

CIEA 2002

**Knowledge-Management:
A process to ensure the quality of education?
Analysis of the CODESSER case**

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Working-methods and suggested activities for CIEA participants

1. Presentation

The lecture will last about one hour (8.30 - 9.30 am) and will be given in Spanish with the help of Powerpoint slides. The main theme of the presentation is knowledge-management with the support of networks, and its effect on the quality of agricultural education. The intention is to show, by means of a case-study, the focus utilized to achieve educational change by institutional knowledge-management based on a network of cooperation and the interchange of information using various systems of communication.

2. Participants' activities

1. At the end of the lecture, between 9.30 and 10 am, the participants will have the opportunity to ask questions in order to clarify any concepts and resolve any doubts concerning the subject of the presentation.
2. Between 10 and 11.30 am, the participants will form a guided workshop with work-groups to discuss questions that need follow-up work.
3. Between 11.30 and 12 noon, in a plenary session, the participants will present the results of their group-work. For this purpose, each group will designate a representative to present the group's conclusions. The conclusions must be presented both orally and in writing so that they can be included in the CIEA 2002 report.

NB: The criteria for dividing participants into groups will be the participants' characteristics, mother tongue and professional functions.

3. Questions for group-work

Each group is to answer the following questions:

1. What challenges does the society of knowledge present to agricultural education?
 2. What benefits can knowledge-management and collective learning bring to the organizational and educational management of the agricultural institution?
 3. What strengths and weaknesses does network activity bring to the organization of agricultural education?
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Summary

In the scenario of challenges that the society of knowledge presents to education, it is particularly important to analyze the subject of organizational learning, knowledge-management and the management of networks in educational organization, together with the mechanisms set up to transform the resulting institutional knowledge into improvements in students' learning.

The aim of this lecture is to explain the way that knowledge-management is conducted in one Agricultural Education Corporation, CODESSER, and how it functions in networks. As a follow-up to the former, there is an analysis of the characteristics, strengths and weaknesses encountered in the operation of networks, and also in the promotion of the organization's intellectual capital. As a corollary of this presentation, I have listed the lessons that have been learnt during the implementation of changes designed to improve the institution's capacity and its educational service.

I. Introduction

The term 'society of knowledge' refers to a society based on the critical, rational and reflective use of available global information, by means of information technology. Its name emphasizes the value of information and knowledge as indispensable resources for the management of different spheres of human tasks and the generation of wealth. It focuses attention on the high value placed on the human being and his/her intellect and on learning as revitalizing elements of social and economic organization. It views human beings as the origin of knowledge, with their intellect, their capacity to create, consume and possess knowledge; and it views learning as a means of creating one's own reality and personal future. In this new social context, education acts as a key catalyst, it recovers its essential humanizing sense and it is also an instrument for autonomy in learning and for creating and using knowledge.

The impact of the society of knowledge on the field of education is global. It affects its focus, its objectives, contents and methodology, and also the structure and functioning of educational organization. Just like its opposite numbers, the productive enterprises, introducing it into a changing and complex world requires the setting up of organizational structures and the use of managerial models and instruments that can promote changes; and it means that we must learn from the changes in view of the unstoppable evolution of humanity. To this end, the improvement of its performance on the basis of learning and collective knowledge is achieved through the key factors of competence and organizational survival.

Although they are taken from the sphere of managerial administration, the terms 'organizational learning', 'knowledge-management', 'intellectual capital' and 'special competences' acquire particular relevance in the field of educational organization. Such concepts are elements in a new model of proactive management that is maintained in individual learning-capacity and is a source for the generation of the collective knowledge that is necessary for the functioning and the sustained change of the organization in a complex world scenario that is globalized and dynamic.

In short, organizational learning is an ongoing activity that acquires knowledge in a broad sense as input, and generates new knowledge as public property within the organization. This process is based on individual learning: thus organizations can learn only thanks to the individuals who comprise it. Organizational learning needs tools and mechanisms that enable it to convert the knowledge acquired by persons and organizational teams into the collective knowledge or intellectual capital of the organization. The whole package of policies, systems and processes, designed to promote learning and the creation of knowledge according to the

objectives of the organization, is known as knowledge-management. The various competences of an organization are promoted by organizational learning, and the relationship between them can become a special feature of the organization that enables it to obtain better results than its peers.

The current trend is to assimilate the concept of educational organization into that of a service industry, because, like service industries, educational institutions produce an intellectual product that is intangible and is consumed while it is being delivered. An educational organization and a service industry can both be defined conceptually as a group of people involved in a joint initiative of enterprise, with common objectives as regards structural and managerial characteristics. However, given the essence and nature of its mission, an educational institution can be seen as a particular kind of service industry, dedicated to the integral training of human beings. The idea of integral training means a relationship between the demands and opportunities of the personal, global and continuing development of teachers and students according to pre-established educational criteria and in harmony with the requirements of the environment. Within this framework, the educational enterprise accepts the same parameters as regards the analysis and application of modern concepts of business management.

II. The antecedents of CODESSER

CODESSER is a private corporation created 26 years ago by the National Society of Agriculture in order to contribute to the social development of the rural sector. Its two main functions are the training of human resources and the promotion of agricultural production. The first of these functions is achieved through the administration of various establishments of formal vocational education and diverse programmes of technical training. The second function is achieved by means of technical and financial instruments and technological transfer.

CODESSER is an autonomous organization, whose statutes establish its complete administrative independence. It works in conjunction with various government ministries (Education, Agriculture, Labour, Finance and Housing) and with their dependent programmes, and also with private organizations. Its functioning is developed in close relationship with the production sector and with groups of businessmen who participate directly in the corporate management.

CODESSER carries out its work by means of an institutional network consisting of 21 educational units and 19 extension offices located throughout the country, and with a series of programmes developed in the various operative organizations. The educational units and extension offices are autonomous as regards management, though they are governed by a framework of common institutional policies that include action guidelines and give coherence to the system.

The organizational structure of CODESSER is very simple. The Institution is headed by a managing board that establishes the principles, policies and general standards that provide the setting for corporate activity. Its highest executive authority is the General Secretary, who is in charge of four technical departments: (a) Academic, (b) Training, (c) Extension and Technological Transfer, and (d) Administration and Finance. Each technical department of the central organization coordinates, supervises and controls the programmes relevant to its own sphere of activity. The Headquarters of CODESSER is located in Santiago.

The organizational structure of the educational establishments is similar to that of the Headquarters. Each training establishment has a Regional Business Council. The highest executive authority is the Principal, who is in overall charge of three technical departments of

Teaching, Production and Administration.

CODESSER's area of formal education covers two forms of teaching-areas:

(a) techno-professional or vocational, and (b) human and scientific. It copes for a student population of approximately 7'000 students. The technical specialities taught are eight in all: farming, forestry, food, industrial mechanics, automotive mechanics, metal constructions, electricity, and sanitary installations.

CODESSER's training establishments provide a number of different services: education, student accommodation and training, and technological transfer to the local community, with which close links are maintained. Each training establishment also functions as a production unit which promotes the objectives of learning and also generates income.

III. Corporate functioning

1. The codesser network

CODESSER is a real community, widespread geographically, with real relationships. It is organized round the concept of networks. The Headquarters of CODESSER is the axis and coordination centre of the corporate network. It uses a general communication computer network (CMC) which operates through Internet and e-mail. This network enables information to flow from the Headquarters down to the various training establishments and extension offices and vice versa. The same network is used for horizontal communication between the various training establishments and between the extension offices. This data-transmission network is also used for the individual exchange of information between managers, teachers and functionaries of the system in general.

The Headquarters also maintains an on-line Internet between PCs which facilitates direct access to all the information stored in the computers of all the functionaries of the Headquarters, and enables informational and peripheral resources to be shared. In the Internet there is also a subsystem, restricted to the sphere of administration and finance, operated by special staff who administer access to the information. This subsystem operates with a programme designed by CODESSER and called SISTAM, the accounting system; it is also available in the educational establishments and extension offices, where it is fed with specific information concerning the administrative and financial sphere of each operative unit. The Administration and Finance department of the Headquarters can access the accounting system of each operative unit by modem. All the accounting information stored in the databases of each operative unit is administered in the Headquarters. This information enables consolidated data to be worked out, and these then form part of a centralized data bank.

The educational establishments have two separate Internets at their disposal. One is an on-line system designed for students, operating from a specific server which permits and controls students' access to information; the other connects the managerial and administrative sphere. The extension offices have an on-line Internet for the administrative and accounting sphere.

From the moment CODESSER was created, it has always regarded the management of information and communication as an extremely important area: for that reason it has designed different systems throughout its development. Networks were first implemented five years ago. It has been a gradual process, and the work of implementation is still continuing. Connection and work in the network are part of the current strategy of corporate development. The main objective of network management has been to improve the management of information and knowledge in CODESSER, and thus to improve the efficiency and

effectiveness of corporate action. So far, network management has made it possible (a) to abolish geographical barriers; (b) to facilitate direct communication and information exchange, in a rapid and economic manner, between the members of the institution; (c) to bring about a large-scale transformation in institutional communication; (d) to facilitate direct access to databases and archive bases for the executive group, and (e) to facilitate the rapid transformation of information into action.

CODESSER is aware that such an important development in the setting up of a new form of corporate enterprise can create a number of diverse problems. These include difficulties with the infrastructure at a local level; a lack of knowledge in the management of information technology; and - among the users - a lack of awareness and understanding of the information potential. Nevertheless, network management has been an important structuring factor in the process of organizing and interchanging information, and its use has improved the methodology of work.

Finally, we should mention that the network management established by CODESSER is complemented by the use of traditional communication systems: the telephone, fax, mail, and other systems officially set up for CODESSER as media of personal contact and the interchange of information. Notable among these are the regular meetings, seminars and workshops set up to analyze, coordinate and evaluate institutional progress. These mechanisms of information and communication form a complex system of communications which combine to improve the management of institutional knowledge and performance.

2. The management of knowledge

a. Strategies of change

The incorporation of new information technology as a support for institutional work has made it possible to strengthen the process of knowledge-management, activating organizational learning and the use of the collective knowledge available in the organization; it has also promoted institutional modernization in accordance with current times, current competitive demands, and current functionalities. Given that education constitutes the focal point of corporate activity, a large part of knowledge-management has concentrated on this area because it is necessary to provide appropriate responses to the dynamics of education and to promote the modernization of the country's production.

For the last five years, CODESSER has been making a profound educational change, changing the focus of education, its objectives, contents and teaching methods, and also the functioning of educational units. To this end, a new curriculum has been developed and implemented for all the specialities that are offered, together with a new pedagogic and evaluating model and a new scheme of teaching-work: these now form part of the organizational routines in the various training establishments.

In order to promote this process of educational change, new strategies of knowledge-management have been implemented with the aim of facilitating and accelerating the modernization of education. This enabled the changes to be consolidated and linked to demonstrable benefits, leading to a spiral of change in which organizational learning, knowledge-management and educational improvements are interwoven.

The educational change implemented by CODESSER has been strongly sustained in a process of organizational learning which has combined different phases: the sensitizing of teaching-staff; the acquisition of information and learning; the documentation and storage of knowledge; and the diffusion of knowledge. The management of the change was headed by the executive body of CODESSER in coordination with the executive bodies of the different

training establishments. However, it should be pointed out that the teaching community of the whole institution actively participated in preparing the technical design of the new educational process and in its implementation and evaluation.

The objective of the teaching-staff sensitization phase was to strengthen a culture of learning, in order to promote the development of an organization in which the intelligent can learn, as shown by their capacity not only to adapt but also to construct their own reality and their own future, an organization in which the members also develop their own creative potential. This phase has been accompanied by various support mechanisms: the promotion of a shared vision, dialogue, and direct contact with the environment. The sensitization phase was concomitant with those of the acquisition of knowledge, the documentation and storage of knowledge, and the diffusion of knowledge.

For the acquisition of knowledge, a wide variety of sources of information and learning-systems has been used. The main sources used are the knowledge and educational experience of the actual teachers, unwritten knowledge, experts and technical literature. The learning-systems used are: external observation; pilot experiments carried out within the actual organization; dialogue designed to promote socialization and the transfer of unwritten knowledge to the community; the further training and upskilling of teachers; the observation of good pedagogic practices or successful experiments outside the institution; communities of practice; and the interaction with other educational establishments and enterprises according to specialities.

The documentation of knowledge has been carried out according to the procedures and technical formats of each case, and storage is made in information archives and written documents. The amount of knowledge accumulated constitutes part of the organizational memory of CODESSER which is available to all educational units.

The transmission and interchange of information have been supported by the data-transmission network combined with the other systems of interaction used by CODESSER.

Organizational learning and the management of corporate knowledge have been supported by various factors: the executive leadership of the Headquarters and the managing bodies of the educational units, the policy of human resources, the strategy of institutional development, and the organizational structure which allows the operative units full autonomy of management in a framework of common policies which give coherence and cohesion to the institutional action.

b. The change in action

The materialization of educational change and its concomitant processes, organizational learning and the management of knowledge, has been achieved in a simultaneous and interconnected form at the three levels of institutional learning: the central level, the educational unit, and the classroom. It has created learning-communities which function within their own sphere of action and also form inter-level work-groups according to the problem-solving needs of particular cases.

The mission at Headquarters level has been to deliver the guiding vision of change and to create suitable conditions for the flow of knowledge and the consolidation of knowledge in (a) a framework of guidelines and (b) an operative framework. Framework (a) consists of educational ideology, academic policies and the definition of academic standards. Framework (b) consists of the educational curriculum and its components: the professional profile of the graduate, study-plans and syllabuses, the pedagogic model, the evaluation model and the model of teaching-management.

The education units are learning-communities par excellence and are the main managers of institutional knowledge. Applicable to them are the planning and implementation of educational changes on the basis of corporate action adapted closely to reality. It is in the framework of the autonomy of education units that the educational process must be implemented, monitored, evaluated and improved.

The classroom is the focus of educational modernization and the hub of educational change. The whole effort of institutional learning is directed into the classroom, and it is in the classroom that the new educational focus, objectives, contents and methods become reality through the interaction of the teachers. It is here, by means of classroom dynamics, that the transfer and conversion of individual and institutional knowledge into student learning is achieved according to the ideals and parameters of change established by CODESSER.

The primary source from which the experience and results of the action are derived is thus the generation of institutional knowledge. In other words, the classroom is the laboratory where knowledge-management, in the broadest sense of the term, is tested; and it is the place where the competitive capacity of the educational organization is demonstrated.

IV. Lessons learnt

1. The high value placed on people and the tangible manifestation of this appreciation by providing scope for their participation are the basis of proactive management.
2. Educational change poses a paradox: education supports change, but the educational sector resists change. The transformation of education is very slow, mainly because teachers find it difficult to unlearn and adapt their attitudes and to accept a modern educational management that can promote its development.
3. Educational organization requires a change of vision and the incorporation of models of modern proactive management. Its conceptual and operative approach and its service enterprise strengthen the possibilities of adaptation to the educational requirements of the society of knowledge.
4. Organizational learning is a powerful tool to combat resistance to change, to define the stock of unwritten knowledge existing among the members of the educational institutions, and to transform teachers into protagonists of educational modernization.
5. Knowledge-management is a dynamic concept concerning the management of individual capacities and their transformation into institutional capacities, the basis of which is organizational learning. For the future of a society of knowledge, this process is vitally important for the development of the educational institution and as an axis of managerial activity.
6. Network-management is an integral element of knowledge-management. It transforms methods of organizational and educational work; it opens exponentially the possibilities

of knowledge; it accelerates the optimization of management; and it promotes the quality of education.

7. Executive leadership is a factor of management that is indispensable for the process of change. Its function is to maintain clear guidelines and routes, and also to create and maintain the best conditions for knowledge-management and organizational change.
8. The aim of the endeavours of organizational learning and knowledge-management in educational organizations must be the improvement of the quality of teachers' interaction and of the learning-results. It is here where an educational institution demonstrates its competitive capacity.
9. As a consequence, the effectiveness of knowledge-management in the educational organization proves itself in the classroom, and the whole process must be directed at creating the best conditions to enable the teachers' interaction to achieve the desired learning-results adapted to the demands of modern society.

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Curriculum vitae

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Work experience

Professional work in a wide range of academic fields, in the spheres of teaching, teacher-training and educational research in Chilean universities. Her university experience includes the performance of high-level executive duties, especially governing a Chilean state university for three years. In addition to her university experience, she has worked as an international consultant in education in various Latin American countries and as an adviser in establishments of higher education, town councils, consultancy companies and educational projects financed by national and foreign organizations.

Currently she is the Academic Director of the Educational Corporation of the National Society of Agriculture of Chile, an institution that administers 21 educational units devoted to vocational training. Her main function is institutional academic management in close coordination with the central executive team and the educational establishments in its charge.

Education

PhD (1979), Florida State University, Tallahassee, USA. Area of specialization: the design and evaluation of educational systems.

Master of Science (1977), Florida State University, Tallahassee, USA. Area of specialization: the design and evaluation of educational systems.

Specialist in Educational Technology(1976). Programme OEA/FSU. Educational Technology Centre, Florida State University, Tallahassee, USA.

State teacher of German (1969). Roman Catholic Pontifical University, Chile.

Academic experience

Maritime University (1998). Lecturer in the Research Programme for Total Quality Management in Education.

Maritime University (1995-1997). Lecturer in the Research Programme for the Development of Educational Projects.

Playa Ancha University of Educational Sciences (1987-1990). Lecturer in the Masters' Programme for Educational Evaluation.

Pontifical Catholic University of Chile (1975-1990). Lecturer in the Methodology of Teaching in the Faculty of Education, and Lecturer in the Masters' Programme for Educational Planning.

Professional experience

Academic Director of the Educational Corporation of the National Society of Agriculture

(CODESSER) (1993 to the present).

Coordinator of the Programme for the Institutional Promotion of Agricultural Education, Project 806-SF/PR BID/MAG Paraguayan Government, with headquarters in Asuncion, Paraguay (1990-1992).

Rector of the Playa Ancha University of Educational Sciences (1987-1990)

Educational Adviser and ACES Consultant, Adolfo Ibanez University and Diego Portales University (1999-2002).

International Consultant in various educational projects in Paraguay financed by the BID, IICA and OPS (1994-2001).

Languages

Spanish: Mother tongue

English: Speaks, reads and writes

German: Passive
