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Adrian Adascalitei, Dan Galea

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The strategy to adopt open and distance education in Romania

Dan Galea* and Adrian Adascalitei**

**Institute for Theoretical Informatics, Romanian Academy;*

***Iasi Polytechnic, "Gh. Asachi" University, Romania*

INTRODUCTION

The international competitiveness of a nation is dictated not only by the individual firms, but also by the infrastructure. To survive a business must be highly productive, efficient and well managed, and must use the best technology. Continuing Education is an efficient way of combining experiences of others into a program that allows an individual to learn in a week what may have taken others many years to learn.

CONTINUING ENGINEERING EDUCATION (CEE)

CEE is an element in the scheme comprising primary, secondary, and higher education and technology transfer. Its mission is to ensure all employees are at the forefront of their speciality.

CEE objectives are to:

- avail all scientists and engineers of up-to-date knowledge in the areas of their expertise
- introduce technical employees to the relevant foundation technologies of the corporation
- require that all technical employees have a continuing educational plan to maintain competence and self-development
- persuade managers that maintaining their investment in technical personnel is essential to the accomplishment of the corporate objective
- provide additional in-house educational opportunities.

A UNIVERSITY-INDUSTRY CEE PROGRAM

In an university-industry-based CEE program, one of the merits is access to expert groups. Thus, curriculum formulation may be continually improved during the process of execution to provide the clients with comprehensive instructions. Creative and liberal thinking may help students to reorientate themselves to a phase of transferring new knowledge.

The degree program and CEE program must complement one another: CEE doesn't need to deal

only with a knowledge as a whole. Much of the technology relevant to the particular corporation may constitute the main flow of the education plan. The CEE program will need to help engineers to maintain competency and growth through motivation, and to assist corporate managers in recognising the necessity of investment in CEE to train their technical personnel. It does need, in general, to alter the level of the program content according to that of industry, but quickly readjust to the advancement of the corporate level.

THE FUTURE FOR CEE IN ROMANIA

The restructuring of industry and of trade patterns throughout the country and the world has created tensions and difficulties for Romanian industry, due to the lack of useful industrial technologies. As a result, industry in Romania has begun to recognise that universities must be productive forces in the process of technological innovation. The industry-university linkage accrues not only from the classical role of the university but also from nontraditional interactions which must be strengthened so that they can live together, and cooperate with one another, to the benefit of both sectors.

As technology advances the need has increased for closer interaction and exchanges of information among industries, universities, and professional and research institutions. This is necessary to keep abreast of changing technology and market needs. CEE can serve as a bridge or agent linking those various institutions.

OPEN AND DISTANCE LEARNING SYSTEM

By open-learning (OL) is meant any form of learning that has elements of flexibility which make it significantly more accessible to potential students than the courses traditionally provided within higher educational institutions. This greater accessibility may result from many different factors, including flexibility in the content of the course, in the place of its provision, the mode, medium, or timing of its delivery, the pace at which students may proceed through it, the special support which is available, or the forms of

assessment that are offered (e.g. the accreditation of prior experiential learning). The openness is achieved at least in part by the use of the new information and communication media, Interactive and Multimedia Educational Computer-based Systems (IMMCS).

Distance Learning (DL) is defined as any form of study not under the continuous or immediate supervision of tutors, but which nevertheless benefits from planning, guidance, and tuition by a tutorial organisation. DL has a large component of independent or autonomous learning, and is therefore heavily dependent on the design of materials which must substitute for the interactivity available between student and teacher in face-to-face instruction. The autonomous component is invariably supported by tutoring and counselling systems which (ideally) are provided at regional or local study centres and to an increasing extent by modern communications media.

Because Open and Distance Learning (ODL) is meant to be adaptable to the specific goals of the student, the study material is generally structured in units or modules geared to specific learning outcomes. The presence of a strong autonomous component in ODL is very much in keeping with the idea, current in higher education, of making students more responsible for achieving their own learning objectives.

THE DISTANCE EDUCATION MODEL OF THE CRED-I FOR CEE.

Characteristics

The initiative to create CRED-I came from the Iasi Academic/University Centre (Romanian Academy-Iasi Branch, Iasi Polytechnic "Gh. Asachi" University) and from a working group for CEE created by the General Association of Engineers from Romania (AGIR) which proposed to the Romanian Ministry of Education to finance both from PHARE and from governmental funds the Iasi Regional Centre for Distance Education (CRED-I) as a pilot centre for a future Romanian National Open and Distance University of Technology. CRED-I will be the coordinator centre of a network of study centres for CEE which will be established to organise and administer ODL for CEE in: technical universities, industrial centres, etc.

The planning process of a Distance Education (DE) course focuses on the student and his or her learning process as the starting point, and during the studies the implementation of the course is based on the student's own experiences.

The curriculum is constructed especially for DE. The teaching schedule is set beforehand by the distance learning coordinator of the CRED-I together with the local study group led by a tutor. Students receive study guidance personally from several persons: the tutor, other students, the DL coordinator, the representative

of the adult education centre. In all personal contacts the initiative comes from the students themselves.

At the beginning of the studies the students are given various kind of course material. An information file will be produced to help students in their studies. The students also receive a couple of the textbooks needed during the course, videocassettes (depending on the subject) and the distance assignments and the first news audioletter.

The file contains all the necessary details concerning the subject studied: the idea of distance studying and the structure of the studies are explained, and the elements of a DE course (e.g. audio- and videocassettes, distance assignments, written exams) are introduced.

Audiotapes are used for two purposes: they are abstracts or summaries of textbooks, helping students to prepare for written exams, or interview/discussions on a particular theme. Video material concentrates on individual topics and treats them in detail. During their studies students take part in study groups at study centres. Independent work is supervised by a study group leader, a tutor, who generally has a Master's degree in the subject. The information file is thus also a material kit for the tutor to get started with the course in a new group. The tutor's version of the file is larger and contains more information on the work of the tutor, distance studies and teamwork methods. These issues are also discussed during the tutor's training.

The work of the tutor is to introduce the theme, support the discussion, help the students with distance assignments, and give alternatives for solutions rather than answers. The role of the tutor is crucial in lectures, discussions, team work, working in groups, and presentations. Correspondence also forms a part of the work, and assignments are discussed in the study groups or individually.

Although some of the courses include written exams, the essential focus is both on self-studies and on group interaction: learning, listening, discussing, understanding, solving problems, asking and getting answers in the group. The teacher is the expert on the subject, with the role of an 'explainer' and a leader during the audio session or, if students wish it, during the teacher's consultation hour. Interaction is normally of two kinds: between teacher and the individual student; or between the teacher and the student as a member of the group. Additionally, the teacher and the tutors form their own working network not seen by the student.

In the DE model of the CRED-I, students carry the responsibility for their own studying and learning; but they are not left alone or overburdened by their studies. During the process of studying students may improve their self-directed learning skills and their ability to seek information from different sources. These skills

also help students continue their studies without dropping out.

Objective of the Iasi Regional Centre for Distance Education

The Continuing Professional Development Program, to be developed by the Iasi Regional Centre for Distance Education (CRED-I), will design and produce ODL materials. The main objective of CRED-I is to deliver courses for awareness, updating, training, capability and upgrading.

- awareness courses (ACs) are concerned mainly with knowledge and understanding (but not skills) at a fairly superficial level. ACs are needed by senior managers for new developments
- updating courses (UDCs) concentrate on recent developments in specialist knowledge. UDCs are aimed at those who already possess a sufficient level of relevant understanding. UDCs consist of one to three day lecture courses or seminars
- training courses (TCs) are primarily concerned with teaching specific skills plus supporting knowledge. TCs cannot be short courses because practice takes time. TCs rarely include much in the way of conceptual development
- capability courses (CCs) are similar to TCs but deeper in style and content. CCs are mainly concerned with teacher know-how. CCs usually concentrate on particular complex operations within a company.
- upgrading courses (UGCs) normally aim specifically to advance people's skills and/or levels of understanding. UGCs are usually devoted to enabling engineers to advance in their progression or to gain higher qualifications.

CRED-I will run the following activities: designing and arranging distance learning programs; production of teaching materials; research and development in distance education; training and consulting services; information services.

CRED-I education publishing

The CRED-I publications will include textbooks, other written materials, audiovisual materials, as well as computer-aided learning and instruction materials.

Tutoring system in study centre

Tutoring is assistance, support, guidance and counselling, interaction which provides individual guidance within resources available. A tutor is a person working within adult education whose primary responsibility is to help ODL students acquire the skills and strategies they need for independent studies. The tutor's primary functions are:

- to help students to plan their programme and complete their studies
- to help the student to choose appropriate courses
- to promote learning as an expert in the content and a study counsellor.

Tutoring is composed of four interlinking and independent elements,

- guidance relating to educational content
- guidance in study techniques: the students are given the tools they need to progress in their studies
- directing the student to information which help to solve practical problems
- empathy.

The tutor adapts his or her role and style of tutoring to the programs, objectives and capabilities of each student group. The meetings are too valuable to be spent solely on knowledge transfer. Active tutoring means that the student or learner acts, the tutor guides, counsels, and helps if help is needed. It is not a one-way transfer of knowledge, but a lively interaction in regular or need-based meetings.

Open university students form a heterogeneous group. For many of them, studying is very different from what they have previously experienced, and this may cause initial difficulties. Tutoring and counselling services are an essential part of their studies. For the CRED-I and the network of study centres belonging to it, in the Open and Distance Continuing Engineering Education, tutoring is a central form of work. Attendance in study centres is optional, but highly recommended.

CONCLUSIONS

CEE, through ODL systems, has to be organised and financed under the authority and support of the state because of the necessity to ensure the quality of products and the efficiency of great initial costs, and the obligation to educate population to realise public policy, in the context of the difficult process of transition to a market economy. Academic programs, so necessary in Romania to update and to retrain a graduate engineering workforce, must be organised from the very beginning, with the full support of the Romanian Ministry of Education, having also dedicated funds, including PHARE funds. The most important learning materials to be produced at the first stage, by considering the level of the existing infrastructure, are the printed materials and computer-based training materials. Instructional design and desktop publishing must be realised in specialised centres (such as CRED-I). At least two Multimedia Production Centres (in Iasi and Bucharest) have to be created. Study centres, having a minimum of computer-based learning and communication facilities, have to be in operation inside traditional universities as they are, for example, in Germany. It is also necessary

to create a teletext system for open and distance purposes.

The best strategy for Romania to adopt in the long term is to produce its own ODL for CEE materials. In this way, costs for the ODE system will be acceptable. Also, the state authority will guarantee to improve the legal conditions for running the ODL CEE System. As laboratory sessions are very useful in engineering, study centres created inside traditional technical universities will have conditions appropriate to organising these laboratory lessons.

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Author: Galea, D. Adascalitei, A.

Affiliation: Dan Galea, Institute for Theoretical Informatics, Romanian Academy, Romania

Adrian Adascalitei, Iasi Polytechnic, "Gh. Asachi" University, Romania

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Abstract:

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