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Effectiveness Of E-Training

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Abstract: *Training is specific service with different goals and target groups. Because that is very difficult to build right model and achieve high level of effectiveness of training. With introducing e-learning becomes more significant its application for e-training, but we not jet now in literature and practice about effectiveness of e-training. In this paper is described model of effectiveness as characteristics of training process quality.*

Keywords: *Training, effectiveness, e-training, conceptual modeling, process approach*

1. INTRODUCTION

European Higher Education Area is integrates and defined according to exactly defined principles. The main reason is plan that EU achieves economic and technological advantage based on quality human resources. There is believed that the European Higher Education Area will not be complete without a strong, elaborated distance education and e-learning component. There are many different forms and tools for e-learning such as: Learning Management Systems, Computer based testing, web based laboratories etc. Many faculties and Universities introduce different e-learning tools and concepts in traditional education process creating new learning environment so called "blended" learning (combination of traditional and e-eLearning). On the one hand e-learning concept demands highly sophisticated equipment and ICT infrastructure. The Internet (Web) has become a widespread tool for teaching and learning. The Web enables more flexible delivery (anytime), distance education (anyplace), new visualization possibilities (interactivity), and cost reduction. On the other hand the are concerns about effectives and quality of e-learning approach. With introducing e-learning becomes more significant its application for e-training, but we not jet now in literature and practice about effectiveness of e-training. In this paper is described model of effectiveness as characteristics of training process quality.

2. QUALITY AND EFFECTIVENESS OF E-TRAINING

Quality is term related with organizational needs concerned to satisfying consumer expectations, needs and wishes. Training is process which enables that employees have enough skills, knowledge and adequate behavior to work with competence and accomplish organizational goals. It means that training is a specific needs process which also has specific needs (Figure. 1). Second group is particularly needs of personal (in organization or outside). Their views and goals is sometimes different then organizational (Figure. 2).

Training goals could be expressed as union of personal (PGi) and organizational (OGj) goals, i.e.

TG= PGi U OGj

If is bigger overlapping of organizational and personal needs, share of common goals in training goals will be greater. It is possible in case when design and realization of training are in conformance with quality principles, expressed in 10 015:1999.

Goals is expressed as numerical values and related with wishes and plans of organization. (personal). Effectiveness is measure how much are goals accomplished. It is very easy to measure, but problem is in previous stage, what is adequate goal for each organizational (personal needs). It is reason why in quality and effectiveness consideration we have start with analyze of training process with defining training goals and level of effectiveness and in next stage monitor and improve the training process. In this consideration we have to include characteristics of e-training and make common model for both kind of training.

According ISO 10 015:1999 training can present as a four – stage process (Figure. 3) with following stages:

a) Defining training needs,
b) Designing and planning training,
c) Providing for the training nad
d) Evaluating the outcome of training.

In the first step organization or personal should define the competence needed for each task that effect the quality of product, access the competence of the personal to perform the task (or self assessment for personal), and develop plans to chose any competence gaps that may exist (in both cases). Defining needs of the organization (personal is different for "classical" e-training because for e-training organizations/personal has active role and is familiar with e-technologies).

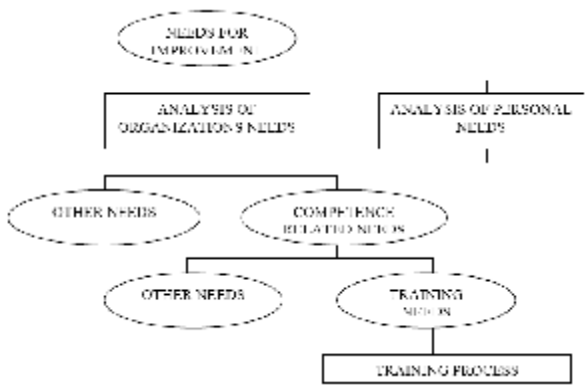

Figure 1. Quality improvement through training

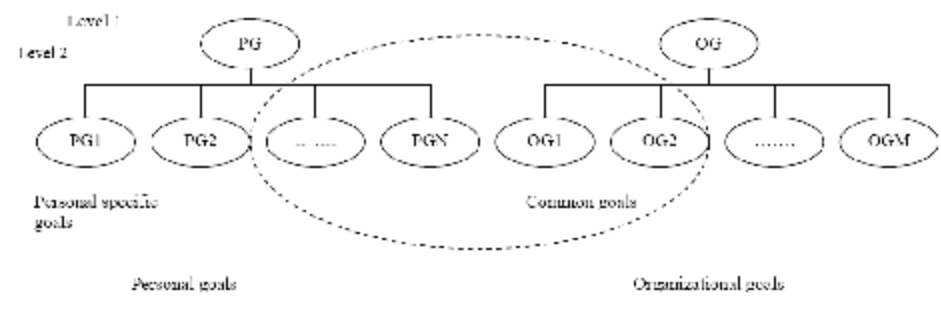

Figure 2. Training goals as union of personal (PGi) and organizational goals

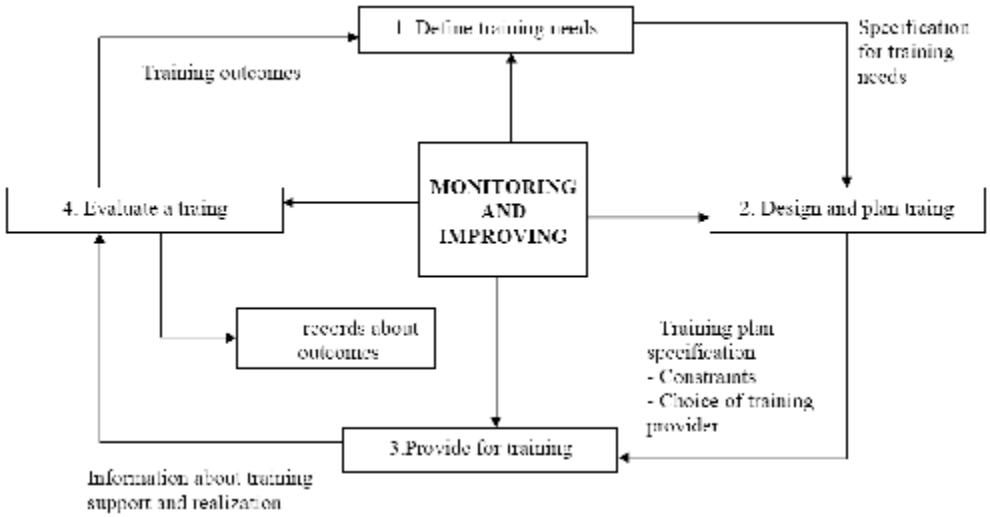

Figure 3. Four stage training cycle

The defined needs are often in relation with ICT resources or supported with ICT. Defining and analyzing competence requirements is next activity in first step. On the basis of strategic goals of organization (personal and quality goals, in this activity organization/personal have to define competence requirements needed for accomplish goals. (Figure. 4).

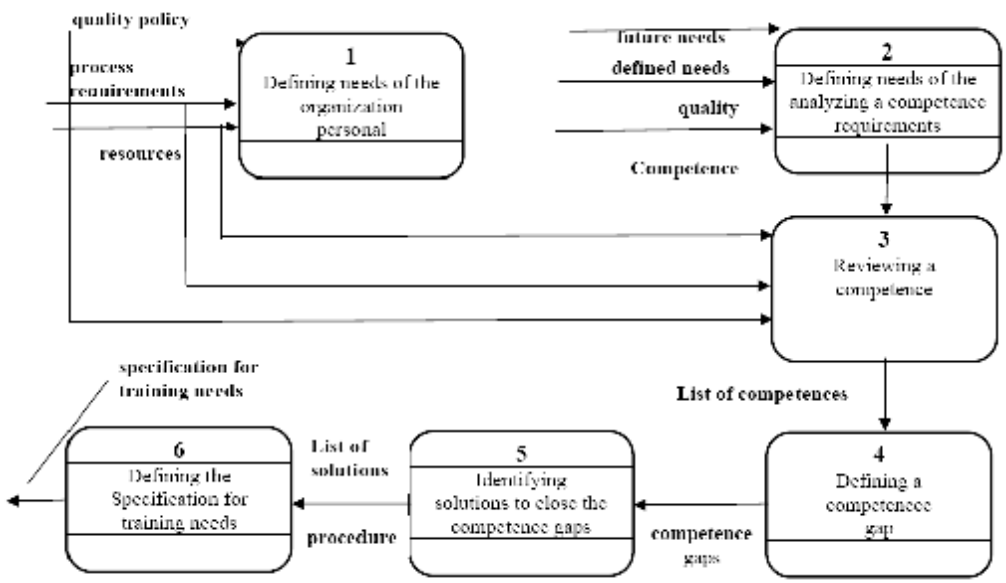

Figure 4. Defining training needs

Next activity is reviewing the defined competence requirements using adequate methods:

- Interviews/questionnaire web solutions,
- Observations,
- Group discussion/web solutions, and
- Inputs from subject matter experts etc.

The review process is related to task requirements and task performance. Other activities and its relations are presented in down part of Figure 4. Output of whole first step is the specification for training needs.

Second step is designing and planning the training with four activities. (Figure 5).

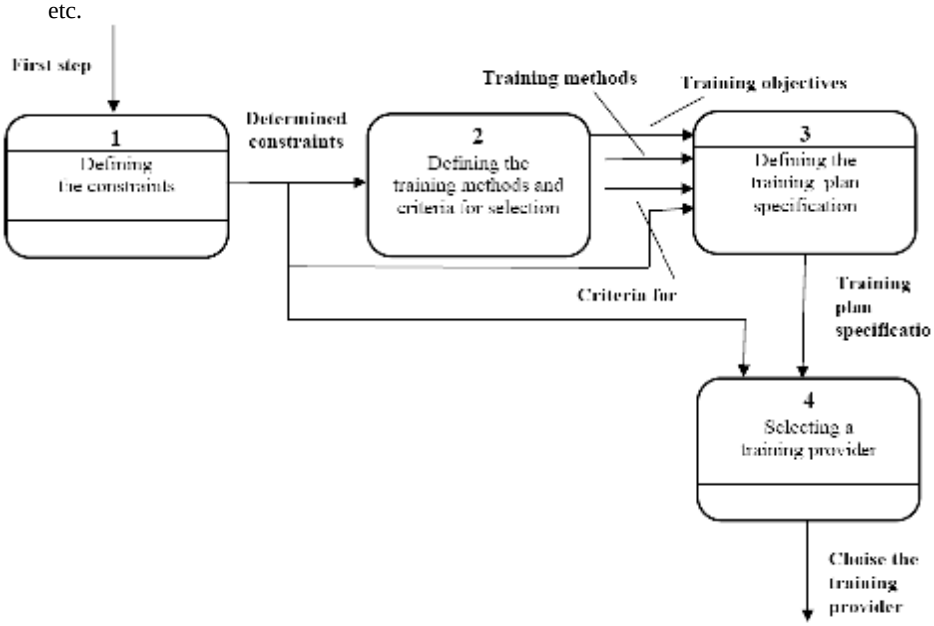

Figure 5. Activities in designing and planning the training

Constraints might include:

- Legislative constraints,
- Policy requirements, specially related to human resources,
- Financial,
- Time pressure and scheduling requirements,
- The availabity, motivation and ability of individuals to be trained ,
- The availability of in-house resources to perform the training, or training providers, and
- Constraints of any other available resources.

Output from this activity is list of constraints, which is input for next activities (3,4 and 5).
Training methods might include:

- Courses and workshop on or off site,
- Apprenticeships,
- On-the-job coaching and counseling,
- Self - training, or
- E – training.

Criteria for selection may include data and location, facilities, cost, training objectives, target groups of trainees (e.g. current or planned professional position, specific expertise and/or experience of implementation, or forms of assessment, evaluation and certification.
Training plan specification is basic document for training. It should consider: (1) the organization objectives and requirements, (2) specification for training needs, (3) training objectives, target groups, (4) training methods and content, (5) schedules with durations, (6) resources requirements including finance and (7) criteria and methods for evaluation of training outcomes.
For this paper are special important the best

part which may include quality and effectiveness performance to measure following:

a) Satisfaction of the trainee,
b) Trainee's acquisition of knowledge skills and behaviors,
c) Trainee's on-the-job performance,
d) Satisfaction of the trainee's management,
e) Impact on the trainee's organization,
f) Level of effectiveness of e-training, and
g) Procedures for monitoring the training process.

Next activity is selecting a training provider based on the training plan specification and determined constrains (internal or external training provider). This activity includes a contracting with training providers.

Next step is providing for the training which might include:

- Supporting both the trainer and the trainee and
- Monitoring the quality of training delivered.

Providing the support includes:

- Pre-training support (briefing the training provider with relevant information, briefing the trainee on nature of the training and competence gaps it is intended to close, enabling contact to be made between the trainer and trainee.

Training support (providing relevant training fools, equipment, software, documentations or accommodation for trainee and/or trainer); providing relevant and adequate opportunities for the trainee to apply the competence being developed and giving feedback on task performance as requested by the trainer and/or trainee

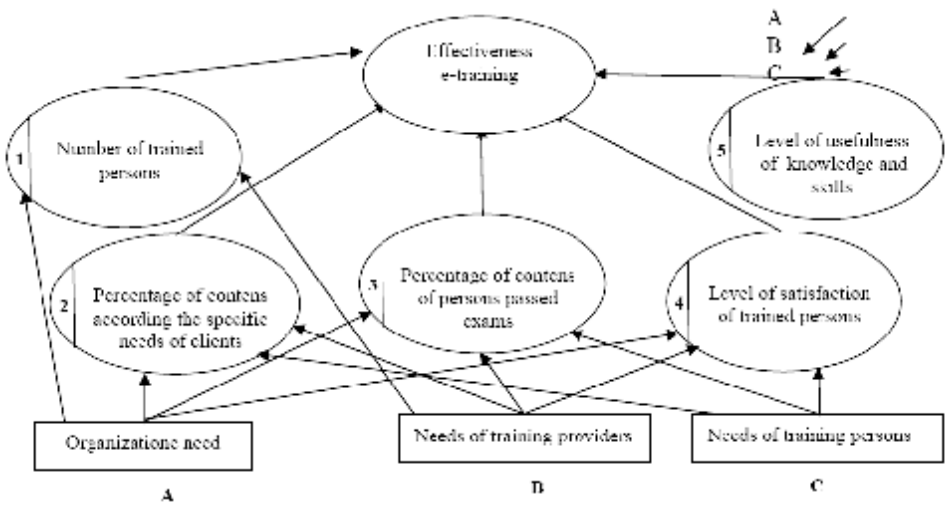

Figure 6. Model of effectiveness of e-training

- End-of-training support (receiving feedback information from the trainee receiving feedback information from the trainer and providing feedback information to managers and to the personal involved in the training process. E-technology has impact on these activities, specially related to direct communication between organization, training provider, trainer and trainee.

Fourth step is evaluating the training outcomes, which could be short- or long term. Short term evaluation is related to training methods, resources, achieved skills and results training. (first for indicators of effectiveness on Figure 6). Long term outcomes are related to job performance (usefulness of knowledge and skills) and quality and productivity.

Base for evaluating the training process are connected will all stages as continually process which include validation of the training process on the base of quality and effectiveness values.

3. EFFECTIVENESS OF E-TRAINING

According Nelly since Drucker's definition [1974.], effectiveness as "doing the right things" to meet organization's objective, there are a lot of different approaches and definitions of term effectiveness. Content and expression of this term is very different and vary with background, related area and purpose for expressing effectiveness. In quality vocabulary effectiveness is related to level of achievement of goals or objectives or target. That means effectiveness could relate to process, output or organization as whole. Because is process approach one of fundamental quality principle, consideration of the effectiveness we begin with process model [1, 2, 3]

Training process has many differences according other process and effectiveness of this kind of processes is quite different then other process. A base of needs, analyze of significance and possibility for measure, we propose model of effectiveness presented on Figure 6. This model is generated through analyze of organizational needs, needs of training providers and needs of trained persons for "classic" and e-training.

Each indicator of effectiveness of training depends on kind of training ("classical" or e-training) and, for each kind, on quality of training process. We could use effectiveness indicators for each step of training cycle or for each activity in four steps. For practical use, we propose effectiveness metrics as in Figure 7.

Effectiveness indicator					Value
1% of max	2% of max	3% of max	4% of max	5% of max	
>95	>95	>95	>98	>90	10
85-94	85-94	85-94	95-97	80-89	9
75-84	75-84	75-84	90-94	70-79	8
65-74	65-74	65-74	80-89	60-69	7
55-64	55-64	55-64	70-79	50-59	6
45-54	45-54	45-54	60-69	40-49	5
35-44	35-44	35-44	50-59	30-39	4
25-34	25-34	25-34	40-49	20-29	3
15-24	15-24	15-24	30-39	10-19	2
<15	<15	<15	<30	<10	1
ω1	ω 2	ω3	ω4	ω5	weight

First indicator is number of trained persons. From view of organization and training provider, if is this number greater is greater possibility to achieve quality and business goals, especially related to human resources development and competent for planed tasks.

Second indicator is percentage of contents according the specific needs of all clients (organizations, training providers and trained persons). This indicator reflects level of achievement the specific need and built them in training plan specification. If is communication among parties closer share of specific needs in training plan specification will be greater. Measure of this indicator is relation between accepted needs transferred in contents and methods and total content, expressed in hours of training.

Third indicator of effectiveness is percentage of persons passed exams. This indicator is easy for measurement.

Fourth indicator of effectiveness is level of satisfaction of trained persons and reflects quality of training process. Maximum value is 10 and the higher value is if an average value of satisfaction of trainee is 99 to 10.

Fifth indicator of effectiveness is level of usefulness of knowledge and skill. This indicator is associated with estimation of benefit of training for employers of benefit of training for employers and trained person. If can estimated during, at the end after estimated period using this knowledge and skill in praxis.

For first calculation, we use the second value, but in communication with employers and trained persons (after e.g. one year) more precise is second value. (Figure 7).

Declination of this indicator is associated with net using and forgetfulness of attained skills and knowledge and is less for fundamental

knowledge and more for specific skills.
Total value of effectiveness is calculates as:

$Efe = \omega_1 \times v_1 + \omega_2 \times v_2 + \omega_3 \times v_3 + \omega_4 \times v_4 + \omega_5 \times v_5$
Where $\omega_1 + \omega_2 + \omega_3 + \omega_4 + \omega_5 = 1$

On this we get average weighted value. This approach is useful for planning the training goals and management the training process. For purpose of effectiveness analyze useful is presentation in multi axis, as in one example for "classical" and e-training. (Figure 8.).

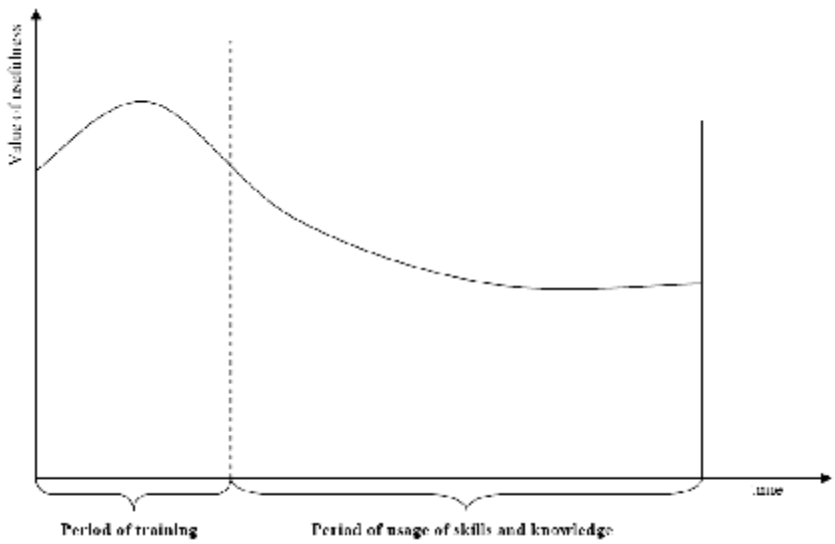

Figure 7. Time elements of value of usefulness

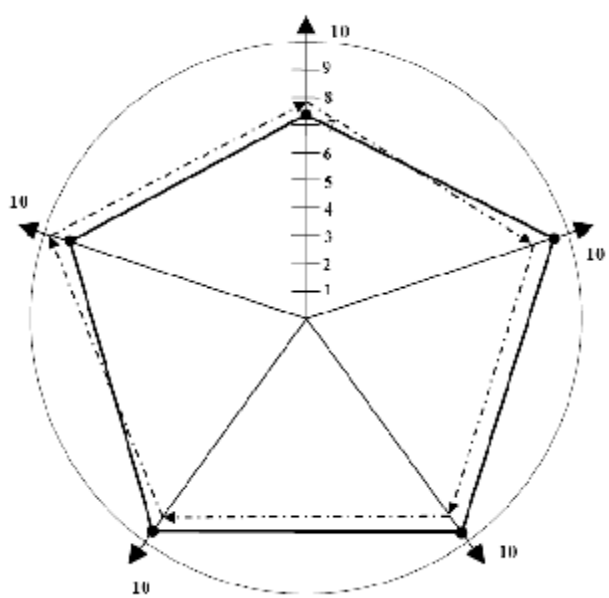

Figure 8. Comparative value of effectiveness indicators for an example in praxis

4. CONCLUSION

- E-training is specific kind of service with great number, of differences in relation with great number of differences in relation to other training and service process.
- Effectiveness of this kind of training process is measurable with set of indicators
- Each indicator can reflect separate training stage or express with important organization, training providers or trained persons
- Using second approach we estimate values of effectiveness for "classical" and e-training during last year.
- Proposed effectiveness matrix is very useful for planning and management the training process.

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