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CONCEPT MAPS IN COSTA RICA: NEW IDEAS, NEW WINESKINS

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Abstract: Experience on the incorporation of the conceptual maps and CmapTools in a Costa Rican educational institution. Thanks to the dynamics that is produced in the Faculty of Education of the University of Costa Rica with the visit of the doctors Joseph Novak and Alberto J. Canes in May of the 2002, the new ideas generated are assumed, among others, by the Institute of Integral Education, that carries out significant transformations as institutional politics: to administrative level a change in the technological platform and to curriculum level is given a new approach of the conceptual knowledge utilizing maps and CmapTools. A training link model is created and advising (Dark), where the producing center of the knowledge generates the training and maintains a link of feedback and monitoring with the user.

Introduction

The conceptual maps are introduced in Costa Rica in the decade of the 70s. In the university environment their incorporation responds more to remote initiatives than to an institutional action. When they assume them they cause them visualizing them as a novel tool for the formation of the and the educational future. The use of the maps was focused then only as didactic strategy, avoiding the repercussions and the value of the underlying theory and the purpose epistemológica that gave origin, save some exceptions this carried to that the maps itself to become synonym of plans, without favoring the true significant learning that proposes the theory. The use dissociated of this tool of the theory that originates it, combined to the absence of a process of investigation and evaluation on its validity and impact, generates frustrating experiences in educational and students. With the course from the time the strategy practically is rejected in the process of formation of the and the educational and in the cotidianidad of the work in the classroom.

Nevertheless, an important exception in the Modern Educational Institute is given (IEM), institution that gives preschool, first and second cycle of the basic general education. Since 1978 its directors, the Licda. Leda Beirute, at the same time educational of the School of Psychology and the teacher Olga González, educational of the Faculty of Education, both of the University of Costa Rica, they begin to utilize the conceptual maps in the IEM, being appropriated of the theoretical plan that underlies them and implementing its use as a tool of construction and representation of the knowledge with children and girls of all the ages and degrees of Experience that continues in force currently. In May from the 2002 the Dr. Joseph Novak visits for the first time Costa Rica, accompanied by the Dr. Alberto J. Canes, guests by the Faculty of Education of the University of Costa Rica through its Program of Educational Technologies Advanced (PROTEA). This initiative arises like part of the process of change and innovation that is promoted since this Program, with the leadership, support and commitment of the Doyenne of the Faculty, Dr. Sandra García. Dr. Novak and Canes give an intensive workshop on the use of the data processing tool CmapTools, directed to educational of

the Faculty of Education and the experience to the national educational community with a conference on conceptual maps is opened and the use of the tool CmapTools (Canes et al., 2004), with a massive participation of educators and students. The workshop and the conference permit to rescue the theory that supports the conceptual maps, as well as to promote the possibilities of this tool with the incorporation of the digital technologies and the software of CmapTools. This experience favors a paradigmatic change, a before and an after this encounter. The possibility that the maps can be built and shared in the digital space, will permit a more intelligent approach and an appropriation holistic of this technique and of the theory that supports it.

A group of educational of the Faculty of Education, motivated and prompted by the proposals of Novak and Canes, they head a process of change to the interior of the Faculty, with respect to the ideas and attitudes that on the conceptual maps existed. In the own courses of careers as Teaching and Technology, Computational Resources for the Orientation and Collaborative and Associative Technologies for the Special Education, they begin to utilize the conceptual maps and CmapTools like axis of the projects developed by the and the students. Similarly they are utilized successfully in the University Didactic course, that the Department of University Teaching offers to the educational body of the University of Costa Rica Simultaneously the Faculty initiates a process of projection to all the university community, that since different academic units and centers of investigation request be brought up to date to its educational in the use of conceptual maps and CmapTools, among them is the School of Work The Institute of Historic Investigations and the School of History. The impact that has the conference of the Drs. Novak and Canes in the Faculty of Education does not circumscribe to the University of Costa Rica therefore motivates and about to some investigators and educators of the national educational community. As part of the activities planned during its stopover in Costa Rica, the Dr. Novak visits the Modern Educational Institute and after passing every one morning with the teachers, children and girls that proud its works with conceptual maps show him, legitimizes the experience of the IEM with the following words: "I see fact reality a dream: an educational institution that works creatively with conceptual maps in all its levels".

A successful experience

The Institute of Integral Education, that gives the four cycles of the basic general education, is a private academic center subsidized by the State with an inclusive educational offering and open to the participation of the youths in activities of information, creation, recreation and study. The power to include a subsidy permits the attention of the youths indistinctly of its socioeconomic condition, achieving with this a model supported in the solidarity, at present more than the 60% of its population enjoys some type of scholarship and has managed to create programs for children and youths of very scarce economic resources. Since its foundation in 1983, the Institute has specialized in the attention of talented youths that itself do not they adapt to the traditional educational system in spite of possessing a great intellectual potential and of students that declare some difficulty in its process of learning, in both cases the adaptations of the curriculum are generated that permit to agree to the learnings according to its rhythm and style of learning, Who according to its possibilities is the

motto that supports the educational task. The Institute has worried since its starts by incorporating the digital technologies of tip as middle for the attention of the educational needs of its students. In 1983 the curriculum strategy is initiated with a laboratory of computation to the service of its population, what becomes an institution it pioneering in the country; next to this laboratory is built a network of television with a monitor in each classroom, putting within reach of its students, cameras and parabolic antennae that permit to track television to international level. They motivated by the conference of Novak and Canes in the Faculty of Education of the University of Costa Rica, the school decides to bet on a new focus in the incorporation of the digital technologies and the use of the conceptual maps, for which important decisions in the administrative thing and in the academic thing are taken:

1. Administrative decisions:
 - a. a significant investment in hardware is done.
 - b. the traditional laboratory of computation is eliminated (you plot stationary) and changes for laptop computers, supported by a wireless network that permits the Internet access since any area, with the idea that the technology be in the classroom, the walkways, the conference rooms and that be handled by all the members of this educational community.
 - c. In the referring thing to software, is decided to work with free software (Linux) and with CmapTools.
2. Academic decisions:
 - a. It favors an intensive training in the use of CmapTools for all the educational body and some parents of family, combined to the study of the theory on the conceptual maps for the significant learning. The training and monitoring carries out it a specialist, teacher of the Faculty of Education, that in a personal way supports this initiative.
 - b. To curriculum level an approach of the process of teaching-learning is decided, utilizing the conceptual maps and CmapTools.
 - c. A training link model is created and advising (Dark).

According to what plant Dark as a Model of Link, the different actors of the educational community of the Institute are qualified for a specialist, who maintains a link maintained that permits the evaluation and the feedback of the proposal. During a week an environment of learning is created enriquecedor but above all innovative that achieves a change in all the style to teach of the personnel, supported in a rich exchange with the Dr. Canes, what permits to consolidate the decisions taken. The start of the training was not exempt of a resistance on the part of some professors that found the tool as something surpassed and out of date, but this more well responded to the distortion that existed on it maps. After a week of work with CmapTools and of sensitizing and analysis of the theory that supports the maps, the personal demonstrations and the group behavior show an unquestionable change, in a full knowledge construction process of commitment, contribution and enthusiasm. A fact that illustrates is this the experience of the two teachers of Spaniard. Of a distrustful attitude and criticism on the conceptual maps, they pass to the enthusiasm and the identification with the use of the tool (the testimonies of these teachers will be included). The educational, once they sensitized, they head for to

share with the students the learning carried out, managing to involve to the student community in the experience: the students accept the tool and they incorporate it to their work of class. In an occasion one of the students that contemplated the possibilities of a cmap, with an own spontaneity of the adolescents, exclaimed: "That program is a psychiatric nurse". In the language of the students this expression is of approval and sign that captivated it. Though it is certain that our experience was initiated in a systematic way with the academic year of the 2003, some results can be appreciated that should be analyzed with caution, itself they cannot be assumed like data for a rigorous measurement, but yes trails give us of what we would be able to expect. An interesting example and that the attention called us, is what is discovered upon analyzing the results in a test of biology that him was administered to the students of I finalize level of degree: The educational one in charge of the course, worried about the low performance in the test, he decides to analyze the level of aprovechamiento by themes and he discovers that the two groups yes dominate at least one of these, in contrast with the remainder of the contents evaluated in the same exam. The significantly better results were in the ítems of the theme that was undertaken with conceptual maps.

Projection to future

The experience has caused a change in the organizing and academic culture of the institution. Currently all the professors and students are working with the tool, being achieved an attitude of identification toward the conceptual maps and a better use of the digital tools. This has carried to the administration to decide that from the 2005 every student that enter to the first year of its secondary one include a workstation interconnected in network, with operating system Linux, CmapTools, Internet access and other digital technologies. According to this for the year 2010 every student of the institution will include its own computer. The early thing of this experience, does not exclude the importance of a reflection on it acted and it found, therefore from here the elements arise that are going to support an investigation and evaluation on the impact of the maps and CmapTools. For the year 2007, the students that enter under the new proposal will face the tests of quality control on behalf of the Department of Public Education; what will give us some data that permit a qualitative and quantitative appraisal of the program. This focus does not exempt of other models and paradigms of investigation that can give us light on what glimpses as a fascinating adventure of the knowledge.

Annexs

1. To know the testimonies contributed by educational of the Area of Spaniard of the Institute of Integral Education about the evolution of the point of view with respect to the utilization of conceptual maps and CmapTools in said area, visit the website of the Institute, in the following direction: www.colegioeducacionintegral.com

3. To know the study carried out by an educational one of the Institute of Integral Education about the results obtained in a test of Biology of 11th year, in a theme undertaken with maps and another of way conventional, visit the website of the Institute, in the following direction:
www.colegioeducacionintegral.com.

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