

# The Use of Information Communication Technologies for Staff Continuous Professional Development in Organizations. The case study

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**Abstract.** The purpose of this research is to identify and compare the use of Information Communication Technologies (ICT) for Staff Continuous Professional Development (CPD) in a community of education and business organizations and prepare recommendations for more efficient staff CPD using ICT. Obviously ICT use for CPD helps to overcome traditional barriers, such as lack of financial resources, time, expertise and facilities; however there are other dimensions and factors influencing significance of ICT use in CPD in the organizations, such as attitudes from employer and employee perspectives, regulations and requirement of ICT competencies for staff members, possibility for regular update of ICT competencies of staff members. Quantitative research method was used. The assessment of staff of the organizations show that CPD is important in all types of organizations, and ICT competencies are significant for professional career development in an organization. The stronger focus of ICT competence development and staff CPD is in business organizations, when comparing to VET and community organisations. Indication of general index for three types of organizations is statistically significant. Staff member participation in professional online networking is still a challenge in majority of organisations.

**Keywords:** Information communication technologies, staff continuous professional development, business, VET and community organizations.

## 1 Introduction

Information communication technologies (ICT) penetrate all organizations, also changing the understanding of how staff continuous professional development should be implemented in organizations. The new forms of learning at work place emerge. They may be the following: online courses, virtual learning, networking, staff participation in learning communities which use social networking [15, 17]. New presentation of learning content, its availability, economical effectiveness created by the use of technologies, support systems for learners, internet developments, spread of open educational resources, and increased competition lead to different organization

and implementation of CPD. Today's workers are learners with different working experience, educational background, and learning needs, which have no time nor possibilities to go to trainings or participate at the seminars at certain time and place. On the other hand, the change of organizations is also prevented by restraint of workers for using new ICT, inadequate investment of organizations to CPD, ICT, and competence update, lack of learning culture, discrepancy of programmes and requirements of labour market. This leads to different catch up of organizations and different their progress.

ICT skills development is an issue for practitioners and researchers [1, 10, 12, 18, 21]. Considerable attention is paid for educational organizations, teachers and students, however the lack of comparisons between organizations in this area is noted.

The aim of the research is to identify and compare the use of ICT for staff CPD in three types of organisations: community, education and business organizations, and prepare recommendations for more efficient staff CPD using ICT.

## **2 Literature review**

Learning is an essential process to reach the aims of organization, ensure its existence, and facilitating development of its activities, as only those companies are competitive which learn, are able to effectively and purposefully use their resources of knowledge – their staff, and seek for innovations to develop its activity [16]. Each organization has particular aims and has foreseen directions for the development of its activities, and based on this the competences for each worker must have are planned. The development of qualification of these workers is necessary to ensure harmonious and purposeful activity and development of the organization, and the qualification that meets organization needs. The effectiveness of worker activities depends on the following two factors: motivation and competence [8]. Thus, the assessment of staff CPD is integral part of each organization activity; and each organization has to have a clear learning and CPD system. This system should purposely identify and prioritise learning processes and methods, and also should show the possibilities for organization, department or person coming from certain learning or CPD programme implementation [6, 19]. The funds for implementation of these activities should correspond to the learning needs of staff and have to be cost-effective.

The contribution of ICT to staff CPD in organisations is an important issue [13] particularly in overcoming barriers for demotivation, lack of confidence in trying out new ideas using ICT tools [7], and constant update of ICT competences. Challenges and experiences, as perceived by teachers, related to CPD as a mean to achieve ICT competence into their profession are investigated quite often [3, 25]. However in spite of the numerous obstacles that arise with the implementation of a continuing education programmes on ICT competence development, the intensive technological innovations occurring today create a significant need for investigating how organisations provide possibilities to develop ICT competences within CPD. Broader range of organisations using ICT for staff CPD would give some light for how to obtain and maintain the high level of professional knowledge and skills demanded by the industry [9] and society.

ICT use for CPD helps to overcome traditional barriers such as lack of financial resources, time, expertise and facilities [20], however there are other dimensions and factors influencing significance of ICT use in CPD in organizations. They may be the following: regulations and requirements of ICT competencies for staff members, attitudes from employer and employee perspectives, possibility for regularly update ICT competencies of staff members.

Virtual teaching/learning networks and virtual learning communities are becoming widespread within higher education [11] and many other organisations due to technological developments, which enable increased communication, support, and interactivity among participants through ICT. The networks enable the combination of synchronous and asynchronous communication, access to and from geographically isolated communities, and international information sharing, which give extra value for staff CPD. Through the growing and widening use of ICT, the creation of virtual communities of practice, in which working teachers can learn from experienced practitioners and from each other, becomes possible [14].

In order to reach the most purposeful use of funds CIPD<sup>1</sup> (2006) suggests performing the analysis of staff learning needs. The analysis has to be a continuous process in all organizations; and it should include not only the organization of certain activities, but also the monitoring of regular trainings and their impact. There are three levels of learning needs:

- Organizational (the need to increase the qualification of employees according to updated legislative framework, technological improvements, or essential restructuring of the organization).
- Group (the need to increase the qualification of employees according to the changed requirements, rules, or emergence of new specifications)
- Individual (trainings for new employees, employees coming from other sectors; work-place responsibilities change and require new competences).

In order the organizations quickly update the competences of employees according to the business needs it is necessary: to perform a complex analysis of business situations; to set the learning goals of individuals and organizations; to choose the appropriate learning strategies; to improve the implementation of learning processes; and to control the learning of learners with respect to the set goals [4].

For staff CPD it is important to apply the appropriate learning methods, which correspond to the needs of employees and employers, and do not deviate from organizational goals, values, and policy. Planning and assessment of learning process may solve the issues of CPD of organization employees. CPD is more effective in an organization, which has a separate department for CPD development, implementation and assessment [5, 12, 21, 27].

Learning at work place and learning in or out of the organization should be integrated with each other, as this leads to a more effective staff training and development process [23]. With the increased role of technologies in today's society this integration process may be implemented using ICT, i.e. partially or fully online;

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<sup>1</sup>CIPD – The Chartered Institute for Personnel and Development.

however the possession and constant update of ICT competence is a necessary condition here. Today ICT competence includes more than just digital literacy and ability to manage programme software. However it could be a challenge for employees of organizations as, “skills barriers remain - i.e. both the basic skills needs that are perceived as barriers by the users themselves, and the advanced skills needs for managing privacy, security and critical and responsible attitude to the digital media, which sometimes are not realised by the users themselves” [2, 62]. Therefore, learners need to develop ICT competences that they do not necessarily perceive, and the organization or community can play an important role in ICT competence development.

### 3 Methodology

Quantitative research method (using a questionnaire survey) was used in order to find out the use of ICT for staff CPD in different types of organizations. The research data was collected using an online questionnaire survey in May-June 2014. This article analyses the part of a broader research, focusing on the block of questions on the use of ICT for staff CPD. The respondents were anonymous with regard to researchers, as not only the instrument was anonymous, but also its sharing and collecting as the survey was administered on the Internet. The concept of ICT was explained in the introduction of questionnaire. Later all collected surveys were coded and processed in the SPSS programme for further analysis. The analysis was performed applying appropriate statistical methods, using MS Excel and SPSS (Statistical Package for Social Sciences) Version 22. To generalize the data, descriptive statistics, parametric and non-parametric criteria, reliability calculations were applied. Calculation of response index for mentioned block of questions was calculated, as the sum of responses presented by the respondents to each of the provided ten statements. Each block of questions consisted of 10 questions, with the response value from 1 to 5; the range of changes in the assessed block was from 10 to 50. General index for three types of organizations was calculated.

Internal consistency of the questionnaire by calculating Cronbach  $\alpha$  value regarding staff CPD block is 0,901.

**Target organizations.** All organisations selected for research were located in Lithuania over the country in the area of education, business and community activities.

The educational institutions, which participated in the research, were modern and dynamic *VET organisations*, which respond to labour market changes rapidly and responsibly and apply innovative forms of learning for students as well as for their employees. The organisations provide qualitative services of formal and non-formal education (initial vocational education and training, lower secondary (9 and 10 forms) and upper secondary education, adult education, pre-school education), offering attractive and perspective specialities, which are acquired in premises for practice equipped with modern technologies.

*Business organisations* in the research represent companies, working in IT sector and employing specialists of quality assurance and documentation, systems analysts, programmers, system engineers, data operators, project managers, teachers, specialists of law and economics, and others. The companies are constantly recruiting new staff and expanding. According to the need and the specifics of the projects they develop, part-time employees and experts of the projects are employed.

*Community organisations* represent members to be involved in a public life, promote healthy neighbourhood, the partnership of all community organizations, strengthen the traditions of volunteering, represent community interests in the governmental institutions. The main activities of a Communities are: building the social capital in a community; promotion of social activities and civic participation; forming the policy of harmonious development and the system of non-formal learning; support and encouragement of community leaders; organization of clubs and unions according age groups and interests; adaptation of good practice examples from foreign community life; organization of project activities.

Out of 466 respondents who participated in the research only a little bit more than half were females (307 respondents or 65.9 %), 34,1 % of the respondents were males. The majority of the research participants were possessing higher education diploma (77,7 %).

The research participants represented organizations of various sizes, i.e. representatives from organizations which have more than 200 employees/members comprise 33,3 %; 101 – 200 employees/members – 18,9%; 51 – 100 employees/members – 14,3%; up to 50 employees/members – 33,5%.

The organisations were purposefully selected from three types of organizations: community, education and business. The distribution of the respondents from all three types of organizations was almost equal: 158 respondents were from community organizations, 153 from education, and 155 from business organizations.

**Research limitations.** As most of the research respondents possessed the diploma of higher education institution (77,7%), it may mean that CPD involves more employees possessing the diploma of higher education institution and ICT is more accessible for them. This idea comes from the fact that employees with lower educational background may have avoided online research questions.

The received results may also have been influenced by the features of business organizations which were focused in their selection process: the selected business organizations worked in the area of creation of information systems, application and use of technologies, and organization of trainings.

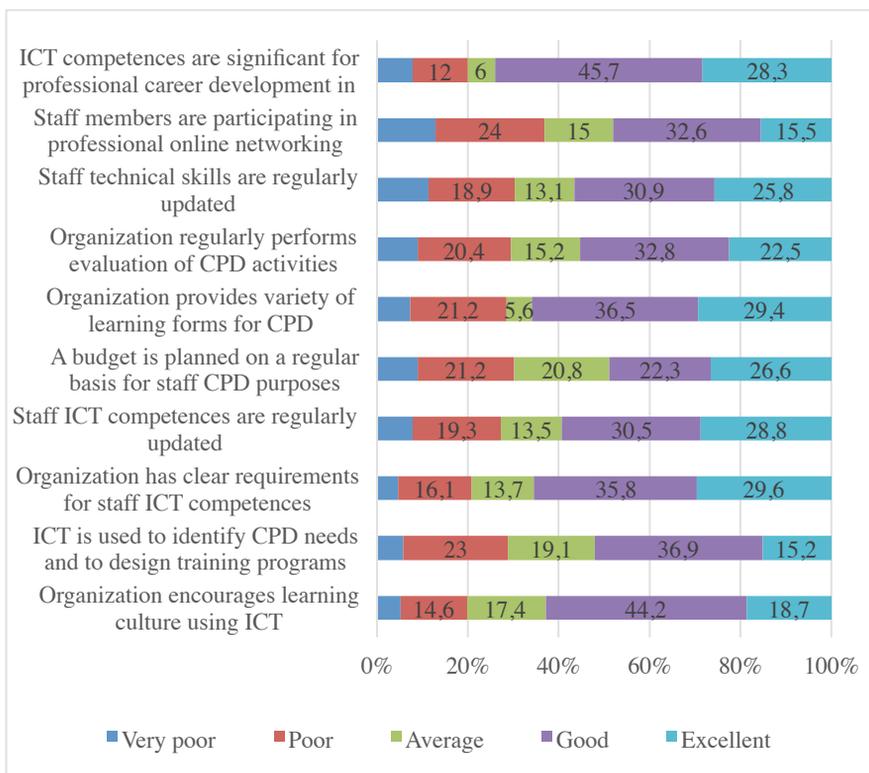
## 4 Findings

Research results are presented according to the block of questions focusing on the use of ICT for staff CPD. Each statement results are presented and described for three types of organizations in the following way:

- how each statement is assessed within the block of questions: means of responses for each CPD statement in all participating organisations is analysed

- general index for three types of organisations is calculated, then
- average of responses for each statement within block of questions is calculated, and
- means of responses for each criterion within block of questions is statistically compared for three type of organizations.

Constant development of VET organization staff in the area of ICT is one of the most important factors in the organization, as the emergence of new technologies, their application in the organization and teaching process, are impossible without constant professional development. It should be targeted in the organization that employees know CPD possibilities and the the learning process is manageable. The competence of trainers has to be high, and their possibilities for constant update of ICT skills is more important that that of other employees.

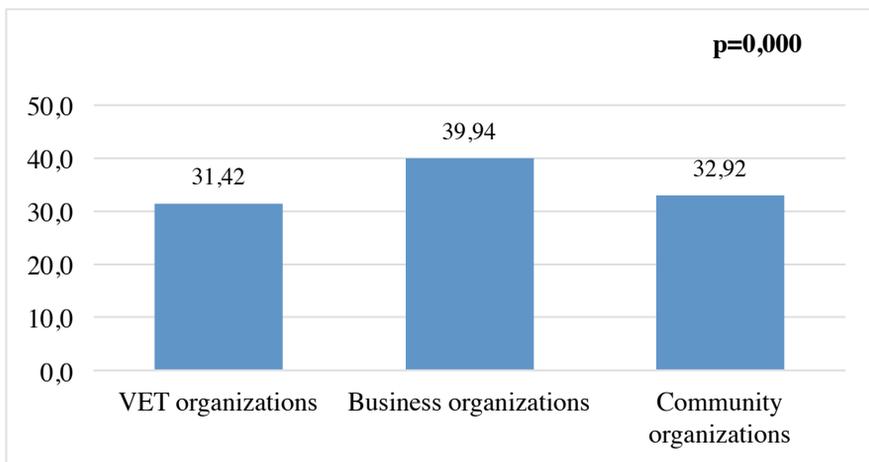


**Fig. 1.** Means of responses for each CPD statement in all participating organisations

Figure 1 shows that the process of CPD is present in all types of organizations, participating in the research. 74% of respondents state that ICT skills are significant for professional career development in an organization. The most positive assessment was found on the statement that ICT skills are significant for the career of employee in an organization; and 65,9% respondents indicated that there exists a variety of learning forms for CPD (seminars, learning at work place). Furthermore,

organizations have clear requirements of ICT competence development for staff members, however employees (40,7%) lack the regular update of ICT competences. Although it was found that 56,7% of respondents indicated that CDP was foreseen for technology competences, a big number (47,9%) of respondents noted that *ICT was not used to identify CPD needs, nor to design training programs*. 28,8% of respondents disagreed with the statement that *organization encourages learning culture using ICT*. This dissatisfaction that *ICT is not used to identify CPD needs and to design training programs* may come from the fact that organizations have clear requirements for staff ICT competences (65,4% support this statement), however the possibilities to fulfil these requirements are limited.

The least supported statement in all organizations was that *staff members are participating in professional online networking*: the number of respondents supporting this statement was less than 50 %.

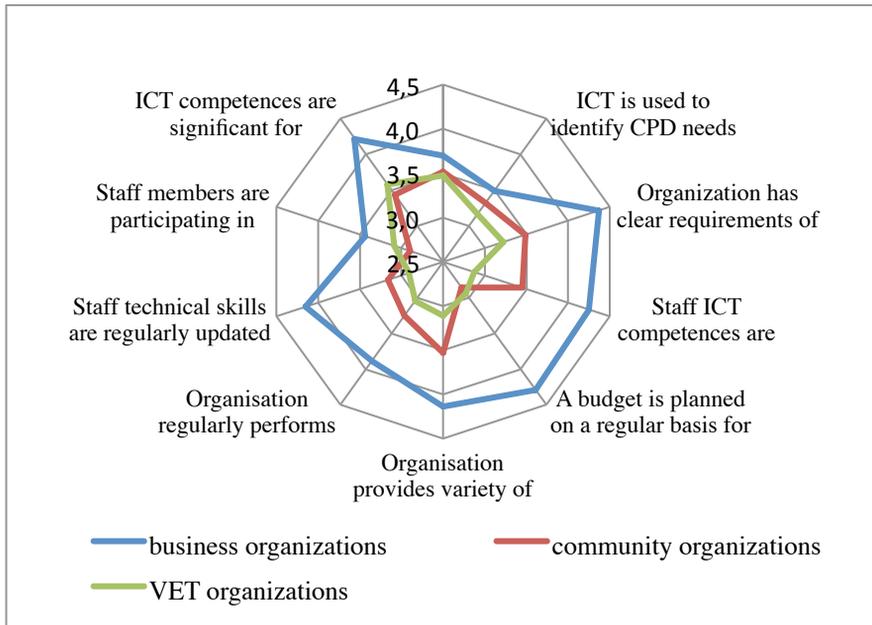


**Fig. 2.** The block of questions on the use of ICT for CPD general index for three types of organizations

General index for three types of organizations confirm that business organizations, which participate in the research, pay larger attention on ICT competences of employees and focus on ICT competences during CPD processes (see Fig.2). Educational organizations have formal requirements for CPD and the compliance of these requirements provides a possibility to keep the working place, but ICT use for CPD is not always a priority: more traditional methods such as seminars and sharing good practices, are used. Meanwhile business organizations, participating in a more competitive market and especially affected by the technology change, need a constant development in the area. The representatives of community organizations also have to seek for innovations and apply them in their practice while seeking for development. ANOVA results show that differences between VET, business and community

organisations are statistically significant ( $p=0,000$ ). However the differences between responses of respondents of VET and community organisations are small.

Fig. 3 indicates that Community organisations provide larger variety of forms for continuous CPD, more regularly updated ICT competences of staff members, more clear requirements for staff ICT competences, and more regularly updated staff technical skills when compared with VET organisations.



**Fig. 3.** Average of responses on the use of ICT for staff CPD of each statement for three types of organizations

Respondents from business organizations assessed all statements on the use of ICT for staff CPD higher when comparing to responses of VET and community organisations respondents (see Fig.3). Although the least supported statement from respondents of all types of institutions was *staff members are participating in professional online networking*, respondents from business organizations also supported this statement more than representatives from other organizations. The possibility to learn while participating in online professional network is common today, however they are not intensively used in all organizations. The biggest difference in the assessed statements is noted on a budget planned for staff CPD purposes while comparing the responses of business organizations respondents with VET and community organisations. All organizations plan their budgets, however it can not be stated that all organizations share their plans for CPD budget with their employees; from the research results it can be noted that employees from VET and Community organizations know less about the organization budget plans for CPD than employees from business organizations.

Comparison of means of statements on the use of ICT for staff CPD for three types of organizations (see Table1) demonstrates that only the two statements – *Organization encourages learning culture using ICT* and *ICT is used to identify CPD needs and to design training programs* – are assessed similarly by the respondents of all three organizations. It can be noticed that conditions to use ICT for CPD are more favourable in business organizations than in VET and community organizations.

**Table 1.** Comparison of means of statements on the use of ICT for staff CPD for three types of organizations.

	Statements on the use of ICT for staff CPD	Business organizations	Community organizations	Education organizations	Kruskal-Wallis p
1	Organization encourages learning culture using ICT	3,70	3,52	3,48	0,066
2	ICT is used to identify CPD needs and to design training programs	3,49	3,32	3,17	0,060
3	Organization has clear requirements for staff ICT competencies	4,37	3,49	3,22	0,000
4	Staff ICT competencies are regularly updated	4,25	3,45	2,88	0,000
5	A budget is planned on a regular basis for staff CPD purposes	4,29	2,86	2,94	0,000
6	Organization provides variety of learning forms for CPD	4,14	3,53	3,11	0,000
7	Organization regularly performs evaluation of CPD activities	3,88	3,25	3,05	0,000
8	Staff technical skills are regularly updated	4,15	3,16	2,91	0,000
9	Staff members are participating in professional online networking	3,44	2,89	3,08	0,000
10	ICT competences are significant for professional career development in an organization	4,22	3,44	3,58	0,000

There were no statistically significant differences when comparing the means of the value attributed to the statements regarding *Organization encouragement for*

*learning culture using ICT* ( $p=0,066>0,05$ , Table 1) and *the use of ICT to identify CPD needs and to design training programs* ( $p=0,060>0,05$ ). The differences between other statements were statistically significant (Kruskal-Wallis  $p$ ).

The research results show that differences are statistically significant for 8 out of 10 statements on the use of ICT for CPD indicated by business organizations respondents; this means that business organizations pay a larger attention for ICT application and staff CPD; however taking into account research limitations this may be a peculiarity of selected business organizations.

## 5 Conclusions and recommendations

Average of **responses for each statement on the use of ICT for CPD by respondents from all participating organisations** shows that ICT skills are significant for the career of employee in the organization in all participating organizations; and there exists a variety of learning forms for CPD (seminars, learning in work place). The least supported statements by respondents were *ICT is not regularly used to identify CPD needs and to design training programs* and *Organization encourages learning culture using ICT*. Employees are not satisfied that *ICT is not regularly used to identify CPD needs and to design training programs*. This dissatisfaction may come from the fact that organizations have clear requirements for staff ICT competences, however the possibilities to fulfil these requirements are limited.

Calculations of general index by ANOVA results show that differences between VET, business and community organisations are statistically significant ( $p=0,000$ ). However differences between responses of VET and Community organisations respondents are small. This shows that business organizations pay larger attention for the development and update of ICT competence of their employees.

Calculations and comparison of average of responses for each criterion within selected block of questions revealed that respondents from all types of organizations the least supported statement was *Staff members are participating in professional online networking*. This shows a huge potential to be used for CPD. To train staff on participation in online communities, on ICT pedagogical (didactical) competencies is still a challenge for majority of organisations. Business organizations care about budget planning more carefully, when compared to VET and Community organisations. However a reason may be that employees of VET and community organizations are less informed about the budget spent for CPD purposes. The research results confirm that business organizations pay a larger attention for ICT application and staff CPD.

Continuous professional staff development should be organized in the way that allows staff to be aware of training possibilities, focusing on the constant competence update, on the basis of ICT competence requirements existing within the organization, and facilitation of online professional networking.

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