

**FACILITATING LEARNING IN THE NEW MILLENNIUM WITH
THE COMPETE ONLINE DECISION ENTRY SYSTEM (CODES)**

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ABSTRACT

The COMPETE Online Decision Entry System (CODES) enables competing participant teams to enter their decisions and retrieve and print their results at a remote site provided they can access the Internet. Based on the constructivist design for user-centered learning, CODES provides competing participants with the tools to retrieve, record and analyze information. It facilitates and enhances user-centered learning and delivers interactive and dynamic content to users via Active Server Pages. Learners can build on prior knowledge and understanding, explore possibilities, invent alternative solutions, collaborate with other learners (or experts), test hypotheses, revise thinking, and work toward the best solution.

INTRODUCTION

The primary purpose of this paper is to introduce the COMPETE Online Decision Entry System (CODES), a new world wide web-based simulation interface that facilitates the integration of the internet and internet-based learning into the marketing curriculum. CODES enables competing participant teams in the marketing simulation COMPETE (Faria, Nulsen and Roussos, 1994) that have Internet access, to register their teams, enter and submit their decisions, and subsequently to retrieve and print out their results from a remote site. The Internet has led to growth in global networking. These global networks extend student-teacher relationships and overcome the space/time limitations of brick-and-mortar classrooms. With the advent of the World Wide Web, these networks challenge and/or redefine student-teacher interaction in the new millennium.

The World Wide Web, a distributed database that rides on the Internet, has unique characteristics as

an instructional medium. The web can be used to reach geographically dispersed audiences with consistent content. Participants can access materials anytime, anywhere, provided they have Internet access. Accurate and up-to-date information can be delivered using hypermedia via various computing platforms (such as Windows, Mac, and Unix).

Hypermedia serves as a natural and efficient platform for information retrieval (Dimitroff & Wolfram, 1995). In some instances the Internet has been used as a platform for the delivery of lecture notes (in the form of PowerPoint files), lecture outlines, and provision of general information, absent any instructional framework. In other cases, participants/students have been able to access and download pc-based marketing decision support systems and graphics decision support packages. Recently, participants/students have been provided access to and use of dynamic online models for analysis and learning. Hypermedia characteristics are better suited to the constructivist design for user-centered learning.

USER-CENTERED LEARNING

Constructivism is a cognitive perspective of learning which focuses on mental behavior, and which has profound implications for teaching and research methodology. According to the cognitive views of learning, the "...active work of mental behavior turns information into useful knowledge" (Grabe & Grabe, 1998). Constructivism has a rich history in philosophy, psychology, and education (Mahoney, 1991). There are significant differences between the cognitive constructivist perspective and the behavioral perspective with regard to basic assumptions about knowledge, knowing and learning. Cognitive constructivists believe that knowledge is active, situated in lived

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worlds. Individuals construct knowledge. Meaningful knowledge is useful and retained, building on what the learner already knows. The teacher's role is coach, mediator and strategic. In contrast, the behavioral perspective assumes that knowledge is inert. Individuals are passive recipients of knowledge. Learning occurs with programmatic, repeated activities. The teacher is authoritative and directive. Constructivists believe that what a person knows is actively constructed. Learning serves an adaptive function; its role is to help the individual operate within his or her personal world; thus learning is not the storage of "truths," but of useful personal knowledge.

Constructivists share common beliefs about ways of knowing. First, "constructivist knowing assumes the active and proactive nature of all perception, learning and knowledge..." (Mahoney, 1991). Next, "prior knowledge and experience is the springboard for useful, personal knowledge construction..." Third, "constructivist learning experiences and appropriate classroom practices include reflective thinking and productivity; authentic activities, including student collaboration and consideration of multiple perspectives, and student access to content area experts who can model domain-specific skills..." (Grabe & Grabe, 1998). In addition, "constructivist-oriented teachers mediate between student prior knowledge and their lived worlds, creating learning environments that will help them develop increasingly complex understandings and skills.

Constructivist theory postulates that people learn best by actively constructing their own understanding. As such, learners are presented with opportunities to build on prior knowledge and understanding (Bruner, 1960). Based on the augmented knowledge and understanding, learners construct new knowledge and understanding from authentic experience. Furthermore, learners are allowed to confront problems full of meaning because of their real-life context. In solving these problems, learners are encouraged to explore possibilities, invent alternative solutions, collaborate with others learners (or external experts), try out ideas and hypotheses, revise their thinking,

and finally present the best solution they can derive (Novak, 1998).

Proponents of the constructivist design for user-centered learning emphasize the importance of providing students with tools to retrieve, record and analyze information, instead of providing specific instructions (Cunningham, D.J. et al, 1993). The provision of such tools serves as an integral part of the constructivist design.

The COMPETE Online Decision Entry System (CODES) facilitates and provides an enriching learning experience for the user. CODES leverages on the unique characteristics of the Internet and provides online utilities for the participants to capture, retrieve and analyze information. These utilities and online materials change and evolve over time. The plasticity of the Internet is ideally suited to ongoing changes, updates and revisions. With these revisions, CODES marks a significant step by the COMPETE team to continually improve the quality of service delivery to the user. The COMPETE team seeks an incremental and progressive transition from the DOS-based COMPETE data input to a web-based data capture and dissemination system, coupled with facilities for analysis and visualization.

FUTURE IMPROVEMENTS

Currently, CODES is resident on the Web server and is independent and unlinked from the COMPETE simulation resident on the network. There is a possibility of integrating/linking the data from the Web server with the network, hence automating the entire process. Further, competing participant teams can only view and print the output file from the Web browser. A provision can be made for the competing teams to download the output file so that the data can be directly input and used in spreadsheet or database analyses. In addition, the output can be presented in a more informative manner with the use of dynamic graphical generation technologies. Based on the data in the output file, the system will present appropriate charts and graphs, and incorporate statistical features for analysis.