

ITALICS is now in the process of being re-launched and will be fully functional by January 2004. Information regarding *ITALICS*, including submission details, can be obtained by contacting Gillian Livesey
Tel: +44(0) 2890 366109



The e-Journal of the LTSN-ICS

[RTF VERSION](#)

An Action Research Model for the Management of Change in Continuing Professional Distance Education

Miguel Baptista Nunes & Maggie McPherson

Email: j.m.nunes@sheffield.ac.uk, m.a.mcpherson@sheffield.ac.uk

ABSTRACT

This paper proposes an action research model as basis for the management of change in continuing professional distance education (CPDE). The model proposed emerged from the need to manage a complex change process from traditional paper-based distance education to e-learning. In order to illustrate and support the model proposed, this paper describes and discusses such a change process in a CPDE Masters programme.

The Educational Management Action Research (EMAR) model conjugates pedagogical thinking, curriculum design and organisational context. This model facilitates dialogue of all parties engaged in the design and delivery of CPDE. This enables educational managers to effectively lead change in their courses.

Keywords

Continuing Professional Distance Education, Action Research Model, Change Management.

1. INTRODUCTION

The quest for successful management of change in educational environments has become a focus of activity for many educationalists, educational managers and researchers. The assumption underlying much of this activity is that if change can be understood and controlled, then strategies can be developed and success will ensue.

A driving force behind the attention being paid to 'change' is the idea that the ability to handle and sustain change and innovation is central to success in improving teaching and administration. This concept is particularly applicable to the management of Continuing Professional Distance Education (CPDE) programmes in IT and IS because of constant changes in this field.

Consequently, educational managers are looking for the 'best' way to manage change which, for the most part, emerges as a series of steps or 'recipes' to be followed to create an efficient, effective, successful educational setting. This stance is often challenged by both research and empirical findings. This particularly applies to change processes related to the introduction of new Information and Communication Technology (ICT) into learning and teaching in distance education:

"Technology in itself does not change or improve teaching and learning. Attention to management processes, strategy, structure, and most importantly roles and skills, are the key to successfully introducing technology in university teaching and learning." [1]

Therefore, no simple template or checklist can hope to predict and resolve the complex interactive processes involved in this type of change process [2]. A different type of framework is needed, based on empirical and research evidence, which can support educational managers "to provide opportunities to investigate perspectives and rehearse and test responses to them, thus reducing misunderstandings, friction and conflict within team environments" [2]. At the core of such a framework is the collection of feedback from administrators, tutors and learners prior to, during and after course delivery, so as to adapt solutions to specific teaching and learning needs.

Thus, action research provides an ideal approach to the management of change, which involves a close collaboration between practitioners and researchers over a matter that is of genuine concern to them [3]. This type of research embodies the principles of pragmatism applied to research and change by providing an approach for knowledge creation, reflection and application in action [4]. However, while there are examples of successful deployment of action research in universities, these are rare, difficult to create and hard to sustain [4].

This situation is probably due to the lack of a specific framework to support the change process within Higher Educational environments, since traditional action research only provides us with generic constructs [5] [6].

This paper proposes an educational model that can be used as a specific action research framework. It is grounded on the principle of practitioner action research as the guide for everyday work and professional life [5].

2. EDUCATIONAL ACTION RESEARCH

Action research is a pluralist research approach that is based on the assumption that, when studying complex human activity systems, the mere recording of events and formulation of explanations by an uninvolved researcher is inadequate in and of itself. Conversely, action research proposes that those who have previously been designated as "subjects" should participate directly in research processes [5] and that those processes should be applied in ways that benefit all participants directly.

Therefore, action research is more than the traditional interpretative research in the sense that the researcher is directly involved in the research setting and in the experience itself.

More specifically, the model proposed by this study draws on the spiral framework illustrated in Fig. 1. Inquiry results from spiral research cycles, starting with a process of identifying a problem area - a pre-step often based on the previous experience in the field of the researcher. The actual cycle comprises Diagnosis (data gathering, analysis and representation), Action Planning, Action Taking, and Action Evaluation [6].

3. THE EDUCATIONAL MANAGEMENT ACTION RESEARCH (EMAR) MODEL

In order to support sustained and effective change when introducing ICT within a CPDE environment, this research team found it necessary to develop an appropriate action research framework. The Educational Management Action Research (EMAR) model, proposed in Fig. 2, emerged from research and facilitation of this change process over a four-year period. EMAR aims to enable course improvement, tutor development, management strategies maturation and infrastructure evolution.

The EMAR model combines the spiral approach discussed above and earlier framework proposals by both Goodyear [7] and Kahkar [8]. These initial frameworks, although extremely useful, were always considered as being only a starting point for discussion and as a first attempt to build a general CPDE change management framework. In fact, and as pointed out by the authors themselves, these initial proposals incurred the danger of oversimplifying complex relationships and processes [7]. Crucially, these first attempts did not accommodate global evaluation phases and mechanisms for continuous improvement, which are required by CDPE programmes [9].

This type of programme always requires an action research framework that supports the continuously changing requirements and needs of both industry and adult professionals. The awareness of this need for persistent improvement led several authors to express the opinion that any course development must not only meet the objectives of how students learn, but must also take into account the students' motivations, priorities and preferences [10]. The introduction of e-learning adds to this complexity. "Online teaching represents a shift from a model of efficiency to a model of quality" [11].

In order to support this need for persistent improvement, educational action research must be understood as a cyclical process, as stated above. This cycle consists of diagnosing, action planning,

action taking and action evaluation. However, these are easily understood generic steps, but not directly adaptable to the context of educational practice. Therefore, there is the need for an action research educational model, specifically designed to support educationalists in their daily practice and research. Fig 2 is intended to address this issue. Note that diagnosis in this case is the identification of a learning need that gives rise to development or improvement of a particular course. Once this has been identified, a suitable pedagogical model has to be specified and an appropriate educational setting designed. This corresponds to action planning. The next phase of our action research framework encompasses course delivery in the designed educational setting. This corresponds to action taking. Formative evaluation during the delivery, summative evaluation at the end of each module and follow-up evaluation to assess the impact of the course are then used to improve the pedagogical model and redesign the educational setting: action evaluation. From this action evaluation, new needs may be identified that then trigger new cycles. The pedagogical model adopted for any CPDE programme is usually proposed by the curriculum designer and the course team. Different models would impact on the design of the educational setting, that is, the corresponding tutoring strategies, learning tasks and activities, learning outcomes, support mechanisms and ICT technologies to be used.

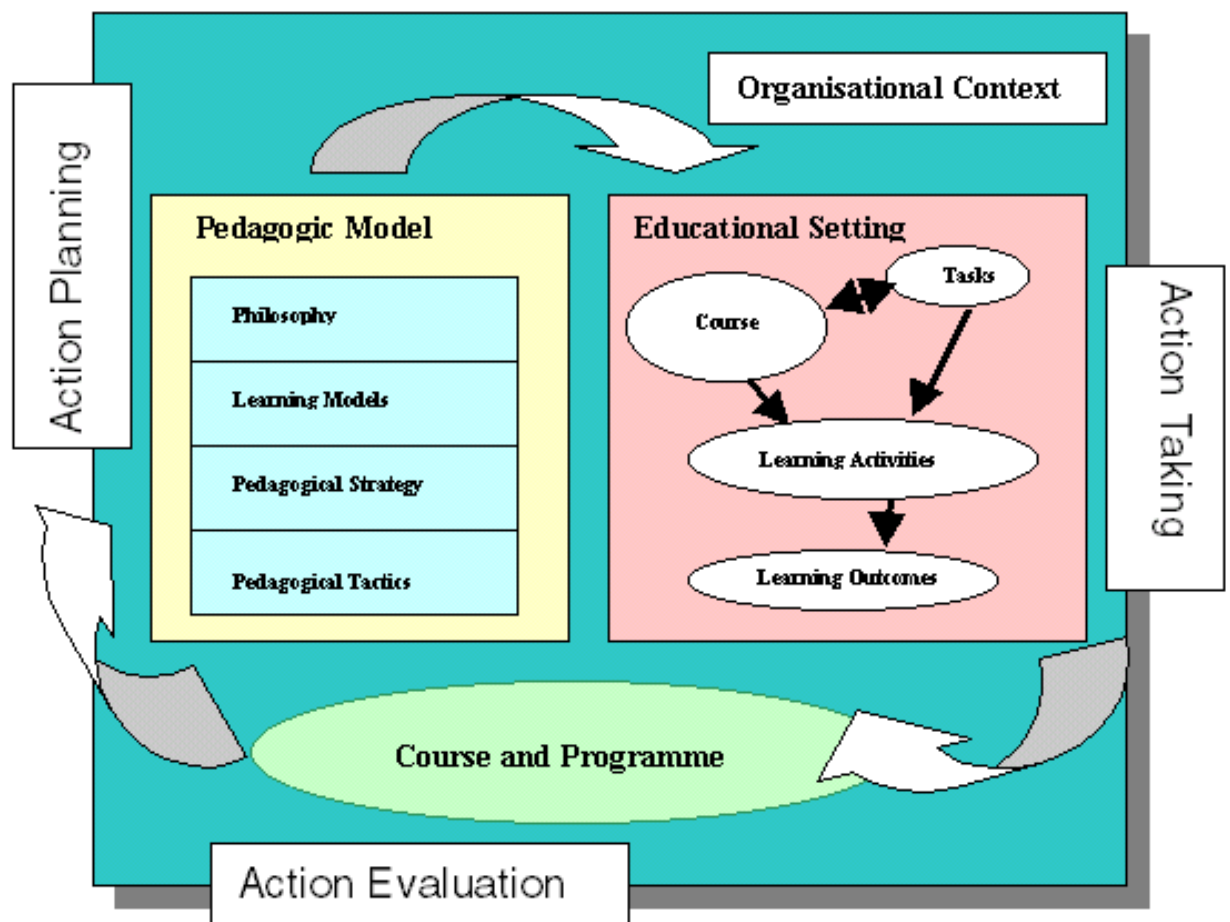


Fig. 2 - The EMAR CPDE Model

The educational setting depends on the curriculum design for particular courses within the organisational context and according to a particular pedagogical model. Curriculum design is a process by which the course aims and objectives, content, delivery mode and assessment procedures of a course are decided, taking into consideration different factors that affect the whole programme, such as: the student and his/her knowledge about the subject; the specific nature of the subject matter; the subject matter expert and the way she/he does things; the method and media of delivery [12]. This process of curriculum design determines the syllabus, the content materials, the learning tasks, the resulting learning activities and the ICT learning environment. The conjunction of

these five factors forms the educational setting.

The fundamental contention of the action researcher is that complex social processes can be best studied by introducing changes into practice and observing the effects of these changes [13]. Therefore, the most important part of any educational action research model is evaluation. Evaluation is the collection, analysis and interpretation of information about any aspect of a programme of education and training, as part of a recognised process of judging its effectiveness, its efficiency and any other outcomes it may have [14].

4. EMAR IN CONTEXT

As stated above, the EMAR model was developed in the context of a change process from a traditional paper-based distance education program into an e-learning mode of delivery. This was the initial trigger for a process that started in 1998, when pressures from both industry and students made this change inevitable.

4.1 The MA in ITM

The MA in Information Technology Management (ITM) is a flexible part-time CPDE programme that aims to develop more qualified and experienced IT managers and consultants. The programme was designed to prepare IT and Information Systems (IS) managers to bridge the substantial gap that exists between professional systems developers and potential users within organisations. Bridging this gap is fundamental to solving the problems that arise from the introduction of IS in the workplace. Students enrolling on the MA are required to have a relevant first degree or a minimum of three years experience in the IT/IS field.

Conceived in the early nineties, the programme initially did not require access to online facilities and relied solely on paper-based materials and supporting face-to-face (f2f) day schools. However, as a consequence of PC boom and the fast development of the WWW, the course team was soon under pressure to incorporate aspects of e-learning in the course delivery.

The opportunity to introduce an ICT component into the MA in ITM arose when the University decided to adopt WebCT as its VLE. WebCT is a tightly integrated system facilitating the creation of web-based educational environments. It adopts a virtual classroom metaphor, composed by a number of ICT tools, which allow educators to build e-learning collaborative environments.

Thus, all students need to make use of ICT now and it is a requirement to have access to computer facilities that include all the standard desktop processing, as well as access to the Internet.

4.2 The Change Process

The EMAR model was developed to facilitate the change process undertaken by the MA in ITM. This process is now completed with all materials and student support being undertaken through e-learning. Rather than just replacing paper-based materials by web pages, the current setting for each MA in ITM module offers: the corresponding and continuously revised course materials in pdf format; additional web-based materials and links; all module related administrative and organisational information; all the problem-based learning materials and case-study notes; both synchronous and asynchronous computer mediated communication (CMC) tools; private group discussion and presentation areas.

This constitutes a Rich Environment for Active Learning (REAL) [15] and therefore a much more complex educational setting than the previous combination of paper-based and postal correspondence. Although the f2f day schools still exist, an important part of tutor and peer discussion now occurs online and is supported by the REAL. The design, development, installation and delivery to the students constituted an iterative change process that required a maturing understanding of all the issues involved. These implied early successes and failures that had to be facilitated by the programme co-ordinator and involved the co-operation of the course team, the students and the support services of the university.

With the support of the EMAR model as an action research framework, this change process resulted in tangible benefits for all parties involved. However, more importantly, because an action research approach was taken, several other research projects emerged from the change process, and ultimately ensured the final success.

4.3 EMAR in Practice

4.3.1 Networked Information and Communication Literacy Skills (NICALS)

As a consequence of the change process described, tutors and students were compelled to engage with new learning environments and new methods of learning without being properly equipped with the basic skills required to be successful in an online networked learning environment.

In truth, because these students are IT professionals, they were expected to be able engage in e-learning without being properly trained in basic low-level skills such as the use of computer mediated technology, online etiquette, web navigation, web searching, etc. In fact, they were not prepared. Being a "techie" is not a synonym of being a good e-learner. Consequently, this initial misconception resulted in under-use of both online materials and communication resources.

Having identified this as a problem and also having acknowledged that the team's initial assumptions were incorrect, an independent project was launched to address this deficit.

This resulted in the identification and classification of a core set of basic skills, coined Networked Information and Communication Literacy Skills (NICLS) [12]. These are not only required to succeed in online learning environments, but also an important aspect of daily online activity.

Facilitating the acquisition of NICLS by continuing professional adult students is particularly crucial. In the future, these basic literacy skills will be addressed and acquired at lower levels of the educational system. It could even be argued that a new generation of learners will soon emerge from schools possessing most of what we consider to be NICLS [12]. However, students currently enrolled on university programmes (both on-campus and distance education) are still equipped with traditional literacy skills based around the three Rs (reading, writing and arithmetic).

In order to address this problem, an NICLS induction module was developed and introduced that resulted in better prepared students and a maximisation of the online resources offered by the VLE [16].

4.3.2 Virtual Social Space (VSS)

During a second iteration of the cycle further problems were then identified, which were related with both the nature of e-learning distance education and the modular architecture of WebCT. Distance education has not been very conducive to the building of strong learning communities and therefore often results in feelings of isolation and disorientation in students. Web based learning addresses and minimises this problem through the use of CMC.

However, WebCT has a modular architecture that forces students to jump from one course module to the next. These course modules are normally insulated subject areas and with no direct connection between them. Consequently, students lose the holistic view of the course and the building of a course/learning community is made extremely difficult. Additionally, they lose contact with previous course materials and tutors as they progress through the programme. There was also no opportunity for interaction with students from other modules.

Therefore, the team identified the need for a unifying component that connects all members of a programme for the duration of their studies and eventually after their graduation. This unifying component, coined a Virtual Social Space (VSS), was also developed as an independent project [17]. It now serves as a reinforcement for online social skills and allows the technology to become more ubiquitous in students' learning experiences [18].

5. CONCLUSIONS

Action research is highly appropriate to the development of e-learning, where experience suggests that significant modifications to the traditional paradigm of higher education supply are required. The EMAR model has proved an invaluable action research and change management tool. Its usefulness was of such crucial importance, that the team is now using EMAR as a management tool, in order to address the continuing needs for persistent change in e-Learning and IT [9].

Nevertheless, it is important to reflect whether this model can be applicable to other CPDE courses, as a generalisation from one single case study. Scientific facts are rarely based on single experiments and theory extension must be based on a multiple set of experiments, which have replicated the same phenomenon under different conditions. Hence, at this point in time, the model cannot be considered as definitive. Further studies are required to establish whether the EMAR model is applicable in similar educational settings.

It is therefore assumed that the model will evolve and change according to the fluid needs, requirements and learning approaches of CPDE.

6. REFERENCES

- [1] Wills, S. and Alexander, S. Managing the Introduction of Technology in Teaching and Learning. In Evans, T and Nation, D. (eds) Changing University Teaching: Reflections on Creating Educational Technologies. London: Kogan Page Ltd, 56-72. (2000)
- [2] Fox, R and Herrman, A. Changing Media, Changing Times: Coping with Adopting New Educational Technologies. In Evans, T and Nation, D. (eds) Changing University Teaching: Reflections on Creating Educational Technologies. London: Kogan Page Ltd, 73-84. (2000)
- [3] Eden, C. and Huxham, C. Action Research for Management Research, British Journal of Management, 7(1), 75-86. (1996)
- [4] Levin, M. and Greenwood, D. Pragmatic Action Research and the Struggle to Transform Universities into Learning Communities. In Reason, P. and Bradbury, H. Handbook of Action Research: Participative Inquiry and Practice. London: Sage Publications, 103-113 (2001)
- [5] Stringer, E. Action Research (2nd Edition). California: Sage Publications, Inc. (1999)
- [6] Coghlan, D. & Brannick, T. Doing Action Research in Your Own Organisation. London: Sage Publications, Ltd. (2001)
- [7] Goodyear, P. Pedagogical Frameworks and Action Research in Open and Distance Learning, Lancaster Univ.: CSALT, Working Paper 99-4-1, <http://domino.lancs.ac.uk/edres/csaltdocs.nsf> (1999)
- [8] Khakar, D. Guidelines for Evaluation of the Framework. In Wills, C.; Quirchmayr, G.; Pernul, G. & Khakhar, D. (eds.) Evaluation of Frameworks for Open and Distance Learning, Socrates Project Report 3, 56605-CP-1-99-SE-ODL-ODL. (2000)
- [9] McPherson, M. and Nunes, J. An Action Research Model For Persistent Improvement Of Continuing Professional Distance Education (CPDE) Programmes. In Proceedings of the 2nd EDEN Workshop: Research and Policy in Open and Distance Learning, 21-23 March 2002. Hildesheim: Germany. (2002)
- [10] Fraser, S. Open Learning: the Challenges Ahead, UniServe Science News, Volume 6, <http://science.uniserve.edu.au/newsletter/vol6/fraser.html>. (1997)
- [11] Harasim, L., Hiltz, S.R., Teles, L., and Turoff, M. Learning Networks: A Field Guide to Teide, MA: MIT Press. (1995)
- [12] Nunes, J.M.; McPherson, M. & Rico, M. Instructional Design of a Networked Learning Skills Module for Web-based Collaborative Distance Learning. In Proceedings of the European Conference on Web-Based Learning Environments 2000, Porto, Portugal: Faculty of Engineering, University of Porto, 5-6 of June 2000, 95-103. (2000)
- [13] Baskerville, R. Investigating Information Systems With Action Research, Communications of the Association for Information Systems, 2(19), http://cis.gsu.edu/~rbaskerv/CAIS_2_19/CAIS_2_19.html (1999)
- [14] Thorpe, M. Evaluating Open and Distance Learning. Harlow, Essex: Longman Group UK. (1990)
- [15] Grabinger, S. and Dunlap, J. Rich Environments for Active Learning: a Definition In Squires, D.; Conole, G. and Jacobs, G. (eds.) The Changing Face of Learning Technology. Cardiff: University of Wales Press. (1995)
- [16] Nunes, J.M.; McPherson, M. & Rico, M. 'Design and Development of a Networked Learning Skills Module for Web- based Collaborative Distance Learning', In Proceedings of 1st ODL International Workshop 2000, Universidad Politécnica de Valencia, Centro de Formación de Postgrado, Valencia, Spain, 19-21 July 2000, 117-131. (2000)
- [17] Gilchrist, D. All work and no play? The Design and Development of a Social Student Support System for the MSc Information Systems Students, MSc Dissertation, Sheffield, Department of Information Studies, University of Sheffield. (2000)
- [18] Baptista Nunes, J.M.; McPherson, M.; Firth, C. & Gilchrist, D. "All Work and No Play? The Design and Development of a Virtual Social Space (VSS) to Support Distance Learning Students". In Proceedings of the International Conference on Computers in Education (ICCE 2002), 3-6 December 2002. Auckland, New Zealand. (2002)

	year	gender	age	interactions
Keyboarding				Year/gender
Databases	yes	yes		
Spreadsheets	yes	yes		
Information	yes	yes		
Indexing		yes		
Programming		yes		
Installation		yes		
Troubleshooting		yes		

	Females	Males	Total
Keyboarding	5%	2%	3%
Spreadsheets	37%	13%	27%
Databases	39%	13%	28%
Information skills	47%	16%	34%
Installation	60%	20%	44%
Indexing	60%	28%	48%
Troubleshooting	68%	30%	53%

Programming	80%	54%	70%
-------------	-----	-----	-----

	year	gender	age	interactions
Word processing		yes	yes	
Databases		yes		
Spreadsheets	yes	yes	yes	
Desktop publishing		yes	yes	
E-mail	yes	yes		
Games		yes	yes	
Internet	yes	yes		
Programming		yes		
DOS		yes		
Windows		yes		Year/gender
Macintosh				Gender/age
Unix		yes	yes	

	year	gender	age	interactions
Word processing		yes	yes	
Databases		yes		
Spreadsheets	yes	yes	yes	
Desktop publishing		yes	yes	
E-mail	yes	yes		
Games		yes	yes	
Internet	yes	yes		
Programming		yes		

DOS		yes		
Windows		yes		Year/gender
Macintosh				Gender/age
Unix		yes	yes	