EFQM and Kirkpatrick in a Framework for Evaluation of E-learning
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EFQM and Kirkpatrick in a Framework for Evaluation of E-learning

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Abstract : The EFQM excellence model is a famous quality management tool. We have translated it into a tool that can be used in e-learning quality management. We developed the e-learning stakeholder model.
We developed our Kirkpatrick-EFQM self-assessment framework and our limited learner-centric self-assessment framework. A preliminary set of quality criteria have been identified for self-assessment by the learners.

Introduction

It is challenging to support and enhance quality management in e-learning. The need for quality management in e-learning has risen since the use of e-learning has expanded. Expanding the use of e-learning has put pressure in changing the organisation, processes and services in education. More emphasis has to be put on the quality of operations and contents of teaching and learning, online learning materials and pedagogic and technical support services for e-learning.
The EFQM excellence model is a famous quality management tool. EFQM will be used as a framework for self-evaluation. We identified the main enabling criterion and positioned them in a stakeholder enable model. We built our stakeholder self-assessment model upon the Kirkpatrick evaluation model. A set of quality criteria will be identified to set up the self-assessment questionnaire by the learners.

1. The quality- and excellence model

1.1. Introduction: Quality Management in E-learning

The same principles apply to quality of e-learning as in the quality of teaching and learning in general. However, there are some special characteristics in e-learning that need to be specified. Quality management has to cover three areas, first the learning process, including the organization of the learning process, the pedagogical and technical support for e-learning , second the learning content including equipment and facilities and third the learning results. Quality criteria have to be defined for those three areas.

1.2. Some Fundamental Concepts of Excellence

1.Results orientation:

A first result, the learning organization has in view is to enhance the knowledge of the learners. An excellent learning content has to be delivered and the learning process has to be organized in an optimal way, taking care of some built-in interaction, of an attractive user interface and of the organization of an effective tutoring. The e-learning solution has to fit the learning objectives that are set forward by the learner and the learner's department.
A second result must be that the learner will retain and transfer the new knowledge and skills on the job. We expect that the learner will change as a result of new learning? As an example a salesman who participated in a sales training program changed his attitude. Today he sells one product but at the same time he plans already actions to sell another one. Selling is a continuous process and is part of a client relationship.

A third result is the business impact of the training of the staff member. As an example trained maintenance staff in the technology of their product, will solve better the problems on site of the users and as a consequence the number of unsolved problems will decrease and the number of helpdesk calls will decrease too.

2.The focus on the stakeholders:

As supplier of the learning/training programs we have in mind the learning/training organization or more specific the learning department of a company or an institute that is organizing the learning activities and also the e-learning activities for the staff of all the other company departments.

All stakeholders request some services from the learning department.
The stakeholders consist of company management, all company departments to which the learners belong, the individual learners, the suppliers of all learning resources. The customers of the company are involved in an indirect way because training will have an impact on the product quality.
To become excellent, the learning department has to balance and satisfy the needs of all relevant stakeholders.
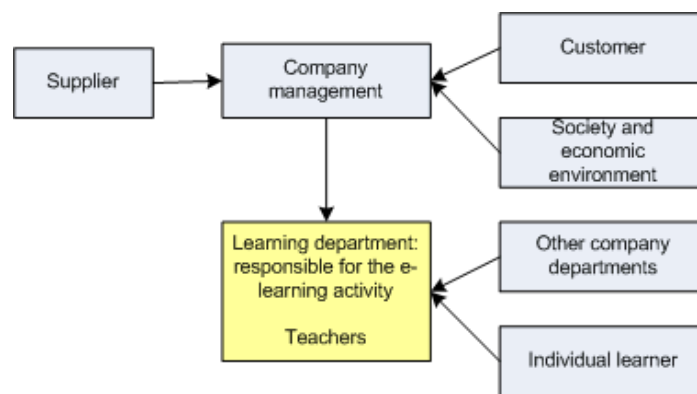
Figure 1: The stakeholder model

 The direct clients are the learner and the learners department. The indirect clients are the company management and the customers of the company.
The basic element of quality management is taking the viewpoint of the client and the processes. Operational quality and processes from the point of view of the learner , the manager, …

3.A strategy of continuous learning, innovation and improvement will lead to excellence.

Organizational performance is maximized when it is based on the management and sharing of knowledge within a culture of continuous learning, innovation and improvement. Management must be aware of new and innovative products, technologies and methods. New product design and at the same time optimized production processes will result in excellence. The innovation and the improvement are also situated in the learning department. The adoption of up to date learning content must be delivered and new learning concepts and tools will enable the optimization of the learning process and of learning.

1.3. The EFQM Excellence Model

Regardless of sector, size, structure or maturity, to be successful, organizations need to establish an appropriate management framework. The EFQM Excellence Model is a practical tool to help organizations do this by measuring where they are on the path to excellence, helping them understand the gaps and then stimulating solutions. The EFQM model is based on some fundamental concepts or characteristics of excellence

In practice the organizations will use the EFQM model for the following purposes:

o   as a framework for *self-evaluation* that enables an organization to identify its strengths and areas for improvement and the extent to which its operations and results are in line with the characteristics of an excellent organization;
o   As a way to *Benchmark* with other organizations
o   As a guide to identify areas for *Improvement*

The EFQM Excellence Model is a non-prescriptive framework based on 9 criteria. Five of these are 'Enablers' and four are 'Results'. The 'Enabler' criteria cover what an organization does. The 'Results' criteria cover what an organization achieves. 'Results' are caused by 'Enablers' and 'Enablers' are improved using feedback from 'Results'. Each of the nine criteria has a definition, which explains the high level meaning of that criterion. To develop the high level meaning further each criterion is supported by a number of sub-criterion. Those pose a number of questions that should be considered in the course of an assessment. For example in the criterion leadership, focus is on the way management can motivate and stimulate the organization to evolve to continuous improvement. Some questions: How is management engaged in creating a culture of continuous improvement? How is management supporting the improvement activities? How is management evaluating and motivating the staff?
The EFQM Model is presented in diagram form below. The arrows emphasize the dynamic nature of the Model. They show innovation and learning helping to improve enablers that in turn lead to improved results
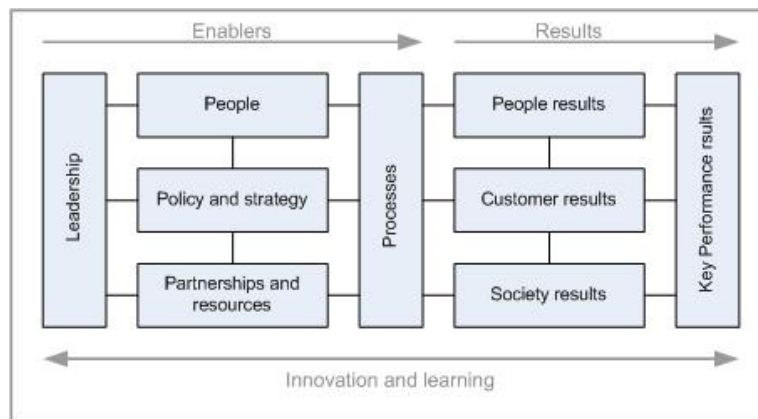

Figure 2: The EFQM excellence model

2. The EFQM Excellence Model in E-learning

2.1. The EFQM Model in the E-learning Organization

The enabler criterion:
1. *Leadership*: the promotion and support of a culture of innovation and continuous improvement.
2. *Policy and strategy*: career guidance for the staff and a training plan to support it.
3. *People management*: learning has to be promoted.
4. *Resources*: management of staff, buildings, materials, intellectual and information resources on an effective and efficient way, to contribute to learning, attainment and improvement in the organization.
5. *Processes*: organization of learning and taking care for improvement of learning and teaching

The results criterion:
6. *Client satisfaction*: meeting the needs and expectations of the stakeholders
7. *People satisfaction*: meeting the needs and expectations of the learning organization /department, responsible for the learning process.
8. *Impact on society*: leadership in adoption of advanced and innovative learning concepts and e-learning solutions.
9. *Impact on the company's success*: the business impact of the training of the staff members.

2.2. Kirkpatrick Evaluation Model

D. Kirkpatrick presented a four-level model of evaluation, that can be applied to traditional way of learning and also to e-learning. This model is composed of 4 levels of quality evaluation of e-learning.

          1.student's reaction
          2.learning results
          3.impact of learning on functioning in the workplace
          4.impact on business results

1.students' reaction: students are asked to evaluate the training after completing the program.
First is asked how well they like the training. But other questions are about the relevance of and the fitting to the objectives, the quality of the included interactive exercises, the ease of navigation, …
2.learning results: has the learner increased his knowledge of the topic? What about the achievement?
3.behaviour in the workplace: Are any of the new knowledge and skills retained and transferred back on the job? Is the student's behaviour changed as a result of new learning?
4.business results: the evaluation of the business impact of the training must be measured.
A set of quality criteria or self-evaluation topics have been identified. Quality of learning criteria can be linked with the first two evaluation phases "students' reaction" and "learning results". Impact of learning is linked with the last two evaluation phases "behaviour in the workplace" and "business results".

3. The Kirkpatrick-EFQM Self-Assessment Framework and the TQM Model for E-learning

The following Kirkpatrick-EFQM self-assessment framework is a fusion of the two models EFQM and Kirkpatrick. The learning department is responsible for the organization of the e-learning activities. All stakeholders request some services from the learning department. To become excellent, the learning department has to balance and satisfy the needs of all relevant stakeholders.
In the center of the framework we put the 4 levels of Kirkpatrick. We split them in the first two levels being the *learner centric levels* and the two others being *the environment centric levels*.
The EFQM main criteria are linked with them.
The stakeholders are put around the frame. Their requirements are linked with the EFQM criterion parts.

The EFQM total quality model (TQM) for e-learning has been transformed to our Kirkpatrick-EFQM self-assessment framework. The self-assessment must be focused on the requirements as set forward by all stakeholders.

Teachers

Learners

Company management

Supllier

Leadership & Strategy	Processes	Student's reaction	Learner in learning process
			Learning & teaching Learning content Pedagogical & technic support
	Resources	Learning results	Results
			Skills & competences
People management		Behavior in workplace	Results
			Impact of learning on functioning in company department
	Customer results Societey results	Business results	
	Impact of learning on business		

Customer   Society
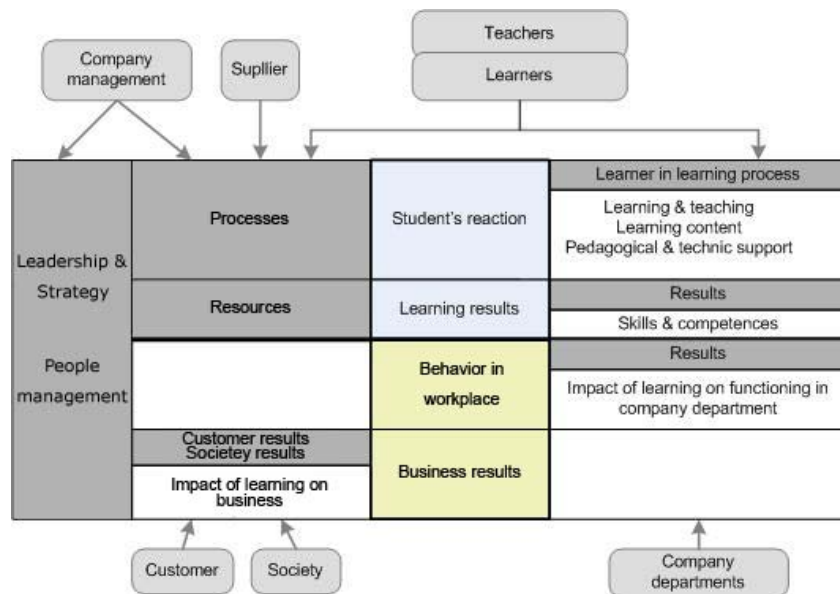
Company departments

Figure 3: Kirkpatrick-EFQM self-assessment framework

Company management and the learning department have to take responsibility for quality assessment on these criteria. Several stakeholders can participate in the evaluation activity. The learner can partly take up the role of evaluator. The assessment of the quality of e-learning will be done by the internal stakeholders of the e-learning activity of the company:

Company management and the learning department	leadership, policy and strategy
learning department and learner	the resources especially the learning system
learner	the resources and the processes and all aspects of the learning process
learning department	the process of development of e-learning solution
company management and other company departments	impact of learning
Company management	the evaluation of the fulfilment of the requirements of the external stakeholders.

But in most cases, the evaluation will be limited to the learners evaluation task. As a consequence the evaluation is not complete. A self assessment by company management and the learning department must be organised. The best methods of assessment and the criteria have still to be defined.
We have limited our research to the learner's evaluation task and defined a set of criteria.

4. Evaluation of E-learning by the Learner and the Limited Learner Centric Self-assessment Framework

4.1.The framework

In most cases evaluation will be limited to the learners evaluation task and so the TQM model will be limited to a subset of criteria, namely those that can be measured and evaluated by the learner.
In that case, the evaluation itself is limited to a subset of the EFQM criteria domains, being the learning process, the enabling resources, the student's reactions and the learning results.

Figure 4: Limited learner centric self-assessment framework

To identify the set of quality criteria we must take into account all the requirements of the stakeholders. But we will limit our framework. (figure 5) The learner can fulfil the role of evaluator of all aspects of the first two levels of Kirkpatrick, combined partly with the processes and resources domains of EFQM.

However the impact of learning can best be evaluated by company management and the company departments to which the learners are belonging. On company level evaluation could be made of the other EFQM domains.

If the learning department is developing its own e-learning course, than the development process has to be evaluated by the learning department itself. Other learning resources are included in the quality of the learning process and will be evaluated by the learner.

4.2.A list of candidate quality criteria

We structure the criteria in 3 categories: the resources, the learning process and the learning results. The student's reaction in included in both categories resources and processes.

In those 3 categories we identified the following example set of criteria:

I.Learning resources
1.1.information on available learning opportunities
1.2.the electronic learning environment
1.3.the physical environment for online learning
1.4.the physical learning environment for "face to face" situations
1.5.learning resources

II.Learning process
2.1.learning services organisation
       a.the announcement of the available learning programs
       b.registration, welcome and services organisation
2.2.supply of learning systems to support the learning process
2.3.learning as individual/self passed learning of e-learning content
2.4.integration of a face to face learning component into selfpaced learning in a blended traject
2.5.integration of a collaborative learning component in self-pased learning
2.6.individual assimilation of learning content
2.7.assessments

III.Learning results
3.1. Learner has increased his/ her knowledge

5. Conclusions

It is challenging to support and to enhance quality management in e-learning. In this paper we found answers on the question how quality can be assessed. We have translated the EFQM model to become useful in e-learning quality management. That is why we made a fusion of it with the Kirkpatrick's model of e-learning evaluation. If we limit the TQM to the role of the learner as an evaluator, we have to limit our framework too. A set of quality criteria has

been identified and will be used for self-assessment by the learners. The learner can fulfil the role of evaluator of all aspects of the quality of the learning process. The impact of learning can best be evaluated by the other stakeholders.

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