Causal Mapping as an Innovative Approach to Course Curriculum Development

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Presentation Summary

The study on which I shall draw for this discussion is a joint project that we have developed together with my colleagues from the University of Minnesota, USA (Art Hill, Susan Goldstein), the University of St Tomas, USA (Julie Hays), the Royal Melbourne Institute of Technology in Australia (Annibal Scavarda).

Instructors frequently revise and update their courses or experiment with new approaches to make the teaching and learning process more effective and enjoyable. However, systematic curriculum development or review of a course falls outside the expertise of nearly all university faculty. How to define the learning goals? How to reflect the changes in the field? How to better structure the course?

We suggest an inductive innovative approach for creating/revising course curriculum based on the newly developed Collective Causal Mapping Methodology (CCMM). CCMM collects information asynchronously from a group of geographically dispersed and diverse subject matter experts via web technologies. Through three rounds of data collection, analysis, mapping, and interpretation, CCMM is used to develop a collective causal map.

A new framework for understanding and teaching a course, and developing a course curriculum is then derived from this map. Ideally, this framework is supposed to serve the field in three ways: (1) help us better understand the core principles of the field, (2) help us better communicate the field to others, including our students, and (3) prepare our students to meet the challenges of an increasingly informationally intensive and globally competitive environment. It can aid instructors in determining which topics should be taught in a course, how these topics might be grouped and sequenced, and the important inter-relationships among the topics that should be stressed.

We illustrate this approach through an application to build a course curriculum for an operations management (OM) course. The OM field has taken many turns throughout its history. In the 1940s, the course content included Taylor's principles of scientific management and lessons on how to read engineering blueprints. In the

1960s, the field was influenced by industrial engineering concepts. In the 1970s-80s, the field turned to an operations research orientation with emphasis on mathematical models for forecasting, production planning, etc. More recently, the field has seen new excitement around supply chain management, organizational transformation (e.g., Six Sigma programs), and service management. However, some of the principles traditionally taught in OM courses are not as applicable to the information intensive operations of "New Economy" organizations. With this history, we considered that it is appropriate to observe how the field has changed and suggest revisions to curriculum to meet the needs of the future.

Our study brings forth an inductive framework for understanding and teaching OM basing on the collective input of OM experts. The collective causal map is built on expert opinions collected from over 250 academics and practitioners representing 63 countries and 173 universities, across a variety of sub-disciplines in the field of OM (e.g., service management, quality management, inventory management) as well as related fields (e.g., industrial engineering).

The obtained causal map serves to create meaningful learning objectives for an introductory OM course, builds up curriculum design determining the main sub-fields within OM to outline the content and sequencing of advanced courses. The causal map is employed as the graphical syllabus that may be a useful guide for students who are holistic or "global" learners. Alternatively, the instructor could have the students draw their own causal maps at the conclusion of the course to compare/contrast the students' maps to the expert map.

We believe that using the mapping tools, CCMM in particular, improve understanding and teaching a course and can provide a valuable innovative approach to course curriculum development.

References

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Brief Biography

Dr. Tatiana Bouzdine-Chameeva is a professor in BEM- Bordeaux Management School in France, she was Head of the Department of Information and Management and is the leader of the Research Pole on "Decision, Performance and Management". She holds a Ph.D. in applied mathematics from Moscow State University, Russia.

She was an invited lecturer at University of Kyoto in Japan, Warwick Business School at the University of Warwick in Great Britain, at IMD-International in Switzerland. She worked for Medtronic, has consulted for Northwest Airlines, Sogerma Services, Ford Aquitaine, Legrand. She teaches courses in IS and decision analysis, project management and managerial decision-making. Professor Bouzdine-Chameeva is interested in innovation in teaching simulation and visualization.

She is awarded with the Fellowship of the Japan Society for the Promotion of Science Fellowship, was the recipient of the Muskie Fellowship in the United States and the Ministry of Research and Technology Fellowship in France.

Professor Bouzdine-Chameeva's research is in management science, decision support and information systems, as well as pedagogical issues related to business education. She is a co- author of several case studies and has published more than 100 articles and papers in internationally recognized journals as Decision Sciences, European Journal of Operational Research, Revue Française de Gestion.

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