

VITAL ATTRIBUTES FOR SUCCESS IN FACILITATORS ON TELEMATIC LEARNING PROGRAMMES: A FORECASTING MODEL

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ABSTRACT

When the Potchefstroom University for Christian Higher Education embarked on the telematic learning systems route in 1995, an instructional model was introduced whereby students would benefit from having access to learning facilitators with both academic and field-related expertise in addition to educational technology applications. Although the telematic learning system is excellently positioned for distance learning in a technology-driven environment (where classrooms without walls are the order of the day and higher learning is reaching hundreds of remote students through the use of appropriate technology), it also provides for a blended approach where interactive multimedia learning material is wedded with personal tuition through a network of facilitators.

A great deal of resources is provided on the facilitation network for most of the telematic programmes of the University. To obtain and preserve quality learning for the university and its students, it is imperative that facilitators are developed and empowered to act as multi-skilled 21st century mentors for the University's telematic learners.

This paper reports on research that constitutes, as primary objective, a model for forecasting vital attributes in facilitators in a telematic learning system where the facilitator should improve the quality of life of the telematic student who chooses this specific route of learning, anticipating the outcomes to be a qualification that epitomises quality. The secondary objectives, namely to identify the attributes of success and to determine the importance of these attributes, have to be achieved before the primary objective can be established. A total of 604 responses (response rate of 29,3%) was analysed in a Forward Step-wise Multiple Regression model to determine the key criteria and the roles that the criteria play in the overall success of the facilitator. A total of 8 vital criteria were identified which explains a satisfactory correlation coefficient of 0,657 at a significance confidence level of $p < 0,02$.

The value of the research is significant to programme management concerned with appointing new facilitators who act as the lengthened arm of academic staff. The forecasting model can also be utilised to assess which of the existing staff are more successful facilitators.

The managerial approach therefore moves from a retrospective to a pro-active approach whereby corrective measures should be taken before commencement of courses and not after the completion of the course during evaluation. Such a managerial approach would be beneficial to the university as agent of quality education, the facilitator as academic expansion of the lecturer and the learners who deserve the best education possible.

"Those countries that harness the powers of telecommunications and computing to the education and training needs of the workplace will be the economic leaders of the 21st century"

Tony Bates

INTRODUCTION

The concept of distance learning has been a strategic issue for educators for decades and is currently growing in stature in the educational environment. Distance education and technologies are expanding at an extremely quick rate because of the mere fact that the world of education and training are changing; for example, the number of non-traditional and off-campus students interested in post-secondary education is on the rise. Statistics on distance education shows globally that (Katz, 1999: 1):

- a growth rate in higher education distance learning of more than 70% was maintained per annum since 1997;
- during 1997, in the USA alone, the number of distance learning schools increased from 390 to 798;
- five of every eleven students registered at tertiary education institutions worldwide, is doing so by distance learning; and
- predictions on the demographics of students at tertiary institutions worldwide indicate that the number of students above the age of 35 will exceed those younger than 19 years within the near future, indicating that lifelong learning has come to stay.

The earliest form of distance learning took place through correspondence courses in Europe, but one of the first ever organisations to deliver distance learning was the Pennsylvania State University (USA) who established its first distance learning network in 1886 (Wheeler, 1997:2). The university employed state of the art technology of the day, namely the United States Mail Service to communicate with its distributed students. In the 1960's the United Kingdom Labour Government approved the setting

up of "The University of the Air", later to become the "Open University". Its founding objective was to offer degree studies through terrestrial broadcasts (TV and radio) in partnership with the British Broadcasting Corporation, using the technology of the day.

This was the accepted norm until the middle of the previous century, when instructional radio and television became popular (Sherry, 1996:2). Until the 1950's the sole method of distance learning was that correspondence courses relied on a combination of communication through the mediums of paper based instructional methods and mail (minimising the so-called "people-factor" in education). During the 1970's, professionally designed and produced television series were used to introduce students to new subject matters and to bringing master teachers from the classroom to students out of the classroom. However, the deficiency of one-way communication posed by this media setting soon forced educators back to the basics in the 1980's and the concept of interactivity came to life (Hannah, 1998: 2). As increasingly sophisticated interactive communications technologies became available, distance educators adopted it. Currently, the most popular media are computer-based communication including electronic mail, bulletin board systems, Internet, telephone-based audio-conferencing and video-conferencing (Sherry, 1996: 3; Halloway & Ohler, 1991: 261-262), focussing more on the tutor-student relationship through the use of technology.

In addition to educational development, the market developed a need for post-secondary and workplace training systems that could assist in developing a higher skilled workforce through lifelong learning in an increasingly complex society. Employers are increasingly looking for cost-effective flexible training to educate their workforce quickly and efficiently. Parallel to these educational needs, an accelerated demand for continuing development of the human resources in the economy is realising. This increased demand for education and training, brought about by structural economic changes, political issues (especially in South Africa) and the need for updating skills cannot be met through traditional methods alone (Ayer & Smith, 1998:1). The demand for increased access to courses requires of educational institutions to re-appraise their methods of delivery and to introduce more flexible approaches to learning. The emphasis should be on meeting the diverse needs of the

employers and individuals by providing education that is flexible, learner-centred and customer focused (Silver, 1999: 3).

In South Africa, distance learning offer a radical new educational direction. The University of South Africa (UNISA) in Pretoria have been serving students for many years and as such, has had a successful distance learning program for decades. Now however, new developments in distance learning in South Africa are depending increasingly upon technology for its success and technological innovations ensure that distance learning continues to evolve and grow as a valid and potent force in education (Wheeler, 1997:2). The Potchefstroom University for Christian Higher Education (PU for CHE) devised a unique telematic learning system where, in addition to technology, learning facilitators are employed to lengthening contact of the lecturers while also fulfilling a role as academic mentors to telematic students.

A great deal of resources is being spent on the facilitation network of the university in order to ensure and preserve the renowned high quality learning of the university and its students. Therefore we should strive towards a type of "*best code of practice*" regarding the network of learning facilitators.

FACILITATION

A facilitator, as defined by Zhaba (1998:1), is a person not necessarily an expert on the specific issue, but rather an expert in the process of communication, working with people, group dynamics, workshop design and implementation of teaching material. In summary: "*a person that makes things work*" in the educational environment. Imel (1997: 2) further defines facilitation as the fostering, assisting and sharing of responsibility with learners, guiding the learning process through exercises, activities, discussions and group dynamics.

General research literature further indicates that attributes such as interpersonal skills, cultural sensitivity, high competency, mentorship, effective communication skills, teaching- and facilitation ability, attitudes and knowledge, all play a role in the

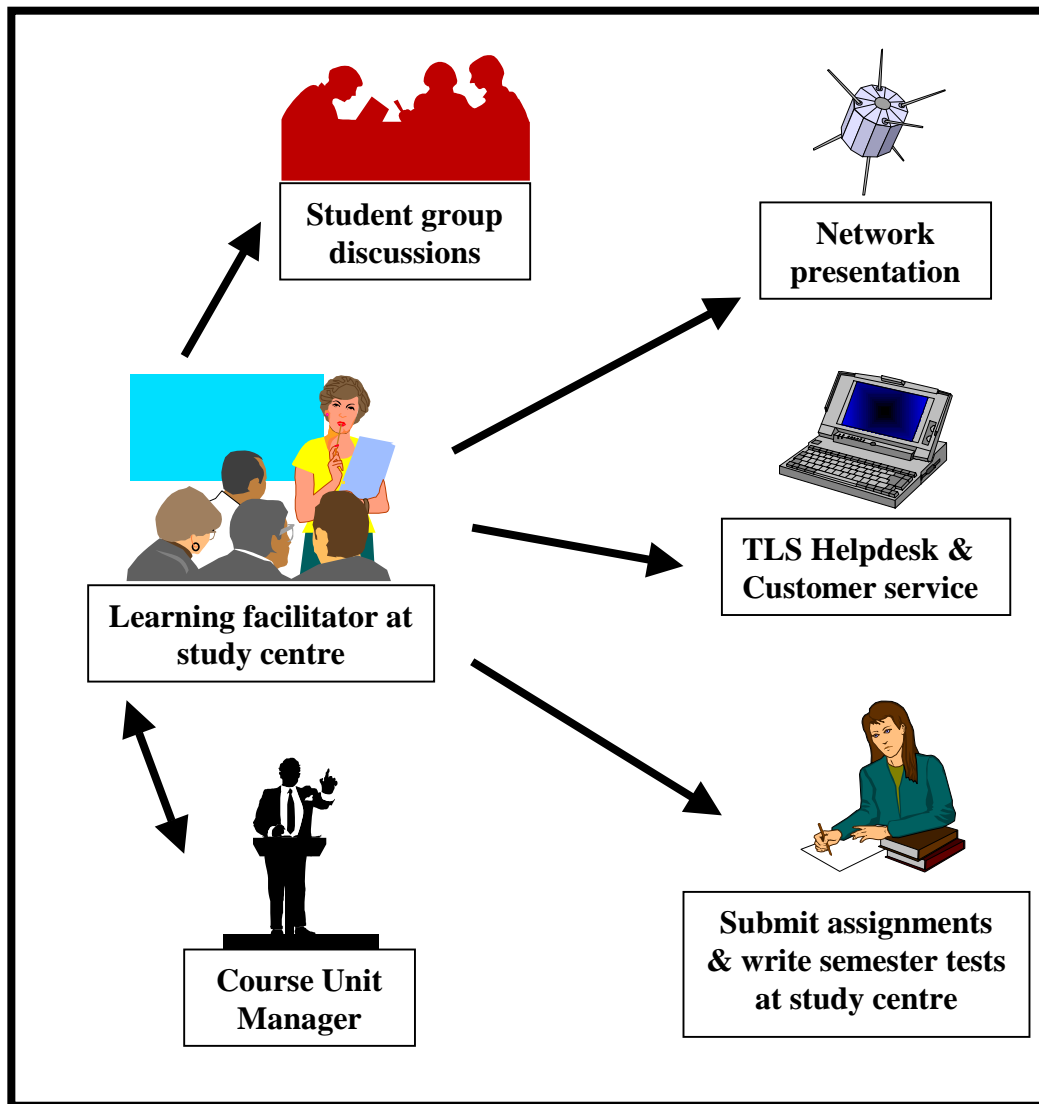
composure of the facilitator at remote study centres.

A successful distance learning system must artificially recreate the teaching-learning interaction and re-integrate it back into the instructional process. This approach would offer to the distance learner an experience similar to traditional, face-to-face instruction, via interactive classrooms or even a tradition of combining mediated distance teaching with local face-to-face teaching. Therefore, successful distance education systems involve interactivity between teacher and students, between students and the learning environment, and among students themselves, as well as active learning in the classroom. Research has shown that students felt that the accessibility and flexibility of distance learning courses far outweighs the lack of dialogue (Bohle, 1997:1). However, Bohle (1997:2) heeds the warning that flexibility impacts negatively on dropout rates if a too flexible system is employed. A key element for success (measured in graduates) of independent learning, therefore, not only includes the learning materials through the use of interactive communications technologies and facilitator mediation, but also a committed role and a flexible but set learning structure from the university.

The PU for CHE employs a telematic learning model whereby learning facilitators play an important role in the delivery of quality education (See figure 1). Under guidance of the lecturer (fromhereto referred to as the Course Unit Manager) facilitators perform a variety of educational functions, namely to:

- facilitate group discussions at remote study centres;
- guide students through the work;
- give practical inputs in accordance to academic material;
- evaluate and grade assignments (moderated by the Course Unit Manager); and
- supply limited administrative backup.

Figure 1: The Telematic Learning Model



Although technology is an integral part of distance learning, any successful program must focus on the instructional needs of the students, rather than on the technology itself. With technology we must take into consideration the social and political climate of the institution, and must also reinforce the authority of the lecturer/facilitator, rather than to undermine it (Sherry, 1996:13). In designing effective distance learning instruction, one must also consider the goals, needs and characteristics of the Course Unit Manager-Facilitator-Student triad, but also content requirements and technical constraints. As active participants in the learning process, students affect the manner in that they deal with the material to be learned. Students must have a sense of ownership of the learning goals, and must be willing and able to receive instructional

messages. Research has found that the mental effort that students will invest in a learning task depend upon their own perception of two factors (Sherry, 1996:6):

- the relevance of both the medium and the message which it contains; and
- their ability to make something meaningful out of the material presented.

Although the facilitator is an extension of the Course Unit Manager, he need not be a teacher himself (Sherry, 1996:12). His responsibilities are to motivate and encourage the remote site students, keep up their enthusiasm, and maintain discipline in the classroom. Other responsibilities include: the smooth running of the system and its equipment, helping students with interaction, handing out-collecting-grading papers, guiding collaborative groups and assisting the Course Unit Manager in the evaluation of the learning outcomes of students.

A successful distance learning programme is assisted upon a match between the identified needs of the facilitators and the resources that are available to them and they (Sherry, 1996:14):

- are given time and accessible equipment
- are given assistance with equipment operation and troubleshooting
- take part in training and program planning
- control the grading, classroom management and classroom activities
- influence the program through feedback
- see the need for technology integration in order to take part in the program

At the PU for CHE, the strive to provide quality education to remote students are weigh heavily on the correct application of the learning facilitator model. This important role played by the facilitator in the learning model emphasises the fact that the university should appoint a high quality facilitator, perfectly suited for the role.

RESEARCH OBJECTIVES

The appointment of facilitators who will add value to the learning model is of extreme importance. The **first problem** that presents itself is that although an applicant may

seem suitably qualified for the job of facilitator on paper, he or she may not fare that well in practice. The **second problem** is that if this unfavourable case scenario realises, the damaging effect on the students' education is already evident due to the time lag. The first problem is usually discovered only upon evaluation after the examination, after which action could be taken to rectify the situation. This paper reports on research that was conducted specifically to eliminate the time lag and to advance from a reactive problem solving approach towards a pro-active problem prevention system of facilitator management.

The objectives of the research are dualistic in nature; analysis and forecasting. The objectives of the research are to:

- to identify the attributes of successful facilitators;
- determine the importance of these attributes; and to
- construct a forecasting model for facilitation success in a telematic learning system.

RESULTS

The research population consisted of all telematic learning students at the PU for CHE who belongs to a study centre where the facilitation model of instruction is being followed. No sample was drawn and all the students enrolled during the 1999 academic year received the questionnaire. The students originated from various telematic learning programmes such as BBA, MBA, Nursing and Law students. The sample thus consists of both graduate and post-graduate respondents. A total response on the questionnaire of 658 realised from the population of 2247 enrolled students. This represents a response rate of 29,3%. Of these questionnaires, 604 were usable in the analysis.

The questionnaire consisted of 42 criteria that measured the effectiveness of facilitators on the telematic learning programmes. The facilitators' performance was measured on a five-point Likert-scale ranging from 1 (very poor/never) to 5 (very good/always). The final question (question 43) consisted of a classification variable that indicated whether *the facilitators play an integral role of success if studying via the telematic learning*

route. This variable was also employed as the dependant variable in the multiple regression model.

The research was conducted to identify the vital attributes that facilitators in the telematic learning model should have and to determine the relative importance of each attribute that contributes to success of telematic learning facilitators. Thereafter, a model to forecast the facilitators' success could be developed. Multiple regression is used as a statistical tool to achieve these aims. The research employs two strains of multiple regression, namely logistic and step-wise regression. **Firstly**, the data was subjected to *Logistic Multiple Regression* analysis, and **secondly**, a *Forward Step-wise Multiple Regression* was employed to compile the final forecasting model.

The purpose of the *Logistic Multiple Regression* was to conform the classification variable to a continuous variable before the Step-wise regression could be employed.

The *Forward Step-wise Multiple Regression* analysis was selected as analytical tool because (Berenson & Levine, 1999: 868):

- it yields a higher correlation coefficient than non-stepwise multiple regression analysis;
- the step-wise feature allows the manipulation of the constraints selected to reduce the abundant data set whilst being able to monitor the correlation coefficient; and
- Forward-stepwise regression proved to be more efficient in this research than backward-step regression because of the higher correlation coefficient.

In an application setting of multiple regression, it is important to note that especially three errors could corrupt the results. These errors are:

- **Collinearity**

The correlation of independent variables with each other can bias estimates of the regression coefficients. An analysis of collinearity on the data showed that none of the independent variables exceed the critical correlation of 0,30 and is therefore not an issue within this research project.

- **Causation**

Causation is the inference that a change in one variable is responsible for, or caused an observed change, in another variable. The concept of causation is more relevant to stronger related variables (for example: Sales and Advertising) and is not a significant issue in the variables used in this research.

- **Scaling of coefficients**

The magnitude of the regression coefficients can be scaled only if the variables use the same scale units. (For example, if one variable is measured in *Rand* and the other in *cent.*) The scaling had no effect on this research since the same scale is used in all variables.

Table 1 shows the step-wise analysis and reduction of the number of criteria in the regression model in context with the correlation coefficient (R_2). A total of 34 criteria were eliminated, leaving 8 identified criteria which explains a satisfactory correlation coefficient of 0,657 at a confidence level of 98 % ($p < 0,02$). The analysis also discarded 54 questionnaires in the stepwise analysis (**N** is therefore reduced from **658** to **604**).

TABLE 1: NUMBER OF CRITERIA IN ACCORDANCE TO R_2

ITERATION	NUMBER OF CRITERIA SELECTED	R_2
1	16	0,687
2	11	0,676
3	9	0,659
4	8	0,657

N=604

Table 2 shows the y-axis intercept (B_0), the 8 criteria and their respective X-values (B_{1-8}) (signifying the slope of each criterion and its assessed contribution (Berenson & Levine, 1999: 869)).

TABLE 2: INTERCEPT, CRITERIA and VALUES

CRITERIA	VALUE
X ₁ Guide students constructively	-0,08829
X ₂ Supportive more than what is expected by University	-0.04869
X ₃ Uses a variation in discussion techniques	-0.04250
X ₄ Positive attitude	-0.07201
X ₅ Attendance register kept	0.03928
X ₆ Raise points missed by groups during discussions	-0.04372
X ₇ Maintains discipline	0.04372
X ₈ Monitor progress of group discussions	-0.04279
Intercept Y-axis = 2,19268	

The forecasting model could thus be formulated as:

$$Y=2.19268+[X_1(-0.08829) +X_2(0.04869)+X_3(-0.04250)+X_4(-0.07201)+X_5(0.03928)+X_6(-0.04091)+X_7(0.04372)+X_8(-0.042791)]$$

INTERPRETATION OF RESULTS

The regression formula is inversely formulated. A negative value thus entails that it contributes positively to success. The more successful a facilitator is, the nearer the value of y would be to zero, while the unsuccessful facilitator would return values striving towards one. This implies that the predictive values (Y) should be interpreted that:

Y=0 (success)
Y=1 (failure)
(R₂=0.65 and p<0.02)

Criteria X₁, X₂, X₃, X₄, X₆ and X₈ are positively correlated to success. The criteria negatively correlated to facilitation success, is X₅ and X₇, both dealing with discipline. An explanation in this regard could be that students already show discipline by

attending the classes and that they wish to learn from the experience. To record their attendance and to attempt to maintain discipline is therefore negatively perceived. Students regard these aspects as a given, and it need not to be part of facilitation success. By enforcing it, valuable time is wasted, apart from the irritation it causes.

SUMMARY

The value of the research is significant. Programme management concerned with appointing facilitators would be able to predict which **new** facilitators:

- ought to be successful according to the criteria; and
- subsequently could be appointed to extend academic contact.

This forecasting model can also be utilised to assess which of the **existing** facilitators:

- meet the criteria and are thus successful facilitators; and
- which ones are not as successful and therefore should receive additional training from their academic mentors, the Course Unit Managers.

Areas suitable for extending this research are to:

- determine whether there are significant differences between the needs of pre- and post-graduate students with regard to facilitator attributes;
- develop an instrument that could measure the identified attributes, and thereby assist in the screening of applicants for facilitation jobs; and to
- further evaluate the forecasting model in ongoing research in order to either substantiate the results or to amend the forecasting model where necessary.

The managerial approach therefore moves from a retrospective to pro-active approach whereby corrective measures should be taken before or during courses and not after the course. Such a managerial approach would be beneficial to the university as agent of quality education, the facilitators as academic expansion of the lecturer and the students who deserve the best education possible.

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