

Quality and Effectiveness of eLearning Courses – Some Experiences from Singapore

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Abstract— eLearning has now been accepted as part of the corporate human development training as well as used widely in the schools and universities in Singapore. However, many corporate trainers, teachers and university professors are concerned about the quality and effectiveness of such eLearning programmes. Invariably, they will be faced with questions like the following: Are the eLearning programmes meeting the objectives that were stated originally? Did the trainees and students like the training? Did they learn what they were supposed to learn? Did they actually use the knowledge? What is the impact on the bottom line of the organization? Do we need to measure the return on investment? Is the use of the Kirkpatrick model still relevant? How do we determine the quality of eLearning courses?

In an attempt to answer all the above questions, the author has taken the approach based on some current discussions and trends in the eLearning world. For example, in the effectiveness area, there is a shift towards taking performance measures rather than the activity measures. The author will share a few case studies in Singapore where quality of the eLearning programmes is monitored closely. In schools, much attention is placed on the use of sound pedagogical principles whenever eLearning programmes are rolled out. What are these pedagogical principles which should be embedded in the various eLearning programmes? What about the

effectiveness of e-training programmes like those for the policemen or the armed forces? What lessons can we draw from past eLearning experiences?

The author will discuss some frameworks, standards and initiatives that can be used to measure the quality and effectiveness of eLearning programmes whether these are used in the schools for formal learning or in organizations that provide competency and skills training. In particular, he will propose a practical approach which can help organizations to determine the effectiveness of their eLearning programmes.

Keywords— activity, effectiveness, performance, quality

I. INTRODUCTION

The purpose of this paper is firstly to review the meaning of quality and effectiveness of eLearning courses. Secondly, the author will give examples on how the quality and effectiveness of eLearning courses can be measured. Finally, the author will discuss how other organizations are addressing the quality and effectiveness of eLearning courses.

II. DEFINITIONS OF QUALITY AND EFFECTIVENESS

There are several definitions and explanations for eLearning quality and eLearning effectiveness. One particular explanation for eLearning quality is from the European Quality Observatory [1]:

“The predominant view is that quality relates to obtaining the best learning achievements (50%). Together with 'something that is excellent in performance' (19%), this primarily pedagogical understanding was more widespread than options related to best value for money or marketing.”

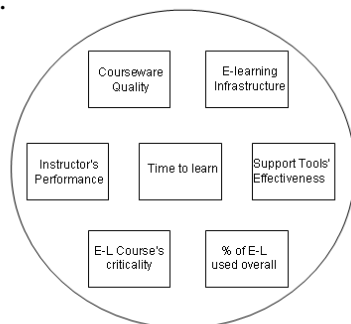
This explanation is preferred by the author as it focuses on best learning achievement, excellence in performance and pedagogical understanding.

In a similar way, it is also pointless to try to define “eLearning effectiveness” strictly. Rather, I have considered the explanations from a few authors [2]. I summarize the concept of “eLearning effectiveness” as follows:

- Match between stated goals and achievement
- Doing the right things
- Different from “efficiency” (Efficiency means making the best use of the resources)
- Based on evidence gathered through various procedures (e.g. inspection, observation, site visits, etc)
- Value-added process through quality assurance and accreditation review

III. RELATIONSHIP BETWEEN QUALITY AND EFFECTIVENESS

From the explanations given in paragraph 2 above, I drew the following diagram to represent the relationship between these two concepts:



Possible performance measurements for E-learning

Fig. 1 Effectiveness as the sum total of all

In fact, the following can be possible criteria to determine the effectiveness of eLearning courses:

- Instructor’s performance
- Courseware quality
- Facility’s conduciveness to eLearning
- Training vendor’s customer service ratings (if using a vendor)
- Effectiveness of on-the-job support tools
- Effectiveness of learning (knowledge gain)
- Percentage of eLearning applied to job
- Time required for eLearning to impact job
- Percentage of time eLearning skills are used on the job
- Criticality of eLearning course to the programme

(The above criteria are selected from the article, “Learning Measurement: It’s Not How Much You Train, But How Well” by Jeffrey Berk [3]).

Effectiveness is something that is not absolute. Even in an organization, there will be different views on the effectiveness of eLearning. For example, in some organizational units, effectiveness is measured from an economic point of view. Another organizational unit might measure it in terms of how much learning has been retained 3 months after the training has ended.

IV. KIRKPATRICK’S MODEL

One way to assess the effectiveness of any eLearning course is to use the Kirkpatrick’s and Phillips’ five Levels of Learning Evaluation. The original model comprises only four levels. However, Dr. Jack Phillips added a fifth level called Return On Investment.

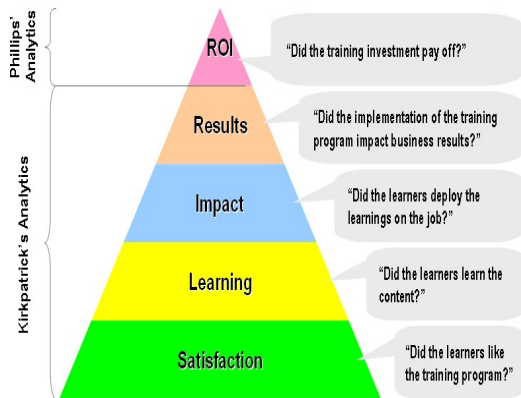


Fig. 2 Kirkpatrick's and Phillips' Model [4]

For Level 1, we can start by capturing the eLearning students' satisfaction after taking a particular eLearning course. The following are the typical satisfaction survey questionnaire we use in the SIM University:

Satisfaction survey questionnaire

1. Why did you register for this eLearning course?
2. How did the eLearning course meet your expectations?
3. How did you find the eLearning course contents?
4. How do you assess your instructor(s) performance?
5. If you had questions, were they answered?
6. Were all documents and other resources made available to you?
7. Duration of the course?
8. General organization of the course
9. What is your overall assessment of the course?

The next stage is to carry out the Level 2 surveys. Figure 5 shows two items: New knowledge and skills learned; Improvement in skills and / or knowledge. However, for UniSIM, what we can do is to gather some data, e.g. the TMA (Tutor Marked Assignment) / CMA (Computer Marked Assignment) grades of the course. The TMA / CMA are normally done some time during

the midst of the course delivery. We can roughly take the data as the “Pre” eLearning. For the “Post” eLearning, we can take the actual examination results of the students attending the particular course. This is on the assumption that eLearning delivery constitutes a large proportion (or even the only delivery mode) of the entire course delivery. We would then have some scores for both the “Pre” and “Post” eLearning delivery.

V. PROPOSED QUALITY & EFFECTIVENESS MODEL FOR THE SIM UNIVERSITY

Fig. 3 below is the proposed Quality and Effectiveness Model for eLearning courses in the SIM University:

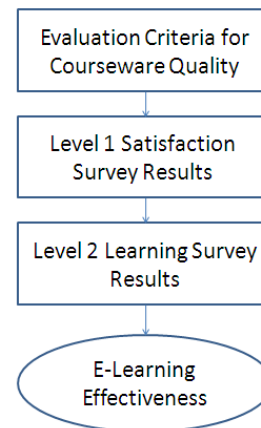


Fig. 3 – Proposed Quality & Effectiveness Model for UniSIM

In our model, we have decided to use the following criteria to assess the quality of eLearning courseware:

- i. Interface
- ii. Navigation
- iii. Operation
- iv. Content
- v. Presentation
- vi. Practice
- vii. Feedback
- viii. Assessment
- ix. Engagement Techniques
- x. Support

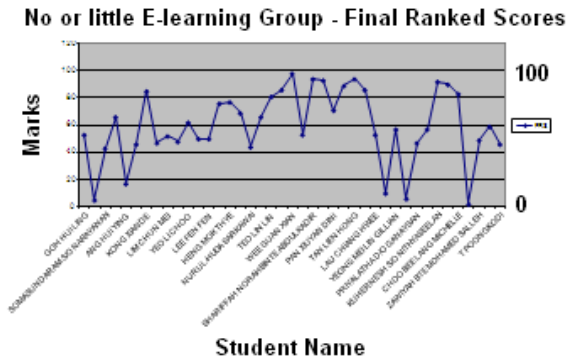


Fig. 6 Chart of No or Little eLearning student group

The average mark for the control group is 68.7 whilst the average mark for the non-control group is 59.8. There is a marked improvement of 8.9 marks.

B. Quality Activities in Singapore Schools

Singapore schools have several quality activities. One initiative is called Quality and Excellence in Schools through Technology (edu.QUEST). This is a programme initiated by the Ministry of Education and it encourages teachers to learn about information and communication technology (ICT), provides them with project ideas, and connects them to other educators interested in sharing best practices. It also encourages teachers to be reflective practitioners by engaging them in action research.

The major challenge, according to Assoc. Prof. Tan Seng Chee "... is to encourage teachers to explore the various ways of using IT based on sound pedagogy. While it is relatively easy to learn a program, it is much harder to for a teacher to be convinced that alternative pedagogies will work [6]".

One example is as follows: students were asked to use the Internet to search for information. However, they were given only 15 minutes to discuss what they have found before they put up a PowerPoint presentation. They spent much of their time doing up the PowerPoint presentation.

In this scenario, one may ask, "What is more important? Discussing with your fellow students or spend more time practising your IT skills?" In the above scenario, the way the students use ICT

neither transforms nor enhances the learning experience. The learning programme must address the crucial need of the students which in the above scenario is all about collaborative learning not practising more on using the PowerPoint software.

C. The SPOT-ON Projects in the SAFTI Military Institute (SAFTI MI)

Since 1997, the Ministry of Defence have adopted a Self-Paced On Time On Need (SPOT-ON) concept as the training philosophy for the Singapore Armed Forces. The SPOT-ON concept can now effectively incorporate online learning to further enhance the quality of training. SAFTI-MI capitalised on these advances in technology and have now launched many online learning programmes deliver training to their middle and senior level commanders before they join the residential phase of the courses. This initiative has greatly benefited the National Service officers in particular, as many of them have to travel overseas frequently. They can now study online anywhere and at anytime before they come for the formal courses.

The SAFTI MI is also very particular about the quality and effectiveness of their online programmes. They have developed a Five-Ps management indicator to evaluate their online courses. The 5Ps stand for Purpose, Participants, Pedagogy, Process and Performance. The following table summarizes the explanations of the 5Ps:

TABLE I
THE 5PS MANAGEMENT INDICATOR OF THE SAFTI MILITARY INSTITUTE [7]

The Ps	Explanation
Purpose	Effect of eLearning on meeting the organization's aim and course objectives
Players	Effect of eLearning on the students and instructors
Pedagogy	Effect of eLearning on adult education
Process	Effect of eLearning on training system processes ranging from curriculum design to delivery
Performance	Quality of the end product

VII. CONCLUSION

Different organizations have different views about the quality and effectiveness of eLearning courses. For example, according to Claudio Dondi, President of EFQUEL (European Foundation for Quality in E-Learning) [8] and of SCIENTER [9], if you come from the industry, then your quality view of eLearning would comprise items like conformance, interoperability, standardization, provision of scalable integrated learning services and product quality process. If you are in school education, you would be concerned about things like customer satisfaction, curricula integration, educational value and use of learning services, user-friendliness and usability of resources.

In the same way, there is no single definition for the effectiveness of eLearning courses. One view that can be adopted is on whether when some effectiveness parameters are being measured, the process can add value to the quality assurance.

The author is proposing a simple framework which allows educators and trainers to evaluate the quality and effectiveness of eLearning courses whether these are conducted in the school or in a corporate organization. This framework allows the quality of an eLearning course to be evaluated quickly. At the same time, the effectiveness of the eLearning course can be ascertained by taking the results of the learner's satisfaction survey and comparing the performance scores of the learner after he finishes an eLearning course.

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