

USING CONCEPT MAPS FOR COLLABORATIVE CURRICULUM DEVELOPMENT

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Abstract: The curriculum represents the expression of educational ideas in practice. The word curriculum has its roots in the Latin word for track or race course. Today the definition is much wider and includes all the planned learning experiences of a school or educational institution. The purpose of this paper is to describe a study that implemented the construction of concept maps as a methodology to determine the degree of congruence among concepts. A curriculum map that represented the main concepts of the whole curriculum was developed by the project team to show the elements of a new curriculum for the medicine course of Universidade Federal de Alagoas, Brazil. Concept mapping proved to be a useful evaluation tool. This "curriculum mapping" helped the group identify missing linkages, inconsistencies, false assumptions and previously unrecognized relationships. In this way, the curriculum is more transparent. Therefore, concept mapping has become an essential tool for the implementation of a curriculum.

1 Introduction

A university should answer the needs of its belonging society. That affirmative seems an expense common place, for the fact of it being emptied along the practice of the planning of the education in Brazil. In spite of the profits, he/she has to be repeated for the truth level that contains. In the measure in that we thought about a reform curricular, this relationship between teaching and society should be protected. Actually, a proposal of curricular change stays besides the restricted extent of a course, because it doesn't quit being a change proposal, also, for the society.

A curriculum that assures the commitment and the necessary credit for the transformation of the current reality of the binomial inseparable: teaching and research plus extension, so that the success of the medical course of the Federal University of Alagoas (UFAL) can contribute, in a more appropriate way, with the improvement of health conditions and life styles of community. It turns the curricular development a complex process because it needs the involvement of all (academy, service and society).

1.1 The construction process

UFAL nominated a team to run the tasks of curricular reform. The commission began the collective construction of the new curriculum for the medicine course two years ago using, mainly, the technique of strategic planning and, involving about 40% of the faculty of the course, student union, teaching monitors, technicians of the General offices of Health of the State and Municipal district. The results of these activities were edited in a sequential and textual way, and introduced the academic community to subsidize a new stage of the construction. The text had the intention of answering questions as: Why changing? What is there to change? How to change? Is it possible to change? Where is my place in the proposal? What are objectives of our course? What modules and contents do these objectives contemplate? What is the manager's role in the conduction of this curriculum? What administrative structures are planned? What the necessary infrastructure? What infrastructure is necessary? What are the necessary partnerships?

The textual presentation format of the proposal didn't impact strongly as previously expected. One of the largest difficulties found by our reform commission is in the visualization, for the teachers, technician, students, managers and partners (services and community) of the role of each one of the elements, in the development of the curriculum, when this has been introduced in a sequential and textual way.

There are few publications, made available by the literature, that contemplate the academic community's inquietude in the construction of the curriculum, facing the difficulty of seeing inside its text and context. This hinders the suggestions and the planning of the necessary actions above to answer the mentioned questions.

There is urgency, therefore, in rethinking the drawing of presentation of the proposed new curricular. This is obtained through the use of tools that allow the actors of the process an including vision of the necessary interactions to the course and, consequently, it can aid the development of a larger meaning learning.

Inside of the possibilities of a better vision of this curriculum the linkage appears with the technique of conceptual mapping. This technique is an approach created by Novak (1977), based on constructivist theory (Cognitive Psychology of Ausubel). He understands that the individual builds his knowledge and meanings starting from his predisposition to accomplish this construction.

1.2 Conceptual Map and Curricular Development

The significant learning theory (Ausubel et al, 1978), which has been influencing the education enormously, follows a constructivist model of the human cognitive processes. In matter, the principle of assimilation describes how the student acquires concepts, and how his cognitive structure is organized. The fundamental premise of Ausubel is illusory simple: "The significant learning happens when new information is acquired by a deliberate effort on the part of the apprentice in tying the new information with concepts or preexistent relevant propositions in his/her cognitive structure. (Ausubel et al., 1978)"

Ausubel (1978) proposes that the cognitive structure can be described as a series of organized concepts in a hierarchical way, which would represent the knowledge and a person's experiences then (Novak, 1977). In this context, the concepts would be defined as "registrations of events or objects" to which a "label or name" were associated (Ford et al, 1991). This is the origin of the representation of the knowledge through "Maps" of concepts and their connections.

The Conceptual Maps, developed by John Novak (Novak, 1977) are instruments used as a language for description and communication of concepts of the theory described by Ausubel previously. Such a structure involves from the including concepts to the least inclusive ones. They are used to aid the ordination and the nested sequencing of the teaching contents, in way to offer appropriate incentives to the student.

The conceptual maps have been used a lot as an important teaching instrument, learning and evaluation in the area of the health, mainly for the nursing (Rooda, 1994; Irvine, 1995; Beitz, 1998; Weiss & Levison, 2000), but some authors have been suggesting that the conceptual maps are a powerful instrument in the development of a curriculum (Starr, 1990; Van Neste-Kenny et al, 1998; Harden, 2001; Prideaux, 2003). However, there are papers on this subject, which leads us to argue if the use of the technique of Conceptual Map can promote better visualization of the actors' role and their actions in the construction of a new curriculum.

This work aims to show how to elaborate a "curricular map" to represent the main concepts of the new proposal, allowing to the actors of the process a wide vision of the interactions and of the needs of changes demanded by a new curriculum.

2 Methodology:

Formation: Initially, the commission of curricular, teachers' group that is captaining the construction of the new proposal, participated in a course of 8 hours about map construction.

Hierarchization of the Concepts: After the training, the key concepts for the new proposal were nested and classified in:

- “Changing propeller factors: Social, Institutional, Individual
- “Objectives of the Medical Course of UFAL
- “Steering principles of the reform curricular
- “Necessary changes in the curriculum to follow the new curricular guidelines
- “Presentation structure of the new general pedagogic proposal

Construction of the First Map Curricular: The first curricular map was built by members of the reform commission tends as document base the text edited with the results of the several workshops happened in 2002/2003. It intends to build new maps starting from the demands generated by the initial map that contemplates the general structure of the new curriculum.

For larger visibility and socialization of the elaborated map, this was put on a cork board, attached on a wall. When visualizing the map it can be observed the concepts that were already treated, the gaps and demands still existent, as well as the necessary changing actions, the coherence and the interconnection among the defined principles.

3 Results:

An important result of the construction of the map of the reform of our curriculum was the actors' active involvement in the identification of the steering principles, and of the changing needs in the curriculum. This way we can achieve the objectives of the medical course of UFAL.

During the elaboration period the information were synthesized for the construction of the visual representation of the first map curricular contemplating the inquiries: Why changing? What for changing? What are the objectives of the course of medicine of UFAL? What will be the steering principles of the new curriculum? What are the necessary changes? What strategies are necessary to render them? How much did the group already walk in this direction? What are the next steps? What type of curricular organization should be proposed to contemplate the social demands of the State, the new national guidelines for the medical course and the objectives of the course?

The necessary negotiations for the construction were developed naturally; because these concepts were discussed during the workshops previously happened.

4 Conclusion:

For the reform team, teachers' group that have been participating actively of the elaboration of the new curriculum, the construction of the map appeared as a powerful tool in the visualization of the demands originated from of the curricular reform, in the identification of the relationship among the concepts and of the gaps still existent for the consolidation of the curricular proposal curricular.

5 References:

- Novak, JD. (1977). A theory of education. Ithaca, NY: Cornell University Press.
- Ausubel, DP, Novak, JD & Hanesian, H (1978). Educational Psychology: A cognitive view (2^a edición). New York: Holt, Rinehart & Winston. Reimpreso, 1986. NY: Warbel & Peck.
- Ford, KM, Cañas, AJ, Jones, J., Stahl, H., Novak, J., Adams-Weber, J. (1991). ICONKAT: An integrated constructivist knowledge acquisition tool. *Knowledge acquisition journal* 3:215-236.
- Rooda, LA. (1994). Effects of mind mapping on student achievement in a nursing research course. *Nurse Educ*, 19(6):25-27
- Irvine, LMC (1995). Can concept mapping be used to promote meaningful learning in nurse education? *Journal of Advanced Nursing*. 21:1175-1179
- Beitz, JM. (1998). Concept mapping: navigating the learning process. *Nurse Educ*.23(5):35-41
- Weiss, LB & Levison, SP (2000). Tools for integrating women's health into medical education: clinical cases and concept mapping. *Academic Medicine*. 75(11):1081-1086
- Starr, ML & Krajcik, JS (1990). Concept maps as a heuristic for science curriculum development: towards improvement in process and product. *Journal of Research in Science Teaching*. 27(10):987-1000
- Van Neste-Kenny et al (1998). Using concept maps and visual representations for collaborative curriculum development. *Nurse Educ*.23(6):21-25
- Prideaux, D. Curriculum design (2003). *BMJ*. 326:268-270