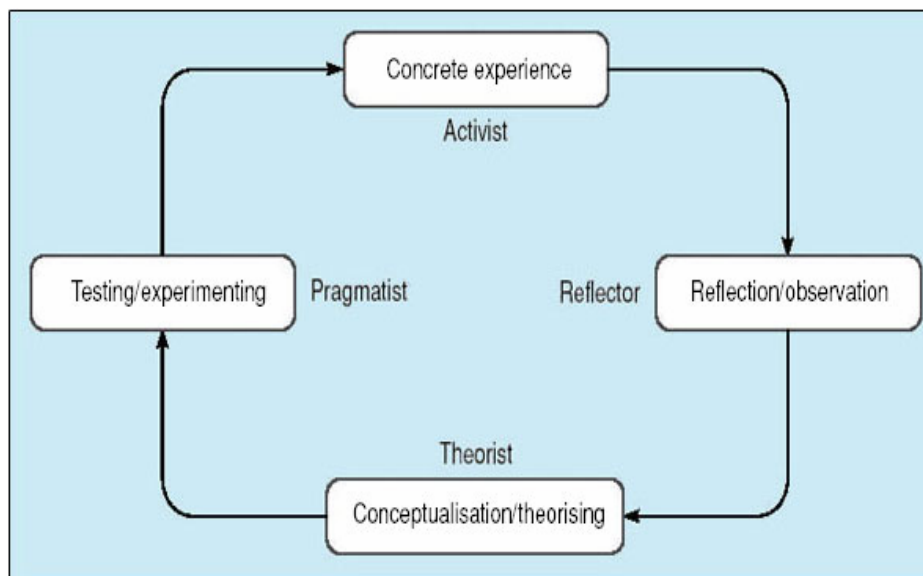


Figure 1. Entrepreneurial work style – Entrepreneurial behaviour (Source: <http://openlearn.open.ac.uk/mod/resource/view.php%3Fid%3D212980>)

All meaningful activities have an outcome in a desired or expected result. In all these activities a human being is involved in different ways whether as a creator, performer or consumer of the results of these activities. For the same reason, a human being is the one who determines the way of realising activities by directing mode of their realisation and modification that can be desirable or even necessary. A style can be determined by an individual's character (See: Entrepreneurial work style: <http://openlearn.open.ac.uk/mod/resource/view.php%3Fid%3D212980>) but also by the character of a group or an organisation (See: Leadership Styles [http://openlearn.open.ac.uk/file.php/3038/B722\\_1\\_004i.jpg](http://openlearn.open.ac.uk/file.php/3038/B722_1_004i.jpg)) which through its internal communications create their own character, a combination of individuals' characters. Therefore one usually insists on characteristics such as readiness for a team work, readiness to accept new solutions, agility, self-esteem, consistency etc. It is important to mention that a style does not require the presence of a human being in order to be determined but it does require him in order to perceive and qualify it. For example, certain natural phenomena, such as natural disasters, can have a style but its nature is determined by humans.

From this perspective it is necessary to determine the way we define style, i.e. whether it is determined independently, or is influenced by someone or something. Since the basic frame of the research is a Lifelong Education and a need for a Lifelong Education, it is important to define whether we can and under which circumstances change the working style. Within the same context it is important to determine the readiness to change style in compliance with one's own perceptions or external influences and warnings.

### **Style and its indicators**

What kinds of indicators are used in defining a working style? The abovementioned examples indicate that a working style is defined by observing individual's behaviour in a specific environment.

By describing and evaluating behaviour in accordance with a specific group of parameters we can define the style of behaviour and consequently a working style. At the same time different authors and different techniques of evaluation apply detailed or less detailed set of parameters.

Still between them we can single out a certain number of mutual factors. In an example (<http://assessment.insala.com/centermark/Includes/SampleWorkingStyles.pdf>, (30.07.2009.)) parameters are grouped by defining four basic working styles. The basic behavioural characteristics that define individual style are described in Figure 2. The authors (Jackson&McCarthy, 2003) use a Sigma Assessment method to evaluate features such as: impatience, anger, work involvement, time urgency, job dissatisfaction and competitiveness.

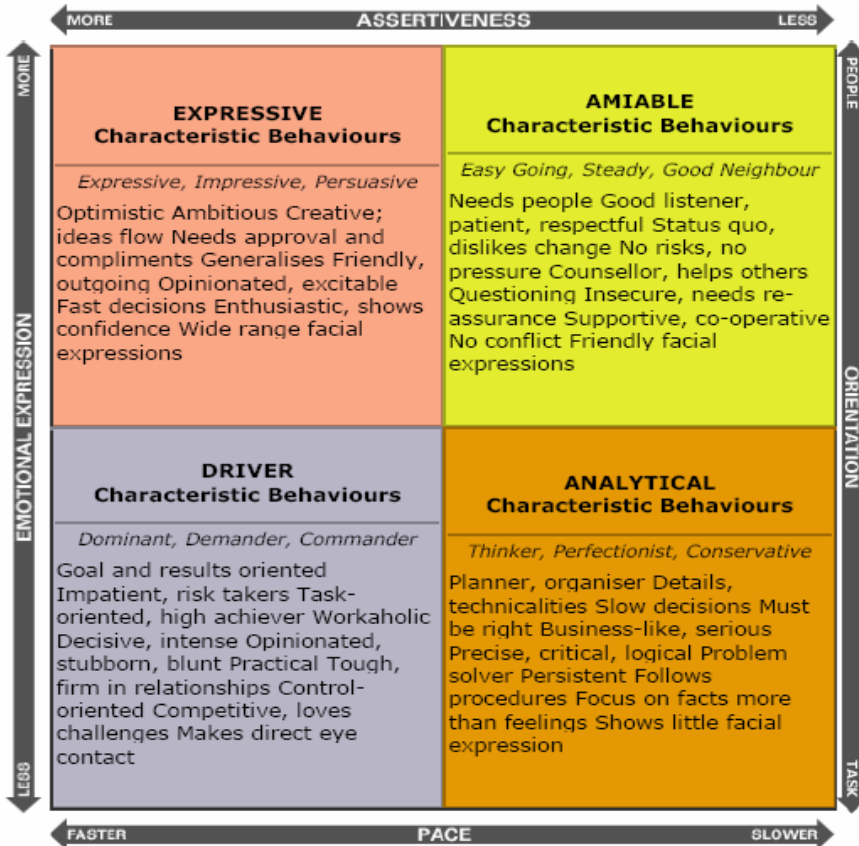


Figure 2. A Map of the Four Working Styles (Source: <http://assessment.insala.com/centermark/Includes/SampleWorkingStyles.pdf>)

On the basis of which they define type/style and predict potential problems that such a style can cause e.g. heart problems caused by the change of the working style. (Bolton&Grover Bolton, 1996) emphasize the need for business efficiency and harmonization of the working style with these needs. They suggest the identification of a working style through an identification of preferred working styles of employees. The research conducted by the group of authors (Hiroki at all, 2005) is based on the fact that during the last couple of year the diversification of the types and patterns is being intensified which changes professional aptitudes of individuals and the structure of the employment exchange. The consequence is the change in the human resources management which is reflected on the social infrastructure, stability of professions, development of an individual's career and the safety of employment network that corresponds to that diversification. The most detailed way of defining work style can be achieved by using MBTI method, i.e. by determining Myers-Briggs Type Indicators (Hammer, 2008). The MBTI instrument is based on the theory of person-

ality types described by Carl Jung and Isabel Briggs Myers and Katharine Briggs.

### **Education and style**

The abovementioned overview clearly indicates that all evaluations and definitions of working styles are connected to individual's behaviour or a group in general. A behaviour implies a pattern determined upon experiences or current circumstances. This fact indicates connections between working styles and acquired knowledge and skills directly and indirectly in combination with teaching and educational styles.

If education is perceived as a synergy of teaching and learning then it is obvious that working style is a consequence of adopted and applied paradigm in the same fields. Therefore it may seem that a working style is specifically connected to behaviourism as a teaching paradigm. The more intensive application of ICT in education, on the other hand, more significantly promotes constructivism as a teaching paradigm. Within conditions of a Lifelong Education, especially under conditions of informal education, constructivism is enforced as a prevailing paradigm though it cannot or does not exclude other paradigms.

Considering the connection between learning, teaching and working activities (<http://www.creativelearningcentre.com/Products/Working-Style-Analysis/Pyramid-Model.html>, (30.07.2009)) the authors have developed pretty unified way of determining teaching, learning and working styles. It is executed through valorisation of indicators organised in the form of a seven-class pyramid. Six crucial areas are being observed: Brain Processing, Sensory Modalities, Physical Needs, Environmental Preferences, Social Aspects and Professional Attitudes.

Each higher class represents in a certain way sublimation and supplementation of a lower class. Each class accepts individual characteristics of a human being and his inclination towards specific paradigms. At the bottom of the pyramid, the lowest class, attitudes are being determined through valorisation of indicators: Motivation, Persistence, Conformity, Responsibility, Structure and Variety. The next class evaluates social characteristics by determining inclination towards individual work, pair, group or team work, or inclination towards authority. The third class defines inclination towards specific type of working environment: noise, lightening, temperature, type of furniture etc. The fourth class specifies preferred physical activities such as mobility during the work, intake and a specific part of the day. The fifth class evaluates sensitive capabilities of an individual such as: listening, visualisation, tactile and kinetic capabilities. The sixth class evaluates inclination of an individual towards a certain way of perceiving and analysing business problems and activities. The highest level tries to determine prevalence between reflexive and impulsive mode of working and decision making.

The described methodology is acceptable both in determining the learning style and working style. The set of indicators ensures individual approach considering all specific qualities of an individual: biological, acquired or conditioned.

### **ICT and its influence on the working style**

Starting presumptions of this research are:

- ICT influences educational style through different modes of e-Learning
- Information science knowledge increases inclination towards the usage of ICT in education and work
- More intensive usage of ICT in all modes of business is an imperative of adjustment to new conditions of work – PC on the working place
- ICT application increases and improves possibility of profession identification or adjustment to the present needs
- ICT ensures potential independence of place and time when executing working assignments
- ICT allows virtualisation of work and working place

The target population are employees working in a large Croatian service company. The research has been conducted through a questionnaire on the sample of 100 examinees. It comprises employees from all hierarchical levels in the company, working in different company sectors conducting a variety of working assignments. Furthermore, the examinees belong to different age groups and have secondary school, college or university education. Their level of computer skills varies from low to advanced.

The examinees have been questioned via e-mail, providing anonymous answers to 20 questions. They were familiar to pollsters but the questionnaire itself was anonymous. The questions have been grouped according to six main fields applied in method of defining a working style with detection of ICT usage and inclination of examinees towards ICT application in a specific main field. The goal of the research is to confirm starting presumptions and define factors within individual main area that will imply more significant influence of ICT.

The questionnaire was made with a tool <http://inovacije.eu/ankete/admin> and is available at the following address <http://www.veleri.hr/~pogarcic/WSQinF09.doc>. The results of the survey are available in table 1.

Objective disadvantages of the questionnaire are:

- Relatively small group of examinees – the size was determined by the choice of the field of work (telecommunications) that employs examinees and the size of their organizations (big organizations with physically dislocated parts and adequate ICT backup in every sense)
- Professional heterogeneity of the group – employees belongs to different sectors of the company such as procurement, warehouse, investments and development, human resources etc.

- Assumption of the existing developed ICT infrastructure – the access to the Internet in all places
- Questions and answers can be inadequately elaborated considering heterogeneity of group

Subjective disadvantages of the survey:

- Personally acquainted with working environment and a larger part of the examinees. This can be regarded as a disadvantage only partly since the questionnaire was conducted anonymously and collected data were processed automatically by the PC.
- Data on the working environment and examinees are historical so the final judgment may seem subjective.
- Although it was not suggested directly but through questions, we expected results that would imply continuous readiness of the participants to anticipate the assignments and to define a style to comply with ICT possibilities.

Advantages of the survey:

- Group of examinees is heterogeneous in terms of age that was one of the basic reasons for conducting this research,
- The author is personally acquainted with the majority of examinees as well as with their information science education in fulfilling work assignments, which can confirm the credibility of the answers
- Good infrastructural ICT backup and safe network
- Certain experience in the usage of ICT and certain information science education

## **Results of the questionnaire**

The analysis of the questionnaire has resulted in following findings presented in Table 1.

The questions that were asked tried to encompass all crucial areas (<http://www.creativelearningcentre.com>) and examine a possible influence of the PC in these areas. The examinees belong to different groups according to their commitments and the way of performing them. The level of responsibility puts an individual into certain position in the chain of performing business activities which redefines his possibilities of using the PC. Still, one can notice a prevalent readiness for the ICT application and adjustment to new modes of performing a business and new solutions in doing the same. We believe that the reason for conducting the research about the influence of the ICT on the working style (<http://www.creativelearningcentre.com>) or, better yet, profiling the modes of work are acceptable. This is even more acceptable when considering the fact that the survey can include the whole population regardless of its age and dependence upon conditions of a Lifelong Education.



Table 1. The questionnaire and the results

Questions	Results
1. How often do you use PC in executing work assignments?	weak majority (45%) uses PC occasionally in fulfilling work assignments
2. How strongly does PC motivate you in fulfilling work assignments?	more than half of examinees (52%) believes that PC partially strengthens their motivation in performing business assignments
3. Do you believe PC supports you in your dedication in performing work assignments?	the majority of examinees (63%) believes that PC doesn't influence their commitment in performing business assignments
4. How does PC influence your creativity in performing work assignments?	relative majority (41%) considers PC helps them in improving the way of performing business activities
5. Does PC influence rules that determine "discipline" of work assignments?	PC has no influence over "disciplinary rules" – (arrivals, interruptions, departures) when performing business assignments (84%)
6. Do you believe PC strengthens impact of your responsibility?	PC doesn't strengthen impression of responsibility (78%) (deadlines for finishing working assignments)
7. Does PC help you in creating concepts for fulfilling work assignments?	relative majority (49%) believes PC has no influence over a concept of working assignments
8. What mode of making work do you prefer?	question about preferred mode of making a business doesn't have an adequate answer and will be commented later *
9. Does PC influence your independence?	relative majority (44%) believes PC makes them more independent in performing business assignments
10. Can you imagine yourself in one of the Internet user groups?	the majority of examinees (45%) uses Internet for finding new information about their own profession
11. Do you believe PC usage requires special conditions in environment (lightening, temperature, furniture)?	the majority (89%) believes usage of PC requires special spatial and time conditions
12. Does relatively quiet music disturb you while working on PC?	the majority of examinees (57%) doesn't bother relatively quiet music when performing their work
13. Do you believe PC usage ensures mobility – independence of place where you execute assignments?	the majority of examinees (43% and 46%) claims that PC influences their mobility and dependence upon location and time of performing working assignments
14. Do you believe PC usage ensures timely independence of executing assignments?	
15. Do you believe PC usage requires some other conditions in physical sense such as additional nutrition?	the majority (41%) cannot define whether there are some other conditions of physical type neither if there is a necessity for specific type of sense (53%) or kinetic requirements
16. Do you believe that PC usage prefers certain type of senses, such as touch?	
17. Do you believe PC usage requires certain kinetic conditions such as additional body activity?	
18. Which of the following work style do you prefer?	the majority has a holistic approach (79%), but depending upon their type of work they are willing to apply analytical approach (63%) while in making decisions most of them (82%) uses combined approach.
19. Do you believe that PC usage can influence your work style described in the last question?	
20. Can you imagine yourself in following groups?	

## Conclusion

The nature of the work itself mostly specifies a way of performing business or executing the business activities obligations. An individual with his personality and characteristic features adds certain qualities to the mode which in turn gets a certain specific shape – style – that makes it recognizable. It is logical that a style depends on the complexity of work since opportunities for expressing a personality grow together with their complexity. More simple, repetitive tasks do not provide a possibility of style expressing. In these cases automation is possible but it excludes stylization. The development of the technique and technology makes us free from such work and their complete automation.

At the same time, technique and technology create new possibilities and demand definition of new professions or more detailed modification of the existing ones. The time period of such changes and the creation of new demands are getting shorter, together with the time required for acquiring new knowledge and skills. The abovementioned calls for adjustment of educational system and emphasizes the need for continuous supplementation of earlier knowledge through adjusted forms of education. Today this process is known as a Lifelong Education. The application of ICT through the basic usage of the PC on working places, through the Internet approach and e-mails ensure possibility for education through work and while working. Laptops and mobiles remove spatial and time restraints and ensure complete continuity where necessary.

This research has been oriented towards an individual and the definition of his style but it did not take into consideration the influence of the group and other activities when there is a human connection or mutual dependence between assignments and their sequence. Further researches in defining the influence of ICT on a working style could be conducted in that area.

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