Evaluating e-Learning Environments: Introducing the Motivation-Hygiene Theory

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ABSTRACT

An abundance of comparative studies have been carried out to examine differing modes of traditional and non-traditional educational environments with a view to examine which could be regarded as the better method of instruction. Unfortunately, in the majority of cases no significant difference had been found between them [20].

In an abundance of literature, the method of evaluation used to examine these new learning technologies is often questioned. It is argued that the process of evaluation; judgments about value and worth, is complex, often controversial and challenging [19] [21].

Nowadays, there exists a strong movement towards the importance of authenticity, the adoption of socio-cultural models of learning and the prevalence of practitioner-based evaluation. The implications involved in evaluating learning technologies is clear but not only must one evaluate this impact, the reverse must also be considered; one must also evaluate the impact technology has on evaluation, as well as, considering the cost-benefits of such a learning approach.

Also, additional information needs to be gathered about the most appropriate approaches to adopt, taking into consideration the differing situations and the strategies for communicating findings effectively.

This study takes the stance that although there has been an abundance of development in the production of toolkits [10] [18], check-lists [1] [8] and fundamental frameworks for evaluating learning technologies [7] [13], the true value of these is yet to be demonstrated and further research into their true effectiveness is required. A major part of evaluation has focused primarily on the structure and content of output and, whether learners have learnt that is, the use of pre and post exams to evaluate competence levels Also, many look at the satisfaction of learners by using a form of Likert scale, which in reality only covers the surface of learner satisfaction.

This study purports to introduce a new theoretical framework to evaluate eLearning technologies through learner satisfaction that is widely used in the field of management and in particular the field of employee satisfaction and motivation, the Herzberg Motivation-Hygiene Theory (1959). To date, there has been some usage of such a method in the area of faculty satisfaction but there is practically no evidence of its application to learning technologies in Higher Education.

Considering the fact that institutions are becoming more accountable in their provision of courses and the costs-benefits of every course weighs heavily on the shoulders of every responsible person, it is vital that not only must learners be satisfied with the course, they must also be motivated to continue with it. Attrition and retention levels are becoming increasingly problematic for many institutions that provide flexible learning courses [6]. Fundamental to the evaluation of these courses must be the satisfaction levels of the learners. With the increase in diverse student populations and the development of emerging methods of learning delivery, evaluation needs to take on a new perspective. It is necessary to prove the worth of our eLearning courses and if the learner is not satisfied they will not remain on-line for long and our courses will loose value and worth.

It is the author's opinion that the application of the Herzberg theory as a framework for evaluating eLearning courses will shed new light into learner satisfaction, as well as, assisting in providing guidelines that will enable the teacher/facilitator to improve the motivational appeal of the course in order to combat attrition and retention levels and attract new learners.

Herzberg et al. [12] constructed a two-dimensional paradigm of factors affecting people's attitudes about work, often referred to as "The Dual Structure Theory of Motivation". He concluded that such factors as company policy, supervision, interpersonal relations, working conditions, and salary are hygiene factors rather than motivators. According to the theory, the absence of hygiene factors can create job dissatisfaction, but their presence does not motivate or create satisfaction.

In contrast, he determined from the data that the motivators were elements that enriched a person's job; he found five factors in particular that were strong determiners of job satisfaction: achievement, recognition, the work itself, responsibility, and advancement. These motivators (satisfiers) were associated with long-term positive effects in job performance while the hygiene factors (dissatisfiers) consistently produced only short-term changes in job attitudes and performance, which quickly fell back to their previous level.

In summary, satisfiers describe a person's relationship with what she or he does, or how they relate to the tasks being performed. In relation to this research proposal, this would refer to the overall

course content and the process of learning. Dissatisfiers, on the other hand, have to do with a person's relationship to the context or environment in which she or he performs the job. In relation to this research project this would refer to means or medium by which a person is learning, that is, technology-based. The satisfiers relate to what a person does while the dissatisfiers relate to the situation in which the person does what he or she does [9].

Widely used in the business world, this theory has stood the test of time and has been applied to the higher education sphere mostly in accordance with faculty satisfaction [4] [11]. However, that which is extremely important, in relation to the significance of this study, is very few cases worldwide can be found where it has been applied to eLearning courses. Chyung [6] applied Herzberg's theory to understand learner's attitudes towards on line training programs over a three year period. Lee & Shih [14] examined motivation and hygiene factors by tracing the behaviours of students´ web-based learning. Lengnick et al. [15] examined the interests and behaviours of students in the designing of effective learning systems.

Nicholls [17] presents the results of the International Forum of Educational Technology and Society (IFETS) debate, which centred on the applicability of Herzberg's principles to eLearning.

The overall conclusions drawn by the panel were as follows:

"*The potential importance of Herzberg's theory to eLearning is that it can help target investment and optimise the learning experience. […] A reliable set of satisfiers and dissatisfiers for eLearning would be of benefit to all eLearning practitioners and decision makers."* (Nicholls, 2004:4).

While there is no one right way to manage learners, all of whom have different needs, backgrounds and expectations, it is clear that Herzberg's theory offers a reasonable starting point. By creating a learning environment that promotes learning satisfaction, we are developing learners who are motivated, productive and fulfilled. This, in turn, should contribute to higher quality teaching and teacher satisfaction. Therefore, it is only a question of logic that Herzberg's theory should be taken more seriously in the area of e-Learning.

In applying Herzberg's theory it is necessary to attempt to emulate the processes that he carried out in his research approach. The fact that it was carried out in the late 1950s represents the fact that a large majority of the coding process was carried out manually. Nowadays, with the appliance of new technologies it is hoped that the manual processes of those days will be reduced to a minimum.

From the outset of this research it is the author's view that the technique of content analysis will be applied to the information gathered from the questionnaires and semi-structured interviews that will be made available to the learners involved in the research. An a posteriori approach will be adopted in order to extract the categories of analysis directly from the material itself. Even though there is an abundance of relevant literature available on job and faculty attitudes, by which, in theory, it would be possible to develop a pre-outlined and defined schematic framework of categories, it is felt that there is insufficient literature to support such an undertaking within this particular angle of research and in the author's view the most valuable analysis will emerge from the original material.

Throughout the study, which presently is reaching the conclusion of the pilot stage, an online questionnaire will be made available to learners upon completion of each subject area. The questionnaire will be structured so as not to limit the respondent's replies. We want them to think of times when they felt especially good or bad about their course and if they can express their feelings about it. Obviously there will need to be more directed (probing) questions included, such as, how long did this feeling last for, when did it happen and under what circumstances, why did they feel that way and what did the events mean to the respondents? Semi-structured interviews are planned for the main research stage with a selected sample in order to obtain more information to support the findings.

As a first step in preparing the analytical scheme all the replies need to be broken down into "thought units". A thought unit is defined as a statement about a single event or condition that led to a feeling, a single characterisation of a feeling, or a description of a single effect (Herzberg et al., 1959:38). An example could be:

"I feel happy and ready to study"
"I didn't care whether the mail worked or not"
"I wasted time doing unnecessary tasks"
"The way he replied showed that he liked my work"

Computer Assisted Qualitative Data Analysis Software (CAQDAS) such as the NUD*IST package is being considered as a suitable package to assist in the codifying of the information. It has been advocated in my areas of research as a tool for interpreting complex data in context. References can be found in Medicine [3], Accountancy [2], Education [5] and Management [16] just to mention a few.

Apart from the main research question, a demographic evaluation will be carried out in order to distinguish between location, gender, age, profession, level of education etc. as this should no doubt provide reasoning to certain responses. A simple SPSS package can assist in producing the required end results.

Presently, as mentioned previously, the study is in its pilot phase where the first author is testing out the approach with a group of learners from Cape Verde who are participating in what is described as a "Blended Learning" course on Multimedia in Education from the University of Aveiro.

Issues (positive and negative) that have so far been regularly highlighted are as follows:

- Technological difficulties, in relation to usage, terms and resource availability;
- Difficulty of Internet access caused stress;
- Differing student background levels which led to varying levels of knowledge and varying levels of technological capabilities;
- Good communication leading to diversification of ideas;
- Tutor motivation and encouragement was an important issues for the students;
- Provision of challenging work led to strong feelings of achievement.

Other issues have provided the authors with insight into the development of the questionnaire; its availability online and students' views towards research. Also, issues concerning learning styles and learning cultures have arisen as being ones that should be considered and taken note of when embarking on this form of research.

Categories and Subject Descriptors

K.3.1 [**Computers and Education**]: Computer uses in Education – *distance learning.*

General Terms

Measurement, Human Factors, Theory

Keywords

E-Learning, Evaluation, Motivation and Hygiene, Satisfaction

1. REFERENCES

[1] Blease D. Choosing educational software. In *Jones, A. (Ed.) Computers in Education*, Buckingham, Open University Press, (1988) 5-13.

[2] Budding, G.T. Accountability, Uncertainty, and Government Performance: Evidence on Dutch Municipalities. In P*roceedings of the 26th Annual Congress of the European Accounting Association*, Seville, Spain, (2003).

[3] Buston, K. NUD*IST in Action: its use and its usefulness in a study of chronic illness in young people, *Sociological Research Online* 2(3), (1997) http://www.socresonline.org.uk/2/3/6.html [Accessed 9th June 2005].

[4] Castillo, J., Conklin, E. and Cano, J. Job Satisfaction of OHIO Agricultural Education Teachers, *Journal of Agricultural Education* 40 (29), 1999, 19-27.

[5] Cannon, D. Learning to Fail, Learning to Recover. In Peelo, M. and Wareham, T. (Eds), *Failing Students in Higher Education*, SRHE and Open University press, 2002.

[6] Chyung, S. Analyze motivation-hygiene factors to improve satisfaction levels on your online training program. In *Proceedings of the 18th Annual Conference on Distance Teaching and Learning*, 2002, 71-76.

[7] Draper, S. Prospects for summative evaluation of CAL in higher education, *ALT-J*, 5(1), 1997, 33-39.

[8] EDRU. *A Guide to Local Evaluation*, Report No. HE/L61, London: Evaluation development and Review Unit, Tavistock Institute of Human and the Employment Department, 1992.

[9] Gawel, J. E. *Herzberg's Theory of Motivation and Maslow's Hierarchy of Needs*. ERIC/AE Digest ED421486, 1997 http://www.eric.ed.gov/. [Accessed 15th June 2005]

[10] Harvey, J. *The LTDI Evaluation Cookbook*, Glasgow: Learning Technology Dissemination Initiative, 1998.

[11] Heller, H., Clay, R. and Perkins, C. The relationship between teacher job satisfaction and principal leadership style. *Journal of School Leadership*, 3(1), 1993, 74-86.

[12] Herzberg, F., Mausner, B. and Snyderman, B. *The Motivation to Work*, New York: John Wiley & Sons, 1959.

[13] Laurillard, D. *Rethinking university teaching: A framework for effective use of educational technology*. New York: Routledge, (1997).

[14] Lee Wan-I and Bih-Yaw Shih. A case study of motivation theory on the web-based learning. In *Proceedings of the 31st ASEE/IEEE Frontiers in Education Conference*, 2001. http://fie.engrng.pitt.edu/fie2001/papers/1442.pdf [Accessed 12 May 2006].

[15] Lengnick, C. and Saunders, H. Designing effective learning styles for management education: Student roles, requisite variety and practicing what we teach. *Academy of Management Journal*, Mississippi State, 1997, cited in Lee Wan-I & Bih-Yaw Shih, 2001.

[16] Malina, M. A. and Selto, F. H. Communicating and Controlling Strategy: An Empirical Study of the Effectiveness of the Balanced Scorecard, *Journal of Management Accounting Research*, 13, 2001, 47-90.

[17] Nichols, M. Motivation and Hygiene as a Framework for eLearning Practice. *Educational Technology & Society*, 7 (3), 1-4, 2004.

[18] Oliver, M. An introduction to the evaluation of educational technology. *Educational Technology and Society*, 3(4), 20-30, 2000.

[19] Oliver, M. and Conole, G. The Evaluation of Learning Technology- an overview. In Oliver, M. (Ed) *Innovation in the Evaluation of Learning Technologies*, London: University of North London press, 5-22, 1998.

[20] Russell, T.L *The No Significant Difference Phenomenon.* IDECC, 5th Edition, 2001.

[21] Tergan, S. Checklist for the Evaluation of Educational Software: Critical Review and Prospects. *Innovations in Education and Training International*, 35(1), 1998, 9-20.